



AMERICAN SOCIETY OF TROPICAL MEDICINE & HYGIENE
ADVANCING GLOBAL HEALTH SINCE 1903

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NOVEMBER 2020

NUMBER 5 SUPPLEMENT

2020 ANNUAL MEETING

NOVEMBER 15–19 | *VIRTUAL MEETING*



astmh.org | ajtmh.org | [#TropMed20](#) [#IamTropMed](#) [f](#) [t](#) [v](#) [in](#)

PROGRAM BOOK



Supplement to
The American Journal of Tropical Medicine and Hygiene



ASTMH Inclusion/Respect Statement

At the Saturday, October 27, 2018, Board meeting of the ASTMH, under the leadership of then-President Regina Rabinovich, MD, FASTMH, the following statement was adopted:

The ASTMH is an international society committed to equity and global impact through the treatment and prevention of tropical infectious diseases. Our diverse membership comes from more than 115 countries and engages with an enormous array of infectious diseases, cultures, ethnicities, and countries. We come from academia, research institutes, implementation programs, industry, multilateral organizations, foundations, and governments, gathering annually to exchange data, share learning, and honor contributions from the field and the lab.

As a Society, we are committed to the open exchange of ideas, freedom of thought and expression, and productive scientific debate that are central to our mission. These require an open and diverse environment that is built on dignity and mutual respect for all members, participants, and staff, free of discrimination based on personal attributes including but not limited to ethnicity, color, national origin, age, religion, socioeconomic status, disability, sexual orientation, gender, and gender identity or expression. We affirm the key principles of inclusion, diversity, and respect for all people. In a world of rich diversity, the advancement of science depends on the intellectual breadth and depth of a diverse ASTMH, one that informs and enriches the shape and content of scientific discourse. These principles guide the actions of ASTMH's leaders, members, and staff in advancing the goals of the Society.

Welcome to #TropMed20, your (online) access to all that is new, evolving, challenging and successful in tropical medicine and global health.

Despite these challenging times, we are excited to bring you ASTMH's very first virtual Annual Meeting. It's never been more important for ASTMH colleagues to get together to share the latest scientific findings and global health advances. This year, content is being presented through a combination of livestream and pre-recorded sessions, offering an unprecedented opportunity to join us from wherever you are.

Kicking off the meeting is Christiana Figueres, who helped deliver the historic Paris Agreement on climate change while Executive Secretary of the United Nations Framework Convention on Climate Change. Her appearance is part of a broader focus at the meeting on how climate change could intensify the spread of disease and increase health disparities between rich and poor.

Other highlighted speakers include Dr. Elizabeth Winzeler delivering the Charles Franklin Craig Lecture, Dr. John Nkengasong delivering the Commemorative Fund Lecture, and Soumya Swaminathan delivering the Vincenzo Marcolongo Memorial Lecture.

We also organized special sessions on COVID-19 and on race and social justice in tropical medicine. On Monday, we will livestream a session on COVID-19 featuring Dr. Anthony Fauci, Dr. John Nkengasong, Dr. Richard Hatchett and Dr. Heidi Larson. Helen Branswell from Stat News will moderate.

Two symposia will explore issues of race, equity and colonialism that still pose challenges for global health research. Dr. Linnie Golightly will explore the colonial and racist history of the field of tropical medicine, followed by a panel discussion chaired by ASTMH Board member Dr. Jonathan Stiles and including Dr. Amadou Sall, Dr. Mishal Khan and Dr. Thomas LaVeist.

This year also marks the 40-year anniversary of the eradication of smallpox. We will be taking a look at that historic effort with two of its veterans, ASTMH President Dr. Joel Breman and Dr. David Heymann, exploring how the lessons from that achievement can be adapted to future challenges for monkeypox and other viruses.

All of this plus the usual cutting-edge content on malaria, helminths, Ebola and all the rest that you have come to expect every year.

Please be sure to visit our exhibitors and sponsors. They will be available on the virtual platform and they help make all of this possible.

We look forward to seeing you (online) for another great ASTMH Annual Meeting.



Daniel G. Bausch, MD,
MPH&TM, FASTMH
Scientific Program CHAIR



Joel G. Breman, MD, DTPH,
FIDSA, FASTMH
President



Karen A. Goraliski
CEO

Bienvenido a #TropMed20, su acceso (en línea) a todo lo nuevo, evolutivo, desafiante y exitoso en medicina tropical y salud global.

A pesar de estos tiempos difíciles, nos complace presentarles la primera reunión anual virtual de ASTMH. Nunca ha sido más importante que los colegas de ASTMH se reúnan para compartir los últimos descubrimientos científicos y avances en salud global. Este año, el contenido se presenta a través de una combinación de transmisión en vivo y sesiones pregrabadas, lo que ofrece una oportunidad sin precedentes de participar con nosotros desde donde se encuentre.

Inicia la reunión Christiana Figueres, quien ayudó a cumplir el histórico Acuerdo de París sobre el cambio climático mientras era Secretaria Ejecutiva de la Convención Marco de las Naciones Unidas sobre el Cambio Climático. Su aparición es parte de un enfoque más amplio en la reunión sobre cómo el cambio climático podría intensificar la propagación de enfermedades y aumentar las disparidades de salud entre ricos y pobres.

Otros oradores destacados incluyen a la Dra. Elizabeth Winzeler, que dará la Conferencia Charles Franklin Craig, el Dr. John Nkengasong, a cargo de la Conferencia del Fondo Conmemorativo y Soumya Swaminathan, a cargo de la Conferencia Conmemorativa Vincenzo Marcolongo.

También organizamos sesiones especiales sobre la COVID-19, y sobre raza y justicia social en la medicina tropical. El lunes, transmitiremos en vivo una sesión sobre la COVID-19 con el Dr. Anthony Fauci, el Dr. John Nkengasong, el Dr. Richard Hatchett y la Dra. Heidi Larson. Helen Branswell de Stat News será moderadora.

Dos simposios explorarán cuestiones de raza, equidad y colonialismo que aún plantean desafíos para la investigación en salud global. La Dra. Linnie Golightly explorará la historia colonial y racista del campo de la medicina tropical, seguida de una mesa redonda presidida por el Dr. Jonathan Stiles, miembro de la Junta de ASTMH, que incluirá al Dr. Amadou Sall, al Dr. Mishal Khan y al Dr. Thomas LaVeist.

Este año también marca el 40 aniversario de la erradicación de la viruela. Analizaremos ese esfuerzo histórico con dos de sus veteranos, el presidente de ASTMH, el Dr. Joel Breman y el Dr. David Heymann, quien explorará cómo las lecciones de ese logro se pueden adaptar a los desafíos futuros de la viruela del simio y otros virus.

Todo esto más el contenido de vanguardia habitual sobre malaria, helmintos, ébola y todo lo demás que se espera cada año.

Asegúrese de visitar a nuestros expositores y patrocinadores. Estarán disponibles en la plataforma virtual y ayudarán a que todo esto sea posible.

Esperamos verlo (en línea) para otra gran reunión anual de ASTMH.



Daniel Bausch

Daniel G. Bausch, MD,
MPH&TM, FASTMH
Scientific Program CHAIR



Joel Breman

Joel G. Breman, MD, DTPH,
FIDSA, FASTMH
President



Karen A. Goralleski

Karen A. Goralleski
CEO

Bienvenue au #TropMed20 qui vous donnera accès (en ligne) à toutes les nouveautés et évolutions et à tous les défis et succès en médecine tropicale et santé mondiale.

En ces temps difficiles, nous nous réjouissons d'amener à vous la toute première Assemblée annuelle virtuelle de l'ASTMH. Il n'a jamais été aussi important pour les collègues de l'ASTMH de se réunir afin d'échanger sur les dernières données scientifiques et avancées en matière de santé mondiale. Cette année, le contenu de l'Assemblée sera présenté en plusieurs formats, alternant interventions en direct et séances préenregistrées, et vous offrant l'occasion sans précédent de vous joindre à nous où que vous vous trouviez dans le monde.

Le discours d'ouverture sera prononcé par Christiana Figueres, qui, en tant que Secrétaire exécutive de la Convention-cadre des Nations Unies sur les changements climatiques a contribué à la conclusion de l'Accord historique de Paris sur le changement climatique. Son allocution s'inscrit dans le cadre de la thématique plus large de cette assemblée visant à mettre en lumière comment le changement climatique pourrait intensifier la propagation des maladies et creuser encore les disparités en matière de santé entre riches et pauvres.

Parmi les autres intervenants de haut niveau figurent la Dre Elizabeth Winzeler, le Dr John Nkengasong et Soumya Swaminathan qui prendront la parole pour les conférences Charles Franklin Craig, du Commemorative Fund et du Vincenzo Marcolongo Memorial, respectivement.

Nous avons également organisé des séances spéciales sur la COVID-19 et sur la question raciale et la justice sociale en médecine tropicale. Lundi, nous diffuserons en direct une séance sur la COVID-19 comptant sur la participation du Dr Anthony Fauci, du Dr John Nkengasong, du Dr Richard Hatchett et de la Dre Heidi Larson. Helen Branswell de Stat News sera la modératrice de cette discussion.

Deux symposiums seront consacrés aux problématiques liées à la question raciale, à l'équité et au colonialisme qui posent toujours des difficultés pour la recherche en santé mondiale. La Dre Linnie Golightly étudiera l'histoire coloniale et raciste dans le domaine de la médecine tropicale ; s'ensuivra un groupe de discussion présidé par le Dr Jonathan Stiles, membre du conseil d'administration de l'ASTMH, et qui réunira le Dr Amadou Sall, le Dr Mishal Khan, et le Dr Thomas LaVeist.

En outre, cette année marque le 40e anniversaire de l'éradication de la variole. Nous reviendrons sur cet effort historique avec deux vétérans de la lutte contre cette maladie, le Dr Joel Breman, Président de l'ASTMH, et le Dr David Heymann, qui examineront comment adapter les enseignements tirés de cette réussite pour relever d'autres défis tels que la variole du singe et d'autres virus.

Outre ces questions, nous passerons en revue, comme d'habitude, les données les plus récentes sur le paludisme, les helminthes, Ebola et nombre d'autres thématiques que vous attendez chaque année.

N'oubliez pas de visiter les pages consacrées à nos exposants et sponsors. Ils seront présents sur la plateforme virtuelle. Tout ceci n'aurait pas été possible sans eux.



Daniel G. Bausch, MD,
MPH&TM, FASTMH
Scientific Program CHAIR



Joel G. Breman, MD, DTPH,
FIDSA, FASTMH
President



Karen A. Goraliski
CEO



do more
feel better
live longer

Eva
Scientist, Spain

Our approach to global health focuses on our science

We are a science-led global healthcare company with a special purpose: to help people do more, feel better, live longer.

We help address the biggest health challenges affecting children and young people in the developing world – TB, malaria and HIV and other infectious diseases.

We are also making an impact on global health beyond our science. Through global and local partnerships, we are working to improve disease prevention, awareness and access to healthcare services.



Vaccines prevent 2–3 million deaths per year and have greatly reduced the burden of infectious diseases worldwide.¹

Building on two centuries of healthcare heritage, Takeda's world-class vaccines team is working to address unmet needs for global health problems, with substantial investments in vaccines R&D.

With our breadth of expertise and our collective experience, Takeda will always be committed to addressing challenging and pressing public health issues.

1. WHO Immunization Coverage Fact Sheet <http://www.who.int/mediacentre/factsheets/fs378/en/>

Material exclusively intended for professionals authorized to prescribe or dispense medicines. General distribution is forbidden.

Better Health, Brighter Future

Takeda Pharmaceuticals International AG

VBU/DENV/0818/0056 Date of preparation: September 2018
www.takeda.com



MESA Track

"What is MESA Track?" describes the MESA Track online platform, an open and living database of malaria research. This user-friendly and open-access tool informs the malaria community about which questions are being addressed, which innovative strategies are being tested, and aids collaboration and information-sharing. The platform has been used by stakeholders such as the Global Malaria Programme at the World Health Organization to support their policy-development processes, as well as by the malERA Consultative Process to picture the current status of malaria research, among others. Know more and join the database of researchers, funders and institutions working to combat malaria. MESA is hosted by ISGlobal and is supported by a grant from the Bill & Melinda Gates Foundation.

Check out MESA Track [here](#).

ASTMH Thanks Our SPONSORS

BILL & MELINDA
GATES *foundation*



ASTMH Thanks Our SUPPORTERS



ASTMH Thanks Our CONTRIBUTORS TO THE INNOVATIONS PITCH COMPETITION

Many thanks to the Ronald McDonald House Charities (RMHC) for their funding.
A special thank you to Past President Peter Hotez, MD, PhD, FASTMH, FAAP, recipient
of the 2019 RMHC Awards of Excellence, for sharing his grant award with ASTMH.



ASTMH Thanks Our FRIENDS OF THE YOUNG INVESTIGATORS

William A. Petri, Jr. in memory of William A. Petri, Sr.
Mary Denton Roberts and David Lyerly in memory of Annie Liberati

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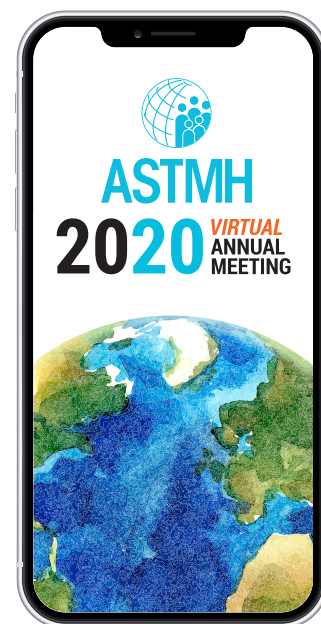
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About the American Society of Tropical Medicine and Hygiene

The American Society of Tropical Medicine and Hygiene, founded in 1903, is the largest international scientific organization of experts dedicated to reducing the worldwide burden of tropical infectious diseases and improving global health. We accomplish this through generating and sharing scientific evidence, informing health policies and practices, fostering career development, recognizing excellence, and advocating for investment in tropical medicine/global health research.

Registered attendees have access to the virtual content until November 1, 2021.



Schedule-at-a-Glance

Exhibitors/Sponsors

Pre-Meeting Courses

Sunday November 15

Monday November 16

Tuesday November 17

Wednesday November 18

Thursday November 19

Presenter Index I

Presenter Index II/Abstract Authors

**JOIN
TODAY!**

ASTMH Membership

Be a Member – Join ASTMH

We invite you to join ASTMH and benefit from membership in the premier international organization for professionals involved in tropical medicine and global health. ASTMH provides a forum for sharing scientific advances, exchanging ideas, fostering new research and providing professional education. **Join online at astmh.org.**

Advantages of ASTMH Membership

- ▶ Active specialty subgroups in the areas of clinical tropical medicine, medical entomology, virology, global health and molecular, cellular and immunoparasitology
- ▶ The Clinical Consultants Directory – a listing of physicians who offer clinical consultative service in tropical medicine, medical parasitology and travelers' health
- ▶ Online access to the *American Journal of Tropical Medicine and Hygiene*, the foremost peer-reviewed publication for communicating new findings in tropical medicine
- ▶ Reduced page charges for publishing in the *American Journal of Tropical Medicine and Hygiene*

Affiliate Members

PATRON

Thank You

Peter Melby, *Professor; Director, UTMB Center for Tropical Diseases, Department of Internal Medicine, Division of Infectious Diseases, University of Texas Medical Branch*



Educational Opportunities

- ▶ Reduced registration rates for the Annual Meeting, the premier gathering of tropical medicine professionals, featuring the latest cutting-edge research and program developments via symposia, plenary and interactive sessions, contributed and invited abstracts, and impromptu networking opportunities
- ▶ Reduced rates for the Update Course in Clinical Tropical Medicine and Travelers' Health
- ▶ Examination Leading to a CTropMed® – Certificate of Knowledge in Clinical Tropical Medicine and Travelers' Health
- ▶ **NEW!** Access to GOTropMED, the ASTMH Global Online Tropical Medical Education website

Professional Development Opportunities

- ▶ Funding, fellowship and sponsorship opportunities tailored to members' specific research and clinical needs
- ▶ Innovative Annual Meeting
- ▶ Access to the leading minds working and studying in tropical medicine today
- ▶ Annual awards and scholarships for excellence across disciplines
- ▶ Access to a professional network
- ▶ Members recognized as leaders in the tropical medicine and hygiene field
- ▶ Opportunities for leadership and skills-building through Board, subgroup and committee participation



Membership Dues

Student (Undergraduate, Graduate, Pre-Doctoral): **\$15**

Trainee (Post-Doctoral, Resident, Fellow): **\$25**

Early-Career: **\$100**

Regular Member: **\$250**

Regular Member: Low/Lower-Middle Income Countries: **\$25**

Fellow of ASTMH (FASTMH): **\$50** voluntary contribution

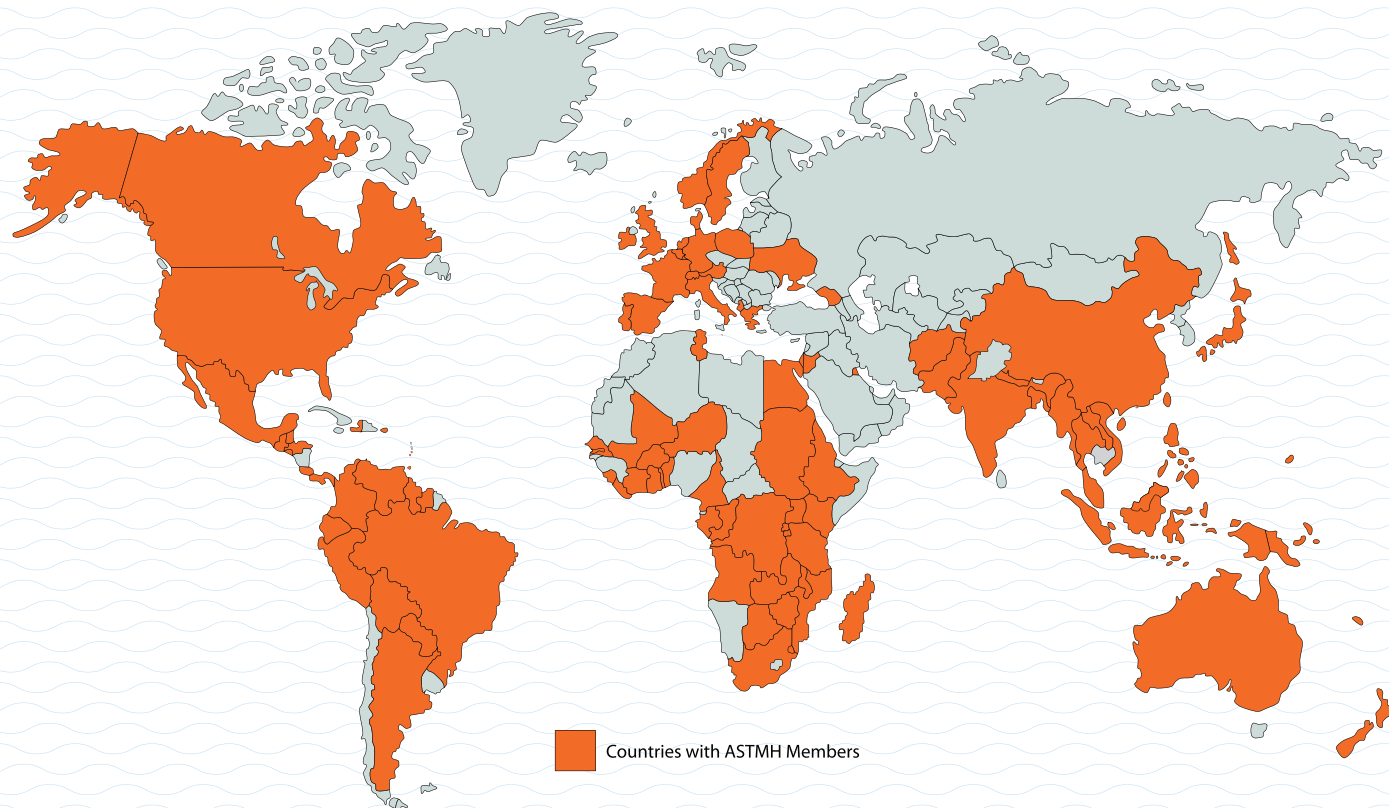
Lifetime: **\$4,600**

Welcome to our Members from Low and Lower-Middle Income Countries!

Reduced Regular Membership Dues for Low and Lower-Middle Income Countries (\$25)

This is open to all citizens and legal residents of World Bank low and lower-middle income countries and WHO/HINARI classification countries of A & B. Members must be permanent residents in their country of citizenship. Visiting researchers or others on short-term assignments do not qualify.

Our Members Across Six Continents



Afghanistan
Angola
Argentina
Australia
Austria
Bangladesh
Belgium
Belize
Benin
Bhutan
Bolivia
Botswana
Brazil
Burkina Faso
Burundi
Cameroon
Canada
China
Colombia
Congo
Costa Rica

Cote d'Ivoire
Democratic Republic of the Congo
Denmark
Dominican Republic
Ecuador
Egypt
El Salvador
Eritrea
Ethiopia
Fiji
France
French Guiana
Gabon
The Gambia
Germany
Ghana
Greece
Guatemala
Hong Kong
India

Indonesia
Iraq
Ireland
Israel
Italy
Jamaica
Japan
Kenya
Korea, Republic of
Lao People's Democratic Republic
Liberia
Madagascar
Malawi
Mali
Malta
Mauritania
Mexico
Mozambique
Myanmar
Namibia

Nepal
Netherlands
New Zealand
Nigeria
Norway
Pakistan
Panama
Paraguay
Peru
Philippines
Poland
Puerto Rico
Rwanda
Saint Kitts and Nevis
Saint Lucia
Saudi Arabia
Senegal
Sierra Leone
Singapore
Slovenia
South Africa

Spain
Sri Lanka
Sudan
Sweden
Switzerland
Taiwan R.O.C.
Tanzania
Thailand
Togo
Trinidad and Tobago
Tunisia
Uganda
United Kingdom
United States
Vietnam
West Bank and Gaza Strip
Zambia
Zimbabwe

Sunday, November 15, 2020

	Poster Hall	Grand Ballroom	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 6	Meeting Room 7	Meeting Room 8
8 – 8:30 a.m.										
8:30 – 9 a.m.										
9 – 9:30 a.m.										
9:30 – 10 a.m.										
10 – 10:30 a.m.			Young Investigator Award Session A P. 68	Young Investigator Award Session B P. 69	Young Investigator Award Session C P. 70	Young Investigator Award Session D P. 70	Young Investigator Award Session E P. 71			
10:30 – 11 a.m.										
11 – 11:30 a.m.								ACCTMTH Clinical Research Award Session P. 72		
11:30 a.m. – Noon										
Noon – 12:30 p.m.										
12:30 – 1 p.m.										
1 – 1:30 p.m.										
1:30 – 2 p.m.										
2 – 2:30 p.m.										
2:30 – 3 p.m.										
3 – 3:30 p.m.		Opening Plenary Session and Awards Program P. 73								
3:30 – 4 p.m.										
4 – 4:30 p.m.										
4:30 – 5 p.m.										
5 – 5:30 p.m.										
5:30 – 6 p.m.										
6 – 6:30 p.m.										
6:30 – 7 p.m.										
7 – 7:30 p.m.										
7:30 – 8 p.m.										
8 – 8:30 p.m.										
8:30 – 9:30 p.m.										

Sunday, November 15, 2020

	Meeting Room 9	Meeting Room 10	Meeting Room 11	Meeting Room 12	Meeting Room 13	Meeting Room 14	Meeting Room 15	Meeting Room 16	Meeting Room 17
8 – 8:30 a.m.									
8:30 – 9 a.m.									
9 – 9:30 a.m.									
9:30 – 10 a.m.									
10 – 10:30 a.m.									
10:30 – 11 a.m.									
11 – 11:30 a.m.									
11:30 a.m. – Noon									
Noon – 12:30 p.m.									
12:30 – 1 p.m.									
1 – 1:30 p.m.									
1:30 – 2 p.m.									
2 – 2:30 p.m.									
2:30 – 3 p.m.									
3 – 3:30 p.m.									
3:30 – 4 p.m.									
4 – 4:30 p.m.									
4:30 – 5 p.m.									
5 – 5:30 p.m.									
5:30 – 6 p.m.									
6 – 6:30 p.m.									
6:30 – 7 p.m.									
7 – 7:30 p.m.									
7:30 – 8 p.m.									
8 – 8:30 p.m.									
8:30 – 9:30 p.m.									

Online Meeting Program

Search the Annual Meeting program online by abstract keyword, title, subject, author and/or presentation time at astmh.org/annual-meeting. The full text of all abstracts, including Late-Breaker Abstracts, can be found in the Online Program Planner.

Online Abstract Book

The Annual Meeting Abstract Book is accessible at astmh.org/annual-meeting. View the full text of the abstracts presented.

Monday, November 16, 2020

	Poster Hall	Grand Ballroom	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 6	Meeting Room 7	Meeting Room 8
8 – 8:30 a.m.										
8:30 – 9 a.m.										
9 – 9:30 a.m.				2 Symposium Confronting the Climate Change Crisis P. 74	3 Symposium Can we ignore "asymptomatic" low-density malaria infections any more? P. 75	4 Symposium Clinical Group Symposium I (ACCTMTH) P. 75 LIVE SESSION	5 Scientific Session Ectoparasite-Borne Disease P. 76	6 Scientific Session Bacteriology: Enteric Infections I - Cholera and ETEC P. 77	7 Symposium Human Landing Catches: Alternatives and directions for the future P. 78	8 Symposium Onchocerciasis Elimination Mapping in four countries in Africa: No village is left behind P. 78
9:30 – 10 a.m.										
10 – 10:30 a.m.										
10:30 – 10:45 a.m.										
10:45 – 11 a.m.										
11 – 11:30 a.m.		16 Plenary Session II: COVID-19: Lessons Learned and Future Challenges Commemorative Lecture P. 83 LIVE SESSION								
11:30 a.m. – Noon										
Noon – 12:30 p.m.										
12:30 – 1 p.m.										
1 – 1:30 p.m.										
1:30 – 2 p.m.	17 Poster Session A Presentations P. 84									
2 – 2:30 p.m.										
2:30 – 3 p.m.										
3 – 3:30 p.m.			18 Scientific Session Global Health: Planetary Health and Malaria P. 116	19 Symposium Mechanistic dose-response modelling of antimalarial drugs P. 117	20 Symposium Improving health outcomes for pregnant women and their babies P. 117	21 Symposium Clinical Group Symposium II (ACCTMTH) P. 118	22 Scientific Session Arthropods: Other Arthropods P. 118	23 Scientific Session Bacteriology: Enteric Infections II P. 119	24 Symposium Aedes surveillance in Africa: (Re-) Building capacity to address disease threats P. 120	25 Scientific Session ACMCIP: Immunopara- sitology and Vaccine Development P. 120
3:30 – 4 p.m.										
4 – 4:30 p.m.										
4:30 – 4:45 p.m.										
4:45 – 5 p.m.										
5 – 5:30 p.m.										
5:30 – 6 p.m.										
6 – 6:30 p.m.										
6:30 – 7 p.m.										
7 – 7:30 p.m.										
7:30 – 8 p.m.										
8 – 8:30 p.m.										
8:30 – 9:30 p.m.										

Monday, November 16, 2020

Schedule-
at-a-Glance

	Meeting Room 9	Meeting Room 10	Meeting Room 11	Meeting Room 12	Meeting Room 13	Meeting Room 14	Meeting Room 15	Meeting Room 16	Meeting Room 17
8 – 8:30 a.m.									
8:30 – 9 a.m.									
9 – 9:30 a.m.	9 Symposium Forty-Year Anniversary of Smallpox Eradication: What Next? P. 79	10 Scientific Session Intestinal and Tissue Helminths: Soil-Transmitted Helminths - Treatment and Diagnosis P. 80		11 Scientific Session Protozoa P. 80	12 Symposium ACMCIP: Friend or Foe: The many faces of myeloid cells in parasitic infections P. 81	13 Symposium ACGH Symposium I: Pathogen metagenomics in the developing world P. 81	14 Scientific Session HIV and Tropical Co-Infections P. 82	15 Symposium ACAV Symposium I P. 83	
9:30 – 10 a.m.									
10 – 10:30 a.m.									
10:30 – 10:45 a.m.									
10:45 – 11 a.m.									
11 – 11:30 a.m.									
11:30 a.m. – Noon									
Noon – 12:30 p.m.									
12:30 – 1 p.m.									
1 – 1:30 p.m.									
1:30 – 2 p.m.									
2 – 2:30 p.m.									
2:30 – 3 p.m.									
3 – 3:30 p.m.		26 Scientific Session Intestinal and Tissue Helminths: Soil-Transmitted Helminths – Control P. 121	27 Scientific Session Kinetoplastida: Epidemiology P. 122		28 Scientific Session ACMCIP: Malaria – Genomics P. 122	29 Symposium ACGH Symposium II: Parity and Equity in Global Health P. 123	30 Symposium ACAV Symposium II: This Week in Virology at ASTMH P. 124		31 Symposium The Nigeria Multi- disease Serologic Surveillance using Stored Specimens Experience P. 124
3:30 – 4 p.m.									
4 – 4:30 p.m.									
4:30 – 4:45 p.m.									
4:45 – 5 p.m.									
5 – 5:30 p.m.									
5:30 – 6 p.m.									
6 – 6:30 p.m.									
6:30 – 7 p.m.									
7 – 7:30 p.m.									
7:30 – 8 p.m.									
8 – 8:30 p.m.									
8:30 – 9:30 p.m.									

Miss a Session?

Registered attendees have access to
the virtual content until November 1, 2021.

INCLUDED WITH YOUR REGISTRATION FEE!

Tuesday, November 17, 2020

	Poster Hall	Grand Ballroom	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 6	Meeting Room 7	Meeting Room 8
6:30 – 6:45 a.m.										
6:45 – 7 a.m.				44 Sponsored Symposium Re-starting Malaria R&D in the Face of COVID-19 P. 44, 125	44 Sponsored Symposium Study to Evaluate Value Added for High Sensitive RDT (HS-RDTs) and Smartphone Reporting in Uganda P. 44, 126					
7 – 7:30 a.m.										
7:30 – 8 a.m.										
8 – 8:30 a.m.										
8:30 – 9 a.m.										
9 – 9:30 a.m.			32 Symposium Alan Magill Symposium P. 126 LIVE SESSION	33 Symposium Human challenge infections: learning from nature in controlled settings P. 127	34 Symposium Sepsis in LMICs: Current Challenges and Triumphs P. 127	35 Scientific Session Bacteriology: Systemic Infections P. 128	36 Scientific Session Clinical Tropical Medicine: VHF-Related, Viruses P. 128	37 Symposium Challenges in mass treatment for soil transmitted helminths when lymphatic filariasis programs stop P. 129	38 Symposium ACME Symposium I: Business Meeting, Awards, Medal Presentations P. 130	39 Scientific Session Dengue: Vaccines and Immunity P. 130
9:30 – 10 a.m.										
10 – 10:30 a.m.										
10:30 – 10:45 a.m.										
10:45 – 11 a.m.										
11 – 11:30 a.m.		48 Plenary Session III: Charles Franklin Craig Lecture P. 135 LIVE SESSION								
11:30 – 11:45 a.m.										
11:45 a.m. – Noon	49 Poster Session B Presentations P. 136									
Noon – 12:30 p.m.										
12:30 – 1 p.m.										
1 – 1:15 p.m.										
1:15 – 1:30 p.m.										
1:30 – 1:45 p.m.										
1:45 – 2 p.m.			50 Symposium From Detection to Therapy: The Continuum of Cancer Care in a Global Context P. 169	51 Symposium Severe Tropical Diseases in the ICU: An Anatomical Tour P. 169	52 Symposium Washington, DC: The Intersection of Science Advocacy, Policy and Social Media P. 170 LIVE SESSION	53 Symposium Taking on the First Cases of COVID-19 in the United States P. 170	54 Scientific Session Bacteriology: Trachoma and Other Bacterial Infections P. 171	55 Symposium Sero-epidemiology: The future of enteric disease surveillance? P. 171	56 Symposium ACME Symposium II: The Origin of ACME: Past, Present and Future of Medical Entomology P. 172	
2 – 2:30 p.m.										
2:30 – 3 p.m.										
3 – 3:30 p.m.										
3:30 – 3:45 p.m.										
3:45 – 4 p.m.		44 Sponsored Symposium Food for Thought: "Food Evolution" P. 44, 176								
4 – 4:30 p.m.										
4:30 – 5 p.m.										
5 – 5:30 p.m.										

Tuesday, November 17, 2020

	Meeting Room 9	Meeting Room 10	Meeting Room 11	Meeting Room 12	Meeting Room 13	Meeting Room 14	Meeting Room 15	Meeting Room 16	Meeting Room 17
6:30 – 6:45 a.m.									
6:45 – 7 a.m.									
7 – 7:30 a.m.									
7:30 – 8 a.m.									
8 – 8:30 a.m.									
8:30 – 9 a.m.									
9 – 9:30 a.m.	40 Scientific Session Cestodes and Nematodes: Molecular Biology, Pathology and Epidemiology P. 131	41 Scientific Session Kinetoplastida: Immunopathology and Vaccine Development P. 132	42 Late-Breakers in Basic Sciences P. 132	43 Scientific Session One Health: Interface of Human Health/ Animal Diseases P. 132	44 Symposium Epidemiologic Characteristics and Forecasting of COVID-19 P. 133	45 Symposium Cytomegalovirus and Epstein-Barr virus in Sub-Saharan Africa P. 134		46 Scientific Session Malaria: Chemotherapy and drug resistance P. 134	47 Symposium Flames, Floods, Fevers and Fetuses – can humans survive? P. 135
9:30 – 10 a.m.									
10 – 10:30 a.m.									
10:30 – 10:45 a.m.									
10:45 – 11 a.m.									
11 – 11:30 a.m.									
11:30 – 11:45 a.m.									
11:45 a.m. – Noon									
Noon – 12:30 p.m.									
12:30 – 1 p.m.									
1 – 1:15 p.m.									
1:15 – 1:30 p.m.									
1:30 – 1:45 p.m.									
1:45 – 2 p.m.	58 Scientific Session ACMCIP: Malaria - Molecular Mechanisms of Pathogenesis P. 173	59 Symposium Leishmania vaccine development: from research and development to licensure P. 173	60 Symposium How to Combat Tropical Zoonoses beyond Medical Interventions: Reflecting COVID-19 P. 174	61 Scientific Session Coronaviruses and Alphaviruses P. 174	62 Symposium A world in transition: Human movement and health in the context of a changing climate P. 175	63 Symposium Innovations Pitch Competition Session for Healthy Children, Healthy Planet P. 176			
2 – 2:30 p.m.									
2:30 – 3 p.m.									
3 – 3:30 p.m.									
3:30 – 3:45 p.m.									
3:45 – 4 p.m.									
4 – 4:30 p.m.									
4:30 – 5 p.m.									
5 – 5:30 p.m.									

Wednesday, November 18, 2020

	Poster Hall	Grand Ballroom	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 6	Meeting Room 7	Meeting Room 8
6:30 – 7 a.m.										
7 – 7:30 a.m.										
7:30 – 8 a.m.										
8 – 8:30 a.m.										
8:30 – 9 a.m.										
9 – 9:30 a.m.			64 Symposium Strengthening malaria surveillance systems P. 177	65 Symposium Ivermectin and antimalarial MDA field trials P. 178	66 Symposium Lessons from the national malaria elimination program in China P. 178	67 Scientific Session Zika P. 179	68 Symposium Triple Artemisinin Combination Therapies P. 180	69 Symposium Sampling strategies, technical tools and analytic methods for malaria surveillance P. 180		70 Late-breakers in malaria P. 181
9:30 – 10 a.m.										
10 – 10:30 a.m.										
10:30 – 10:45 a.m.										
10:45 – 11 a.m.										
11 – 11:30 a.m.		80 Plenary Session IV: President's Address P. 187								
11:30 – 11:45 a.m.										
11:45 a.m. – Noon	81 Poster Session C Presentations P. 188									
Noon – 12:30 p.m.										
12:30 – 1 p.m.										
1 – 1:15 p.m.										
1:15 – 1:30 p.m.										
1:30 – 1:45 p.m.										
1:45 – 2 p.m.			82 Scientific Session Clinical Tropical Medicine: Vaccines, Travel P. 219	83 Symposium Monoclonal antibodies to prevent malaria infection and transmission P. 220	84 Symposium Towards regional elimination of malaria in Central America P. 220	85 Symposium Host-directed therapeutics for malaria P. 221	86 Symposium Severe malaria: improving the continuum of care P. 221	87 Symposium Path from development to delivery: Accelerated development of ivermectin, DEC, and albendazole P. 222	88 Scientific Session Zika: Vaccines and Immunity P. 222	89 Scientific Session Malaria epidemiology II P. 223
2 – 2:30 p.m.										
2:30 – 3 p.m.										
3 – 3:30 p.m.										
3:30 – 3:45 p.m.										
3:45 – 4 p.m.			99 Scientific Session Dengue: Transmission and Virus-Host Interactions P. 230	100 Symposium Lessons from West Africa Ebola: Potential for Community-Based Initiatives P. 230	101 Late-Breakers in Clinical and Applied Sciences P. 231	102 Scientific Session Global Health Security and Information, Communications, Technology P. 231	103 Late-Breakers in Coronavirus P. 232	104 Symposium Accelerating new tools for radical cure of vivax malaria P. 232	105 Scientific Session West Nile and Other Viruses P. 233	106 Symposium G6PD deficiency: advances in point of care testing P. 233
4 – 4:30 p.m.										
4:30 – 5 p.m.										
5 – 5:30 p.m.										
5:30 – 6 p.m.										
6 – 6:30 p.m.										
6:30 – 7 p.m.										

Wednesday, November 18, 2020

	Meeting Room 9	Meeting Room 10	Meeting Room 11	Meeting Room 12	Meeting Room 13	Meeting Room 14	Meeting Room 15	Meeting Room 16	Meeting Room 17
6:30 – 7 a.m.									
7 – 7:30 a.m.									
7:30 – 8 a.m.									
8 – 8:30 a.m.									
8:30 – 9 a.m.									
9 – 9:30 a.m.	71 Scientific Session Malaria Epidemiology I P. 181	72 Scientific Session Malaria: Plasmodium genetics and genomics P. 182	73 Symposium Clinical Conundrums in Tropical Medicine P. 182	74 Symposium Antimicrobial resistant bacteria as a cause of stillbirths and child death in LMICS P. 183	75 Scientific Session Mosquitoes: Vector Biology - Epidemiology I P. 183	76 Scientific Session Filariasis: Epidemiology and Control I P. 184	77 Symposium Promoting Sustainability for NTD Programs in West Africa P. 185	78 Symposium Large scale and large success: India's national soil-transmitted helminth control program P. 185	79 Scientific Session ACMCIP: Parasite Biology, Genomics and Genome Editing P. 186
9:30 – 10 a.m.									
10 – 10:30 a.m.									
10:30 – 10:45 a.m.									
10:45 – 11 a.m.									
11 – 11:30 a.m.									
11:30 – 11:45 a.m.									
11:45 a.m. – Noon									
Noon – 12:30 p.m.									
12:30 – 1 p.m.									
1 – 1:15 p.m.									
1:15 – 1:30 p.m.									
1:30 – 1:45 p.m.									
1:45 – 2 p.m.	90 Scientific Session Malaria biology and pathogenesis P. 224	91 Scientific Session Malaria: modeling to support implementation and new approaches P. 225	92 Scientific Session Malaria: SMC and beyond P. 225	93 Symposium Accelerating introduction of typhoid conjugate vaccines in Africa P. 226	94 Scientific Session Mosquitoes: Vector Biology - Epidemiology II P. 227	95 Scientific Session Filariasis: Epidemiology and Control II P. 227	96 Symposium Realizing the potential of new approaches to lymphedema management P. 228	97 Symposium "Next generation" genetic crosses in malaria, cryptosporidium and schistosomes P. 229	98 Symposium Mitigating the risk for Henipavirus pandemics: From ecology to vaccines P. 229
2 – 2:30 p.m.									
2:30 – 3 p.m.									
3 – 3:30 p.m.									
3:30 – 3:45 p.m.									
3:45 – 4 p.m.	107 Scientific Session ACMCIP: Malaria - New Molecular and Omic Tools P. 234	108 Symposium The Future is in our Hands! Diagnostics for AMR P. 235	109 Symposium Innovative methods to enhance vector control evaluation and decision- making P. 235	110 Symposium Genomics for Typhoid Surveillance in South Asia P. 236	111 Scientific Session Mosquitoes: Molecular Genetics and Genomics P. 236	112 Scientific Session Filariasis: Molecular Biology, Immunology and Diagnostics P. 237	113 Symposium Multisectoral collaboration for NTDs: Barrier analyses and opportunities for multisector coordination P. 237	114 Symposium Measuring progress and challenges for Chagas disease control in the Americas P. 238	115 ASTMH Annual Business Meeting P. 239
4 – 4:30 p.m.									
4:30 – 5 p.m.									
5 – 5:30 p.m.									
5:30 – 6 p.m.									
6 – 6:30 p.m.									
6:30 – 7 p.m.									

Thursday, November 19, 2020

	Poster Hall	Grand Ballroom	Meeting Room 1	Meeting Room 2	Meeting Room 3	Meeting Room 4	Meeting Room 5	Meeting Room 6	Meeting Room 7	Meeting Room 8
8 – 8:30 a.m.										
8:30 – 9 a.m.										
9 – 9:30 a.m.		116 Plenary Session V: Race and Social Justice P. 239 LIVE SESSION								
9:30 – 10 a.m.										
10 – 10:30 a.m.										
10:30 – 10:45 a.m.										
10:45 – 11 a.m.			117 Symposium Vaccines Against Placental Malaria P. 240	118 Symposium Persistence and transmissibility of malaria infections P. 240	119 Symposium Cross-disciplinary sciences to understand malaria vaccine immunity P. 241	120 Symposium Translation of research into policy and practice for malaria elimination P. 242	121 Symposium Comprehensive surveillance in a historically high transmission area of Uganda P. 242	122 Symposium The RTS,S malaria vaccine pilot implementation in Africa P. 243		124 Scientific Session Malaria control: innovations and opportunities for healthcare systems P. 244
11 – 11:30 a.m.										
11:30 a.m. – Noon										
Noon – 12:30 p.m.										
12:30 – 1 p.m.										
1 – 1:30 p.m.			133 Scientific Session Pneumonia, Respiratory Infections and Tuberculosis P. 250	134 Scientific Session Viral Hemorrhagic Fever P. 250	135 Symposium Counting the Dead: Making the Dead Count P. 251	136 Symposium Where are we in reaching Zero Leprosy? P. 252	137 Scientific Session Global Health: Maternal, Newborn and Child Health P. 253	138 Symposium Ethical and Equitable Digital Global Health - Issues and Opportunities P. 253	139 Symposium Female Genital Mutilation: Ending the Practice P. 254	140 Symposium Spatial Intelligence to Optimize Public Health Interventions P. 254
1:30 – 2 p.m.										
2 – 2:30 p.m.										
2:30 – 2:45 p.m.										
2:45 – 3 p.m.										
3 – 3:30 p.m.			149 Scientific Session Clinical Tropical Medicine: Parasites/ Toxins and Other Topics P. 260	150 Crimean-Congo hemorrhagic fever P. 261	151 Scientific Session ACAV Trainee Panel Outbreak Response – Focusing on Communication P. 261		152 Scientific Session Global Health: Maternal, Newborn, Child Health and Neglected Tropical Diseases P. 261	153 Symposium Clinical Tropical & Travel Medicine: Hot List of Literature P. 262	154 Symposium 10 years of Joint Global Health Trials: Lessons from translating research to policy and practice P. 262	155 Scientific Session Filariasis: Clinical P. 263
3:30 – 4 p.m.										
4 – 4:30 p.m.										
4:30 – 4:45 p.m.										
4:45 – 5 p.m.										
5 – 5:30 p.m.			163 Symposium The challenge of vector borne diseases in the context of urban expansion P. 269	164 Symposium Integrating functional, population genomic and transcriptomic data to antimalarial resistance and drug discovery P. 269			166 Symposium Current knowledge of mosquito-stage malaria parasite biology P. 270	167 Symposium Tracking the threat of pfhrp2/3 gene deletions and future alternatives P. 270	168 Scientific Session Malaria: Developing and evaluating LLINs P. 271	169 Scientific Session New approaches to improve the diagnosis of malaria P. 271
5:30 – 6 p.m.										
6 – 6:30 p.m.										
6:30 – 6:45 p.m.										
6:45 – 7 p.m.										

Thursday, November 19, 2020

Schedule-
at-a-Glance

	Meeting Room 9	Meeting Room 10	Meeting Room 11	Meeting Room 12	Meeting Room 13	Meeting Room 14	Meeting Room 15	Meeting Room 16	Meeting Room 17
8 – 8:30 a.m.									
8:30 – 9 a.m.									
9 – 9:30 a.m.									
9:30 – 10 a.m.									
10 – 10:30 a.m.									
10:30 – 10:45 a.m.									
10:45 – 11 a.m.	125 Symposium Game changers and innovations during the 2018-2020 Ebola outbreak in DRC P. 245	126 Scientific Session Malaria: Pre-clinical drug development and clinical trials P. 245	127 Scientific Session Mosquitoes: Insecticide Resistance and Control I P. 246	128 Symposium The impact of multiple blood meals on the vector-pathogen interface P. 247	129 Symposium Operationalizing WHO guidelines for onchocerciasis: Experiences and Best practices P. 247	130 Symposium Chances and challenges for control and elimination of soil-transmitted helminth infections P. 248	131 Scientific Session Schistosomiasis - Trematodes: Epidemiology and Control P. 248	132 Scientific Session WaSH-E and Behavior P. 249	
11 – 11:30 a.m.									
11:30 a.m. – Noon									
Noon – 12:30 p.m.									
12:30 – 1 p.m.									
1 – 1:30 p.m.	141 Scientific Session Kinetoplastida: Diagnosis and Treatment P. 255	142 Scientific Session ACMCIP: Parasite Biology and Drug Targets P. 256	143 Scientific Session Mosquitoes: Insecticide Resistance and Control II P. 256	144 Symposium Ahead of the Curve: Challenges and Opportunities for Outbreak Science P. 257	145 Symposium The dynamic global distribution of Angiostrongylus cantonensis P. 257	146 Symposium Pathogen genomics approaches for disease control and public health in LMICs P. 258	147 Scientific Session Schistosomiasis - Trematodes: Immunology, Pathology, Cellular, Molecular P. 259	148 Scientific Session WaSH-E: Water Transmission and Exposure P. 259	
1:30 – 2 p.m.									
2 – 2:30 p.m.									
2:30 – 2:45 p.m.									
2:45 – 3 p.m.									
3 – 3:30 p.m.	156 Symposium LGBTQ health in low- and middle-income countries: The struggle for global health equity P. 264	156 Scientific Session Malaria Elimination P. 264	157 Scientific Session Mosquitoes: Biochemistry and Molecular Biology P. 265	158 Symposium Of Dogs and Dragons: Guinea Worm Eradication Program P. 265	159 Symposium Identifying optimal ways to support countries achieve the last mile in NTD elimination P. 266	160 Scientific Session Malaria immunology P. 266	161 Scientific Session Schistosomiasis and Other Trematodes: Diagnosis and Treatment P. 267	162 Scientific Session WaSH-E: Water Access, Quality and Treatment P. 268	
3:30 – 4 p.m.									
4 – 4:30 p.m.									
4:30 – 4:45 p.m.									
4:45 – 5 p.m.									
5 – 5:30 p.m.	170 Scientific Session Integrated Control Measures for Neglected Tropical Diseases P. 272	171 Scientific Session Malaria vaccines P. 273	172 Symposium Arbovirus Vectors in Brazil: Recent Advances P. 274	173 Symposium Frontiers in Immunologic Evaluation of Filovirus Vaccines P. 274	174 Symposium Building Out Vector-borne Diseases in sub-Saharan Africa P. 275	175 Symposium The skin: Where the planet and your body meet P. 275	176 Scientific Session Schistosomiasis and Climate Change P. 276	177 Symposium Revitalizing Informal Settlements and their Environments (RISE) P. 276	
5:30 – 6 p.m.									
6 – 6:30 p.m.									
6:30 – 6:45 p.m.									
6:45 – 7 p.m.									

Quick Tips to Navigating the Virtual Meeting

When you reach the virtual meeting website, you will enter the Lobby and see the following areas designated for ASTMH sessions and events.

- ▶ **Grand Ballroom**
- ▶ **Meeting Rooms**
- ▶ **Poster Hall**
- ▶ **Exhibit Hall**
- ▶ **Information Desk**
- ▶ **TropMed Central**

Grand Ballroom

Plenary sessions will take place in the Grand Ballroom.

Meeting Rooms

Scientific sessions, symposia and Late-Breaker Abstract sessions will take place in the Meeting Rooms 1-17.

Check out the Poster Hall

A link to the e-Poster website is available in the Poster Hall. Posters will be available for viewing until February 28, 2021.

Visit the Virtual Exhibit Hall

Visit the Exhibit Hall to meet experts in the field with products and services that support the work of tropical medicine and global health professionals. Each exhibitor has set their own hours, which will be listed when you click on the booth.

Sponsor and Subgroup Hall

Visit the Sponsor Hall to connect with organizations contributing to tropical medicine and global health. Each sponsor has set their own hours, which will be listed when you click on the booth.

Visit the ASTMH Subgroups to learn about their activities: ACAV (Arbovirology), ACCTMTH (Clinical Group), ACGH (Global Health), ACMCIP (Parasitology) and ACME (Medical Entomology).

Need More Information?

Our staff will be available at the Information Desk to assist with any questions you may have.

Visit TropMed Central

Visit the TropMed Central to connect with colleagues, collaborators and friends.

How Do I Connect with Other Attendees?

In the TropMed Central, you can join a live chat or Zoom with other attendees, message friends and colleagues, connect with strategic partners and check out ASTMH's social media. Click on the "Find and Chat with Colleagues" area, which will bring up a list of all attendees. Type a name in the search bar, click search and their profile will appear. Click on the orange profile tab, then click on the blue button to initiate a private chat.

How Do I Access Sessions?

Click on the Sessions tab in the top navigation bar. This is where you can see an overview of all the live and on-demand sessions that are offered during the meeting. You can search sessions by session name, speaker name or session code. You can add sessions to your personal schedule by simply clicking on the dark blue schedule button. Live sessions are indicated by a red arrow box, and on-demand sessions have an orange box. Just click and you are in the session!

How do I access the posters?

Visit the Poster Hall to access the ePosters. The ePosters will be available for viewing through February 28, 2021.

How do I access the ePosters in the Poster Hall?

- ▶ Visit the Poster Hall and click the link to access the ePosters.
- ▶ In the blue bar across the top of the page, click Poster Hall
- ▶ You will see thumbnail views of the posters displayed on the screen
- ▶ To view a poster in full screen, click "Presentation Details" at the bottom of the poster thumbnail view.

How to Chat with a Poster Presenter

- ▶ When viewing a poster in full screen, click the "Chat" button in the top right corner of the screen.
- ▶ A Chat Box will open. Click "Join Chat."
- ▶ Type into the Chat Box to pose a question to a presenter. Please note that time zones might prevent a poster presenter from attendance at a poster session.

Miss a Session?

- ▶ Registered attendees have access to the virtual content until November 1, 2021.

**INCLUDED WITH YOUR
REGISTRATION FEE**

Online Meeting Program

Search the Annual Meeting program online [here](#) by abstract keyword, title, subject, author and/or presentation time. The full text of all abstracts, including Late-Breaker Abstracts, can be found in the Online Program Planner.

Online Abstract Book

The Annual Meeting Abstract Book is accessible at astmh.org/annual-meeting. View the full text of the abstracts presented.

ASTMH Values and Promotes Diversity



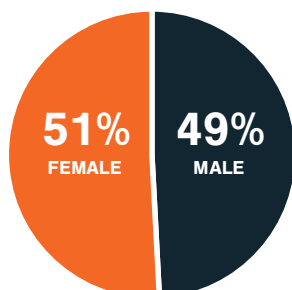
ASTMH Inclusion/Respect Statement

At the Saturday, October 27, 2018, Board meeting of the ASTMH, under the leadership of then-President Regina Rabinovich, MD, FASTMH, the following statement was adopted: The ASTMH is an international society committed to equity and global impact through the treatment and prevention of tropical infectious diseases. Our diverse membership comes from more than 115 countries and engages with an enormous array of infectious diseases, cultures, ethnicities, and countries. We come from academia, research institutes, implementation programs, industry, multilateral organizations, foundations, and governments, gathering annually to exchange data, share learning, and honor contributions from the field and the lab.

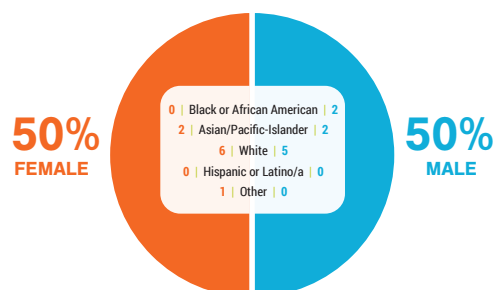
As a Society, we are committed to the open exchange of ideas, freedom of thought and expression, and productive scientific debate that are central to our mission. These require an open and diverse environment that is built on dignity and mutual respect for all members, participants, and staff, free of discrimination based on personal attributes including but not limited to ethnicity, color, national origin, age, religion, socioeconomic status, disability, sexual orientation, gender, and gender identity or expression. We affirm the key principles of inclusion, diversity, and respect for all people. In a world of rich diversity, the advancement of science depends on the intellectual breadth and depth of a diverse ASTMH, one that informs and enriches the shape and content of scientific discourse. These principles guide the actions of ASTMH's leaders, members, and staff in advancing the goals of the Society.

ASTMH takes pride in its diverse membership, represented through the Society's leadership, Annual Meeting presenters and attendees. Symposium Organizers were encouraged to consider diversity with respect to gender, institutional background and country of origin when developing symposium submissions. All symposia were required to have at least one male and one female participant.

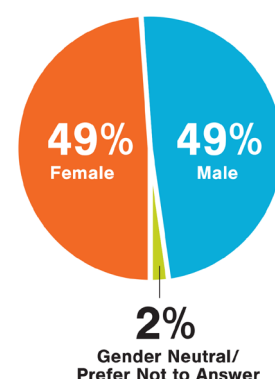
2019 Annual Meeting Attendance



2020 Board of Directors/ Executive Committee



2020 Symposium and Abstract Presenters



ASTMH Board, Subgroup Leadership and Fellows of ASTMH

ASTMH Board, Subgroup Leadership and Fellows of ASTMH (FASTMH)

ASTMH extends a special thank you to its Board members for their outstanding contributions throughout the year and their dedication to advancing the Society's mission.

Executive Committee

*Indicates voting member

President*

Joel G. Breman
National Institutes of Health, Fogarty International Center,
United States

President-Elect*

Julie Jacobson
Bridges to Development, United States

Immediate Past President*

Chandy C. John
Indiana University, United States

Secretary-Treasurer

David R. Hill
Quinnipiac University, United States

SCIENTIFIC PROGRAM COMMITTEE CHAIR

Daniel G. Bausch
UK Public Health Rapid Support Team, United Kingdom

Editor-in-Chief, *American Journal of Tropical Medicine and Hygiene*

Philip Rosenthal
University of California San Francisco, United States

CEO

Karen A. Goraleski
ASTMH, United States

Board

Abdoulaye Djimde* (2016-2020)
University of Science, Techniques and Technologies of Bamako, Mali

Hanna Ehrlich* (2020-2021)
Yale School of Public Health, United States

David Hamer* (2018-2021)
Boston University, United States

Albert Icksang Ko* (2019-2022)
Yale School of Public Health, United States

Miriam Laufer* (2019-2022)
University of Maryland, United States

A. Desiree LaBeaud* (2020-2023)
Stanford University, United States

Jetsumon Sattabongkot Prachumsri* (2018-2021)
Mahidol University, Thailand

Jonathan K. Stiles* (2020)
Morehouse School of Medicine, United States

Katherine Taylor * (2020-2023)
University of Notre Dame, United States

Anna Uehara* (2019-2020)
Centers for Disease Control and Prevention, United States

Board Advisor

Patricia F. Walker
HealthPartners Institute, United States

Subgroup Leadership

American Committee of Medical Entomology (ACME)

Chair: Ellen Dotson
Centers for Disease Control and Prevention, United States

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP)

President: Michael Ferdig
University of Notre Dame, United States

American Committee on Arthropod-Borne Viruses (ACAV)

Chair: David Morens
National Institute of Allergy and Infectious Diseases

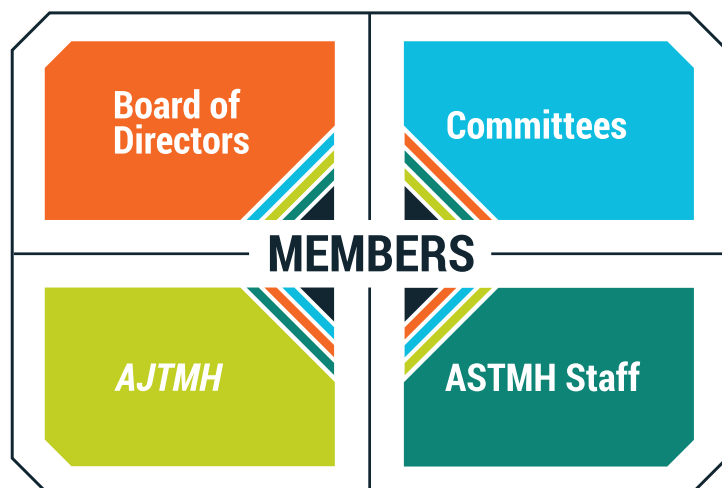
American Committee on Clinical Tropical Medicine and Travelers' Health (ACCTMTH – Clinical Group)

President: Latha Rajan
Tulane University, Department of Tropical Medicine, United States

ASTMH Committee on Global Health (ACGH)

President: Robert Newman
The Aspen Institute, United States

ASTMH Organizational Chart



Board, Subgroup Leadership and Fellows of ASTMH

Fellows of ASTMH (FASTMH)

Fellow member status in the Society is an honor recognizing sustained professional excellence in any phase of tropical medicine, hygiene, global health and related disciplines.

2020 Fellows will be announced and recognized during the Annual Meeting.

2019 Fellows

Carter Diggs

United States Agency for International Development

Amy Klion

National Institute of Allergy and Infectious Diseases

Albert Icksang Ko

Yale School of Public Health

Daniel Leung

University School of Public Health

Siddhartha Mahanty

The Peter Doherty Institute for Infection and Immunity

Julie Pavlin

National Academies of Sciences, Engineering and Medicine

Anne Rimoin

UCLA School of Public Health

Mary Wilson

University of Iowa College of Medicine

ASTMH Staff

Karen A. Goraleski, *CEO*

Stephen M. Croll, *Chief Operating Officer*

Lyn Maddox, *VP, Meetings*

Judy DeAcetis, *Administrative Manager, Scientific Program*

Doug Dusik, *Senior Manager, Communications*

Buffy Finn, *Manager, Membership*

Rebecca Hamel, *Manager, Development*

Kyle Harwood, *Operations Coordinator*

Brenda Howe, *Meetings and Partnerships Manager*

Alison Jaeb, *Editorial Assistant, American Journal of Tropical Medicine and Hygiene*

Miranda Rogliano, *Project Manager*

Rhonda Schultz, *Manager, Board and Fellowships*

Cathi Siegel, *Managing Editor, American Journal of Tropical Medicine and Hygiene*

Additional Annual Meeting Support

Anna Chen, *Burness*

Matthew Davis, *Burness*

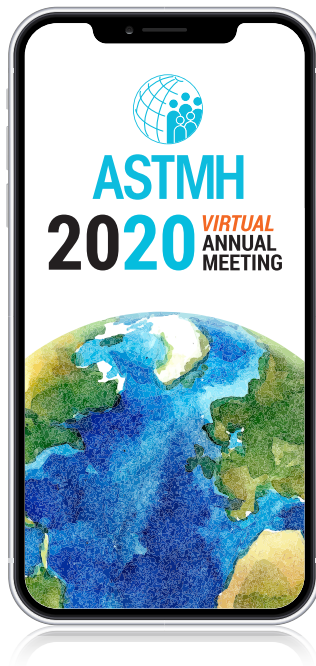
Bridget DeSimone, *Burness*

Gideon Hertz, *Burness*

Brian McGowan, *Brian McGowan Designs*

Saad Saroufim, *Burness*

Preeti Singh, *Burness*



Looking for the App?
This year, stay organized
by logging on to the
Annual Meeting platform.

ASTMH Subgroups and Committees

ASTMH membership reflects a wide range of expertise in tropical medicine. For this reason, Society subgroups provide unique forums for members to engage in core scientific, educational, advocacy and policy issues related to a specific expertise with fellow stakeholders of similar interests. Benefits of becoming a subgroup member include receiving information on networking, pre-meeting course and symposia activities planned for Annual Meetings to enhance career development.

Each subgroup is governed by leaders who are elected annually by its members. This ensures ownership of Subgroup initiatives by those interested and invested in current topics of the field. Subgroup leaders are also active participants in discussions with the ASTMH Board. This governance structure ensures Subgroup interests are represented in Society goals and activities intended to serve the ASTMH mission.

Subgroups

American Committee of Medical Entomology (ACME)

ACME promotes medical entomology within ASTMH and in organizations with scopes of activities that include the area of human diseases transmitted by arthropods.

Ellen Dotson, *Chair and Councilor*

Gabriel Hamer, *Chair-Elect and Councilor*; Matthew Thomas, *Past Chair, Councilor and Hoogstraal Medal Coordinator*; Molly Duman Scheel, *Secretary-Treasurer and Councilor*; Laura Harrington, *Councilor and Awards Coordinator*; Diana Ortiz, *Councilor*; Christopher Barker, *Councilor*; Audrey Lenhart, *Councilor*; Douglas Norris, *Councilor*; Marco Neira, *Councilor*; Eleanor Sternberg, *Councilor*; Jennifer Stevenson, *Councilor*; Olivia Winokur, *Student Representative*

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP)

ACMCIP facilitates interactions among scientists within ASTMH who work in the varied disciplines of parasitology, especially in basic laboratory, pre-clinical and translational research, clinician sciences and population-based sciences.

Michael Ferdig, *President*

Mahalia Desruisseaux, *President-Elect*; Christine Petersen, *Past President*; Amanda Lukens, *Secretary-Treasurer*; Keke Fairfax, *Councilor (Annual Meeting Symposia)*; Jeffrey Dvorin, *Councilor (Awards and Pre-Meeting Course)*; Robin Stephens, *Councilor for Communications*; Amy Bei, *Councilor for Communications-Elect*; Carolyn Kifude, *International Councilor*; Lola Fagbami, *Councilor for Trainees*

American Committee on Arthropod-Borne Viruses (ACAV)

ACAV provides a forum for exchange of information among people interested in arbovirus research.

David Morens, *Chair and Councilor*

Patricia Aguilar, *Chair-Elect and Councilor*; Lark Coffey, *Past Chair and Councilor*; Shannon Bennett, *Secretary and Councilor*; Rebecca Christofferson, *Treasurer and Councilor*; Laura Kramer, *Councilor*; Desiree LaBeaud, *Councilor*; Thomas Ksiazek, *Councilor*;

Louis Lambrechts, *Councilor*; Nathan Grubaugh, *Councilor*; Amy Krystosik, *Councilor for Trainees*; Nikos Vasilakis, *Ex-Officio Councilor*

American Committee on Clinical Tropical Medicine and Travelers' Health (ACCTMTH – Clinical Group)

The Clinical Group (ACCTMTH) is the clinicians' group within ASTMH and includes civilian, military and governmental experts in travelers' health, tropical infection and tropical disease.

Latha Rajan, *President*

Germán Henostroza, *President-Elect*; M. Patricia Joyce, *Past President*; Kristina Krohn, *Secretary-Treasurer*; Natasha Hochberg, *Councilor*; Daniel Kaminstein, *Councilor*; Daniel Leung, *Councilor*; Austin Jones, *Student Representative*

ASTMH Committee on Global Health (ACGH)

ACGH promotes the development of the field of global health within ASTMH and addresses multidisciplinary transnational approaches to health issues that unfavorably affect underserved and under-resourced populations.

Robert Newman, *President*

Miguel Reina Ortiz, *President-Elect*; Julie Pavlin, *Past President*; Eri Togami, *Secretary-Treasurer*; Ilin Chuang, *Councilor*; Joel Montgomery, *Councilor*; Kathryn Anderson, *Councilor*; David Gittelman, *Councilor*; Joanne Gbenjo, *Councilor for Trainees*

Administration

Audit/Finance

David Hill, *Chair*

Joel Breman; Julie Jacobson; Chandy John; Regina Rabinovich

Clinical Standards and Treatment Guidelines

Philip Coyne, *Chair*

Josh Berman; Johanna Daily; David Freedman; Robert Gasser; Hector Gorbea; David Hill; Eric Houpt; Chandy John; Kevin Kain; James Maguire; Jean Nachega; Joseph Vinetz

Development Committee

Patricia F. Walker, *Chair*

Nicole L. Achee; Serap Aksoy; Daniel G. Bausch; Max Gasteen; David R. Hill; Julie Jacobson; A. Desiree LaBeaud; Jean Lang; Jetsumon Sattabongkot Prachumsri; Regina Rabinovich; Julian C. Rayner

Editorial Board, *American Journal of Tropical Medicine and Hygiene*

Editorial Staff: Philip Rosenthal, *Chair (Editor-in-Chief)*

Joseph Vinetz (*Associate Editor*); Cathi Siegel (*Managing Editor*);

Alison Jaeb (*Editorial Assistant*); Daniel Tisch (*Biostatistical Editor*)

Section Editors: Nicole Achee; Bradley Blitvich; Aaron Brault; Claudia Ida Brodskyn; J. Stephen Dumler; David Hamer; Duane Hosenpenthal; James Kazura; Kristina Krohn; Anna Mandalakas; John Sanders; Christina Stauber; Maxine Whittaker

ASTMH Subgroups and Committees (cont.)

Editorial Board: Jonathan Berman; Dwight Bowman; Brett Forshey; Hector Garcia; Steven Graves; Eric Halsey; Desiree LaBeaud; Patrick Lammie; Thomas Nutman; Tyler Sharp; Terrie Taylor; David Walker; A. Clinton White

Inclusion/Respect Task Force

Julie Jacobson and Jonathan K. Stiles, *Co-Chairs*
Pedro Aide; Koya Allen; Daniel G. Bausch; Christine Petersen; Regina Rabinovich; Amanda Ruiz; Micaela Sandoval; Anna Uehara

Nominations

Regina Rabinovich, *Chair*
Nicole Achee; Ripley Ballou; Peter Billingsley; Andrea Boggild; Christina Coyle; David Fidock; Chandy John; Laura Kramer; Christine Petersen; Ann Powers

Annual Meeting

Commemorative Lecture

Joel Berman, *Chair*

Innovations Pitch Competition

May Chu and Molly Lamb, *Co-Chairs*
Tristan Ford, Margaret Glancey, Chang Hee Kim, Jaya Shrivastava, Matthias Strobl, Carmenza Spadafora, Sumi Paranjape, Minmin Yen

Charles F. Craig Lecture

Robert Tesh, *Chair*
Donald Burke; David Freedman
Peter Hotez; William Petri

Scientific Program

Daniel G. Bausch, *Chair*
Stephanie Yanow, *Associate Chair*

See full committee roster on page 29.

Travel Awards

Tracey Lamb, *Chair*
Muhammed Aflolabi; Subash Babu; Nsa Dada; Carole Eboumbou; Keke Fairfax; Brian Foy; S. Patrick Kachur; Kent Kester; Payal Maharaj; Momar Ndao; Francis Ndungu; Elizabeth Rogawski McQuade; Alexandra Rowe; Sharon Tennant

Young Investigator Award

Ed Mitre, *Chair*
Lyric Bartholomay; Sasisekhar Bennuru; Fernando Bruno; Vitaliano Cama; Peter Crompton; Stephen Davies; Greg Deye; David Diemert; Sara Healy; Nick Komar; Tahaniyat Lalani; Tracey Lamb; Matthew Laurens; Naomi Lucchi; Ann Moormann; Courtney Murdock; Elise O'Connell; Nathan Schmidt; Prakash Srinivasan; Ann Stewart; Mostafa Zamanian

Awards and Professional Recognition

Medals

Patricia F. Walker, *Chair*
Regina Rabinovich; Chandy John

Communications Award

Patricia F. Walker and Karen Goraleski, *Co-Chairs*
Julia Belluz; Amanda Izzo; Joseph Wagman; Laila Woc-Colburn

Certificate Examination

CTropMed® Examination

Patrick Hickey, *Chair*
Robert DeFraitess; Jessica Fairley; Yasuyuki Kato; Amy Klion; Alexia Knapp; Gregory Martin; Obinna Nnedu; Jakrapun Pupaibool; Latha Rajan; Kristina St. Clair; Jill Weatherhead

Diploma Course Certification Committee

Susan McLellan, *Chair*
Amy Klion; Anne McCarthy

Clinical Tropical and Travel Medicine Education Program Committee

John Sanders, *Chair*
Christina Coyle; Michael Libman; Susan McLellan; Lin Chen; Patrick Hickey; Latha Rajan

Courses

Update Course in Clinical Tropical Medicine and Travelers' Health

Siddhartha Mahanty and Latha Rajan, *Co-Chairs*

Subgroups and Committees (cont.)

Education/Fellowships/Grant Awards

Alan J. Magill Fellowship

Kent Kester, *Chair*

Janiine Babcock; Mark Fukuda; Andres Lescano; Bruno Moonen (*Ex-Officio*); Rick Steketee; Mahamadou Ali Thera; Sarah Volkman; Karen A. Goralesski (*Ex-Officio*)

Benjamin H. Kean Travel Fellowship in Tropical Medicine

A. Desiree LaBeaud, *Chair*

Arlene Dent; Miriam Laufer; Paul Okojie; Juan Perez Velazques; Christina Polyak; Paul Robben Michael Sikorski; Indi Trehan; Paige Waterman

Burroughs Wellcome Fund-ASTMH Fellowship

Molly Hughes, *Chair*

Subash Babu; Peter Billingsley; Arlene Dent; Thomas Eisele; Michael Kron; Anuja Mathew; Victoria McGovern (*Ex-Officio*); Joseph Tucker

Centennial Travel Award

Joseph Vinetz, *Chair*

David Fidock; Douglas Perkins; Sarah Volkman

Digital Education

Kristina Krohn, *Chair*

Nicole Achee; Daniel Bausch; Ellen Dotson; Michael Ferdig; Joel Montgomery; David Morens; Bobbi Pritt; Latha Rajan; John Sanders; Anna Uehara; Patricia Walker; Stephanie Yanow

Robert E. Shope International Fellowship

Ann Powers, *Chair*

Charles Calisher; Lark Coffey; Eric Mossel; Richard Shope; Tom Yuill

Tropical Medicine/Global Health Exploratory Committee

Brett Hendel-Paterson, *Chair*

Marc Altshuler; Elizabeth Barnett; Johanna Daily; Ashti Doobay-Persaud; Sophia Gladding; German Henostroza; John Sanders; Andrew Steenhoff; Janis Tupesis; Patricia Walker; Karen A. Goralesski (*Ex-Officio*)

Membership

Fellows (FASTMH)

David Hill, *Chair*

Josh Berman; Stephen Higgs; Laura Kramer; Rick Steketee; Mary Wilson

ASTMH Distinguished International Fellow

Regina Rabinovich, *Chair*

Chandy John; Marcel Tanner; Rose Leke; Moses Kamya

International Member

David Hamer and Jetsumon Sattabongkot Prachumsri, *Co-Chairs*
John Aaskov; Subash Babu; Silva Maria Fatima DiSanti; Abdoulaye Djimde; Stephen Higgs; David Hill (*Ex-Officio*); Pui-Ying Iroh Tam; Nadira Karunaweera; Andres Lescano; Bartholomew Ondigo; Vanessa Rivera Amill; Carola Salas; Stephanie Yanow

Membership

David Hill, *Chair*

Daniel Bausch; Joel Berman; Sarah Schaffer DeRoo; Tim Endy; Rick Fairhurst; Martin Grobusch; David Hamer; Selma Jeronimo; Kent Kester; Beth Kirkpatrick; Desiree LaBeaud; Kevin Macaluso; Wilbur Milhous; Scott Weaver; Pete Zimmerman; Karen Goralesski

Trainee Member

Koya Allen and Anna Uehara, *Co-Chairs*

Elizabeth Anderson; Dibyadyuti Datta; Shyam Dumre; Hanna Ehrlich; Cusi Ferradas; David Fidock; Krutika Kuppalli; Iset Vera

Subgroup Representatives

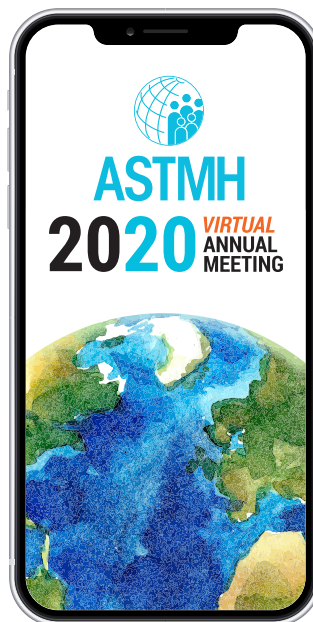
Lola Fagbami; Joanne; Gbenjo; Austin Jones; Amy Krystosik; Olivia Winokur

Working Group

Green Group

Hanna Ehrlich; A. Desiree LaBeaud; Katherine Taylor

Registered attendees
have access to the virtual content
until November 1, 2021.



Scientific Program Committee

The Society and the Annual Meeting attendees offer special thanks to the Scientific Program Committee for their work in determining the robust agenda offered at this year's meeting.



Chair

Daniel G. Bausch

UK Public Health Rapid Support Team



Associate Chair

Stephanie Yanow

University of Alberta

Bacterial Illness and Diarrhea

Chair: Richelle Charles, *Massachusetts General Hospital*
 Jessica Fairley, *Emory University*
 Daniel Leung, *University of Utah*
 Diana Martin, *Centers for Disease Control and Prevention*
 Megan Reller, *Duke University*
 Mark Simons, *Naval Medical Research Center*
 Duncan Steele, *Bill & Melinda Gates Foundation*

Clinical Tropical Medicine

Chair: Mark Kortepeter, *University of Nebraska*
 Bradley Connor, *Weill Cornell Medical College*
 John Gawoski, *Lahey Hospital and Medical Center*
 Brett Hendel-Paterson, *University of Minnesota*
 Jason Maguire, *Pfizer*
 Joseph Vinetz, *Yale University*
 Henry Wu, *Emory University*

Ectoparasite-Borne Diseases

Chair: J. Stephen Dumler
 Robert Smith, *Maine Medical Center*
 Sam Telford, *Tufts University*
 Saravanan Thangamani, *SUNY Upstate Medical University*
 Jefferson Vaughan, *University of North Dakota*

Entomology

Chair: Michel Slotman, *Texas A&M University*
 Kate Aultman, *St. Mary's University*
 Solomon Kibret, *University of California Irvine*
 Louis Lambrechts, *Institut Pasteur*
 Audrey Lenhart, *Centers for Disease Control and Prevention*

Filaria

Chair: Peter Fischer, *Washington University*
 Subash Babu, *NIH-NIRT-ICER*
 Sasisekhar Bennuru, *National Institutes of Health*
 Daniel Tisch, *Case Western Reserve University*

Global Health

Chair: Richard Reithinger, *RTI International*
 Erin Eckert, *RTI International*
 Caterina Fanello, *University of Oxford*
 Philip Gould, *Centers for Disease Control and Prevention*
 Mary Hayden, *University of Colorado*
 Louise Ivers, *Massachusetts General Hospital*
 Kayla Laserson, *Bill & Melinda Gates Foundation*
 Andres Lescano, *Universidad Peruana Cayetano Heredia*
 Sachiko Ozawa, *University of North Carolina at Chapel Hill*
 Mark Paris, *Mark Paris, MD*
 Julie Pavlin, *National Academies of Sciences, Engineering and Medicine*
 Miguel Reina Ortiz, *University of South Florida*
 Laura Steinhardt, *Centers for Disease Control and Prevention*
 Theresa Townley, *Creighton University*
 Michael Wimberly, *University of Oklahoma*

HIV and Tropical Co-Infections

Chair: Martin Grobusch, *Academic Medical Center*
 David Boulware, *University of Minnesota*
 Joseph Masci, *Elmhurst Hospital*

Integrated Control Measures for Neglected Tropical Diseases

Chair: Darin Evans, *United States Agency for International Development*
 Paul Cantey, *Centers for Disease Control and Prevention*
 Teshome Gebre Kanno, *Task Force for Global Health*
 Charles King, *Case Western Reserve University*
 Eric Ottesen, *Task Force for Global Health*
 Ricardo Soares Magalhaes, *University of Queensland*

Intestinal and Tissue Helminths, Cestodes

Chair: David Abraham, *Thomas Jefferson University*
 Siddhartha Mahanty, *University of Melbourne*
 Makedonka Mitreva, *Washington University*
 Jose Serpa-Alvarez, *Baylor College of Medicine*
 Francesca Tamarozzi, *Istituto Superiore di Sanita*

Kinetoplastida

Chair: Shaden Kamhawi, *National Institute of Allergy and Infectious Diseases*
 Caryn Bern, *University of California San Francisco*
 Natalie Bowman, *University of North Carolina*
 Hira Nakhasi, *Food and Drug Administration*
 Paul Nguwira, *Universidad de Navarra*
 Mary Wilson, *University of Iowa*

Scientific Program Committee (cont.)

Late-Breakers in Basic Sciences

Co-Chair: Katherine Dobbs, Case Western Reserve University

Co-Chair: Wei-Kung Wang, University of Hawaii Manoa

Yai Justin Doritchamou, National Institutes of Health

Late-Breakers in Clinical and Applied Sciences

Co-Chair: Noreen Hynes, Johns Hopkins University

Co-Chair: Jason Maguire, Pfizer

Co-Chair: Miguel Cabada, University of Texas Medical Branch

Sarah Boudova, Indiana University

Hannah Steinberg, University of Illinois

Late-Breakers in Malaria

Chair: Carol Sibley, University of Washington

Silvia Di Santi, USP

Kent Kester, Sanofi Pasteur

Urszula Krzych, Walter Reed Army Institute of Research

Miranda Oakley, Food and Drug Administration

Malaria

Chair: Carol Sibley, University of Washington

Ruth Ashton, Tulane University

Arlene Dent, Case Western Reserve University

Mahamadou Diakite, Malaria Research & Training Center-USTTB

Silvia Di Santi, USP

Thom Eisele, Tulane University

Francisco-Javier Gamo, GlaxoSmithKline

Susanta Ghosh, National Institute of Malaria Research

Michael Good, Griffith University

Shannon Takala Harrison, University of Maryland

Jonathan Juliano, University of North Carolina

Stefan Kappe, Center for Infectious Disease Research

Kent Kester, Sanofi Pasteur

Urszula Krzych, Walter Reed Army Institute of Research

Miriam Laufer, University of Maryland

Jessica Lin, University of North Carolina

Kim Lindblade, Centers for Disease Control and Prevention

Peter McElroy, Centers for Disease Control and Prevention

Miranda Oakley, Food and Drug Administration

Karl Seydel, Michigan State University

Eleanore Sternberg, Vestergaard/Liverpool School of Tropical Medicine

Moriya Tsuji, Columbia University

Meet the Professors

Chair: David Boulware, University of Minnesota

Molecular Parasitology

Chair: Julian Rayner, University of Cambridge

David Abraham, Thomas Jefferson University

Manoj Duraisingh, Harvard T.H. Chan School of Public Health

Kami Kim, University of South Florida

Laura Kirkman, Weill Cornell Medical College

Tracey Lamb, University of Utah

Dylan Pillai, University of Calgary

David Serre, University of Maryland

Issiaka Soulama, Centre National De Recherche Et De Formation Sur Le Paludisme

Niraj Tolia, National Institute of Allergy and Infectious Diseases

One Health: The Interface of Human Health and Animal Diseases

Chair: Christopher Woods, Durham Veterans Administration Medical Center

Claire Cornelius, United States Army

David Morens, National Institute of Allergy and Infectious Diseases

Kristy Murray, Baylor College of Medicine

Opportunistic and Anaerobic Protozoa

Chair: Upinder Singh, Stanford University

Jaya Shrivastava, Public Health England

Pneumonia, Respiratory Infections and Tuberculosis

Chair: Natasha Hochberg, Boston University

Abdullah Brooks, Johns Hopkins Bloomberg School of Public Health

Keith Klugman, Bill & Melinda Gates Foundation

Samba Sow, Center for Vaccine Development Mali

Schistosomiasis-Helminths

Chair: Michael Hsieh, Children's National Hospital

Stephen Davies, Uniformed Services University of the Health Sciences

Keke Fairfax, University of Utah

Robert Greenberg, University of Pennsylvania

Emily McDonald, Rhode Island Hospital

Virology

Chair: Greg Ebel, Colorado State University

Patricia Aguilar, University of Texas Medical Branch

Anna Durbin, Johns Hopkins Bloomberg School of Public Health

Brett Forshey, DoD Global Emerging Infections Surveillance (GEIS)

Sharone Green, University of Massachusetts

Maria Guzman, "Pedro Kouri" Tropical Medicine Institute

Michael Holbrook, National Institute of Allergy and Infectious Diseases

Jean Lang, Sanofi Pasteur

Christopher Mores, George Washington University

Lyle Petersen, Centers for Disease Control and Prevention

John Schieffelin, Tulane University

Theodore Tsai, Takeda Vaccines

Nikos Vasilakis, University of Texas Medical Branch

Water, Sanitation, Hygiene and Environmental Health

Chair: Christine Moe, Emory University

Emily Bailey, Texas Tech University

Robert Dreifelbis, London School of Hygiene & Tropical Medicine

Joseph Eisenberg, University of Michigan School of Public Health

Christine George, Johns Hopkins University

Amy Pickering, Tufts University

Fellowships, Travel Awards, and Grants



Alan J. Magill Fellowship

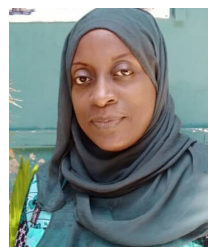
This fellowship, created in honor of Alan Magill, supports career-broadening experiences to enhance professional development and leadership opportunities beyond those traditionally available from within an applicant's home organization, and in so doing, equips awardees to later assume leadership and mentoring roles in various aspects of tropical medicine.

Committee Chair: Kent Kester, Sanofi Pasteur, United States

ASTMH is grateful for the support and partnership with the Bill & Melinda Gates Foundation.

BILL & MELINDA GATES foundation

2020 Recipient



Awa Beinta Deme, PhD
University Cheikh Anta Diop, Senegal

Annual Meeting Travel Awards

Chair: Tracey Lamb, University of Utah, United States

ASTMH offers travel awards to qualified students, early-career investigators and scientists actively working in the tropical medicine field to attend the Annual Meeting. These awards facilitate participation for those who might not otherwise be able to attend.

ASTMH gratefully acknowledges the additional support received from the Bill & Melinda Gates Foundation.

BILL & MELINDA GATES foundation



Nur Asheila Abdul Taib, *UNIMAS, Malaysia*



Selidji Agnandji, *CERMEL, Gabon*



Olabisi Akinlabi, *University of Ibadan, Nigeria*



Adrienne Amuri, *INRB, Democratic Republic of Congo*



Muhammad Asaduzzaman, *University of Oslo, Norway*



Euripide Avokpaho, *Institut de Recherche Clinique du Bénin, Benin*



Fellowships, Travel Awards, and Grants (cont.)



Deepali Balasubramani,
*Indiana University School
of Medicine, United
States*



Francesca Falconi,
*Institute of Tropical
Medicine in Antwerp,
Belgium*



Azizath Moussiliou,
*Institut de Recherche
Clinique du Bénin, Benin*



Nouhoun Barry, GRAS,
Burkina Faso



Noshi Fletcher, Aga Khan
*University Hospital,
Pakistan*



Christabellah
Namugenyi, *Makerere
University, Kampala,
Uganda*



Anthony Bettee, *Ministry
of Health, Liberia*



Abebe Fola, *Purdue
University, United States*



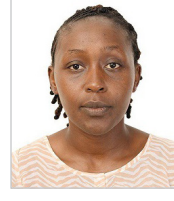
Nguyet Nguyen, *Oxford
University Clinical
Research Unit, Ho Chi
Minh City, Vietnam*



Raquel Binder, *Duke
University, United States*



Jessy Goupeyou-Youmsi,
*University of Malawi
College of Medicine,
Malawi*



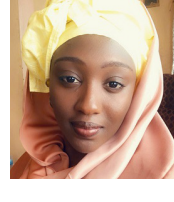
Nancy Nyakoe, *West
African Centre for Cell
Biology of Infectious
Pathogens, Ghana*



Yun Sang Cho, *Animal
and Plant Quarantine
Agency, Republic of
Korea*



Maria Lopez, *VCOM, El
Salvador*



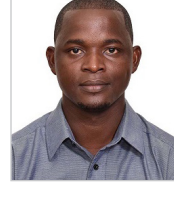
Haddy Nyang, *Medical
Research Council, The
Gambia Unit, The Gambia*



Uwemedimo Ekpo,
*Federal University of
Agriculture Abeokuta,
Nigeria*



Sulochana Manandhar,
*Oxford University Clinical
Research Unit, Nepal*



Colins Oduma, *KEMRI,
Kenya*



Annie Elong-Ngono, *La
Jolla Institute for
Immunology, United
States*



Julianne Meisner,
*University of Washington,
United States*



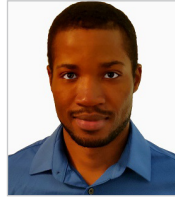
Collins Okoyo, *KEMRI,
Kenya*



Fellowships, Travel Awards, and Grants (cont.)



Francis Adjei Osei,
Kwame Nkrumah
University of Science and
Technology, Ghana



H. Christian Tsoungui
Obama, Jr., Hochschule
Mittweida, University of
Applied Sciences,
Germany



Presidents' Challenge Travel Award Recipients



Olga Fernandez, CIDEIM,
Colombia



Eric Osoro, Paul G. Allen
School for Global Animal
Health, Washington State
University, Kenya



Gopinath Venugopal,
University of Arkansas
for Medical Sciences,
United States



Emna Harigua Souiai,
Institut Pasteur de Tunis,
Tunisia



Pedro Palermo,
University of Texas at El
Paso, United States



Martha Yahimbu,
University of Papua
New Guinea, Papua
New Guinea



Masumbuko Kasereka,
HEAL Africa, Kenya



Danielle Porier, Virginia
Polytechnic Institute and
State University, United
States



Redemptah Yeda,
USAMRU-K, Kenya



Arsenia Massinga,
Centro de Investigação
em Saúde de Manhiça,
Mozambique



Christabelle Sadia,
Centre Suisse de
Recherches Scientifiques,
Cote D'Ivoire



Mouhamad Sy, University
Cheikh Anta Diop Dakar,
Senegal



Bedjou Prisca N'dri,
Centre Suisse de
Recherches en Cote
d'Ivoire and Swiss Tropical
Public Health Institute,
Cote d'Ivoire



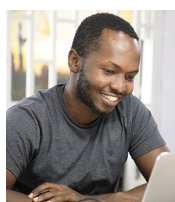
Belaynew Taye,
University of Queensland,
Australia



Shrikant Nema, ICMR-
National Institute of
Research in Tribal Health,
India



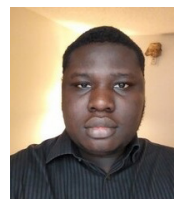
Fellowships, Travel Awards, and Grants (cont.)



Halfan Ngowo, *Ifakara Health Institute, Tanzania*



Cephas Sialubanje, *Levy Mwanawasa Medical University, Zambia*



Soukoku Toure, *African Center of Excellence in Bioinformatics, Mali*



Monica Pachar, *Hospital Santo Tomas, Panama*



Tulika Singh, *Duke University, United States*



Pauline Umeanaeto, *Parasitology and Public Society of Nigeria, Nigeria*



Sarker Masud Parvez, *icddr, Bangladesh*



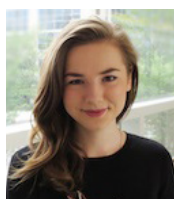
Tais Sousa, *René Rachou Institute, Brazil*



Grace Umutesi Wa Mana, *Vanderbilt University, United States*



Noel Patson, *University of the Witwatersrand, Johannesburg, Malawi*



Iryna Stryapunina, *Harvard University, United States*



Nayantara Wijayanandana, *London School of Hygiene and Tropical Medicine, United Kingdom*



Fellowships, Travel Awards, and Grants (cont.)

Young Investigator Awards

SUPPORTED WITH FUNDING FROM FRIENDS OF THE YOUNG INVESTIGATORS

**William A. Petri Jr. in memory of William A. Petri, Sr.
Mary Denton Roberts and David Lyerly in memory of
Annie Liberati**

Chair: Edward Mitre, Uniformed Services University of the Health Sciences

Young Investigator Awards are given to young scientists who have completed the majority of work described in their accepted abstracts as undergraduates, graduate students or during the first two years of postdoctoral research. The early-career investigators hold a primary role in the reported experimental work, as evidenced by first-author status on their abstracts. 2020 recipients will be determined at the competitive judging event held on Sunday, November 15, during the Annual Meeting. Winners will be announced during the Annual Meeting.

Congratulations to the 2019 Recipients

(Selected during ASTMH 68th Annual Meeting, November 2019)

Alexandra Ehrens, *University Hospital Bonn, Germany*

Beatriz Galatas, *ISGlobal, Spain*

Maria Simoes, *Johns Hopkins University, United States*

Hannah Steinberg, *University of Illinois Chicago, United States*

Kristine Werling, *Harvard T.H. Chan School of Public Health, United States*

First-Tier Mention

Kristyn Hoffman, *Baylor College of Medicine, United States*

Paulo Manrique Valverde, *Universidad Peruana Cayetano Heredia, Peru*

Catherine Mitran, *University of Alberta, Canada*

Talia Quandelacy, *Centers for Disease Control and Prevention, United States*

Alyse Wheelock, *Boston Medical College, United States*

Honorable Mention

Marco Brustolin, *Pennsylvania State University, United States*

Cristina Costales, *Duke University, United States*

Santosh George, *Yale School of Medicine, United States*

Brien Haun, *University of Hawaii, United States*

Yvett Sosa, *Albert Einstein College of Medicine, United States*

Burroughs Wellcome Fund – ASTMH Postdoctoral Fellowship in Tropical Infectious Diseases (\$65,000)

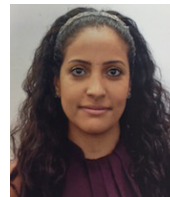
**ASTMH is grateful for the continuing commitment from
the Burroughs Wellcome Fund.**



Chair: Molly Hughes, University of Virginia School of Medicine, United States

This fellowship encourages long-term career development in tropical infectious diseases by providing support to individuals who will pursue careers focused on clinical research in tropical or developing areas of the world.

2020 Recipients



Yosra Alkabab
University of Virginia, United States



Khanh Pham
New York Presbyterian Hospital, Weill Cornell Medical Center, United States



Pranay Sinha
Boston Medical Center, United States

Fellowships, Travel Awards, and Grants (cont.)

Benjamin H. Kean Travel Fellowship in Tropical Medicine



Chair: Desiree LaBeaud, Stanford University, United States

Named after renowned educator, physician and researcher Benjamin H. Kean (1912-1993), this fellowship provides travel support to medical students who arrange clinical tropical medicine or tropical medicine research electives overseas.

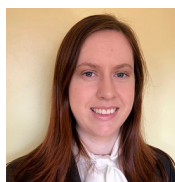
2020 Recipients



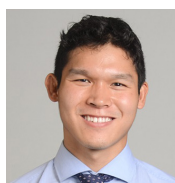
Robertha Barnes, *SUNY Upstate Medical University, United States*



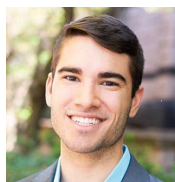
Kimberly Burke, *University of Massachusetts Medical School, United States*



Rebecca Carpenter, *Cedarville University, United States*



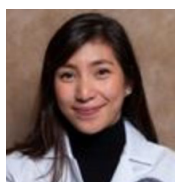
Michael Cheung, *Jacobs School of Medicine at University at Buffalo, United States*



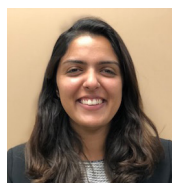
Spencer Darveau, *Brown University, United States*



Samantha Herbert, *Tulane University School of Public Health and Tropical Medicine, United States*



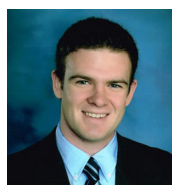
Antoinette Montelibano, *University of Pittsburgh School of Medicine, United States*



Perneet Powar, *California Northstate University, United States*



Sabahat Rahman, *University of California, San Francisco, United States*



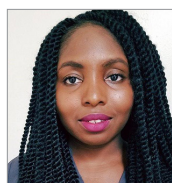
Christopher Reynolds, *University of Michigan Medical School, United States*



Toni San Miguel, *University of Maryland School of Medicine, United States*



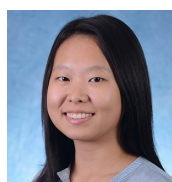
Alison Smith, *Emory University School of Medicine, United States*



Mariame Sylla, *Amherst College, United States*



Rebeca Vergara Greeno, *Yale School of Medicine, United States*



Erin Xu, *University of North Carolina School of Medicine, United States*



Fellowships, Travel Awards, and Grants (cont.)

Centennial Travel Award in Basic Science Tropical Disease Research (\$25,000)

Chair: Joseph Vinetz, Yale University, United States

This award provides support to individuals with doctoral-level degrees who travel to laboratories in the tropics to perform molecular, cellular or immunological studies of tropical infectious diseases.

2020 Recipient



Kathleen Dantzler, *Stanford University, United States*

Robert E. Shope International Fellowship in Infectious Diseases (\$25,000)



Chair: Ann Powers, Centers for Disease Control and Prevention, United States

Named for ASTMH past president Robert E. Shope (1929-2004), one of the world's foremost authorities on insect-borne viruses, this fellowship provides support for travel, living expenses and research for doctoral level scientists working in laboratories overseas on studies pertaining to arbovirology and/or emerging tropical infectious diseases.

2020 Recipient



Maria Onyango, *New York State Department of Health, United States*

ASTMH Subgroup Awards

American Committee of Medical Entomology (ACME) Student Travel Awards

Chair: Laura Harrington, Cornell University, United States

The ACME travel awards support travel to the Annual Meeting for doctoral and post-doctoral students whose work involves arthropods of medical importance.

2020 Recipients

Young Investigator Award – Graduate

Adeline Williams, *Colorado State University, United States*

Mary Gebhardt, *Johns Hopkins School of Public Health, United States*

Young Investigator Award – International

Astri Nur Faizah, *The University of Tokyo, Japan*

Maria Carrasquilla, *Universidad de los Andes, Colombia*

Young Investigator Award – Post-Doc

Thiago Soares de Souza Vieira, *National Institutes of Allergy and Infectious Diseases, United States*

Gabriela Garcia, *Fiocruz, Brazil*

American Committee of Medical Entomology (ACME) Future Leaders in International Medical Entomology Award

Chair: Matthew Thomas, Pennsylvania State University, United States

The Future Leaders fellowship is a competitive award offered to an outstanding junior medical entomology researcher (must be at the undergraduate to postdoctoral level) to showcase individuals that have matched interests to ACME's objectives of promoting medical entomology and reducing the burden of human diseases transmitted by arthropods globally. Applicants must be non-U.S. citizens from a low or low-middle income country. This award is sponsored by a generous donation from SC Johnson: A Family Company.

2020 Recipient

Cusi Ferradas, *Universidad Peruana Cayetano Heredia, Peru*

ASTMH Subgroup Awards (cont.)

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP) Travel Award for Low and Low- Middle Income (LMIC) Trainees

Chair: Michael Ferdig, *University of Notre Dame, United States*

The ACMCIP student travel award recognizes a student or trainee conducting basic parasitology research who is primarily based in a low or low-middle income country.

2020 Recipient

Laura Baquedano Santana, *Universidad Peruana Cayetano Heredia, Peru*

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP) Award for Advanced Training

Chair: Michael Ferdig, *University of Notre Dame, United States*

This award supports travel expenses for trainees to attend practical training courses in the fields of molecular, cellular or immunoparasitology. Trainees can use the award to attend any post-graduate level training course of at least one day in duration to explore new parasitological systems, gain hands-on skills in working with parasites and their hosts and obtain advanced knowledge in cutting-edge research topics and technologies.

2020 Recipient

Lisa Gibbs, *University of Utah, United States*

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP) Exchange Fellowship Award

Chair: Michael Ferdig, *University of Notre Dame, United States*

This award is aimed at all levels of trainees, including junior independent researchers seeking to gain new or additional research skills by visiting laboratories employing cutting-edge methods. The trainee must be or become an ASTMH and ACMCIP member.

2020 Recipient

Fehintola Victoria Ajogbasile, *Redeemer's University, Nigeria*

American Committee on Arthropod-Borne Viruses (ACAV) Student/Post-Doc Travel Awards

Chair: David Morens, *National Institute of Allergy and Infectious Diseases, United States*

The ACAV travel awards support travel to the Annual Meeting for graduate students or postdoctoral fellows who are actively conducting arbovirus research.

2020 Recipients

Jasmine Ayers, *University of Florida, United States*

Allen Esterly, *SUNY Upstate Medical University, United States*

Mariah Hassert, *St. Louis University, United States*

Cesar Lopez, *University of North Carolina at Chapel Hill, United States*

Zoe Lyski, *Oregon Health and Science University, United States*

Taylor Stone, *St. Louis University, United States*

Chantal Vogels, *Yale School of Public Health, United States*

ASTMH Committee on Global Health (ACGH) Student/Post-Doc Travel Awards

Chair: Robert Newman, *The Aspen Institute, United States*

The ACGH travel award program supports travel to the Annual Meeting for a student or postdoctoral fellow whose research directly promotes the practice of global health.

2020 Recipients

Barry Nouhoun, *GRAS, Burkina Faso*

Akilah Stewart, *The University of the West Indies, Trinidad and Tobago*

ASTMH Committee on Global Health (ACGH) Award for Research Support

Chair: Julie Pavlin, *National Academies of Sciences, Engineering and Medicine, United States*

This ACGH-sponsored award is designed to support research expenses for trainees who have approved research projects that are currently active or will start during 2019. Trainees can use the award to support travel to field sites, purchase equipment, software, reagents or supplies, or cover other expenses that will enhance the project.

2020 Recipient

Cusi Ferradas, *Universidad Peruana Cayetano Heredia, Peru*

Pallavi Kache, *Columbia University, United States*

Uchenna Chukwunonso Ogwaluonye, *Nnamdi Azikiwe University, Nigeria*

ASTMH Subgroup Awards (cont.)

American Committee on Clinical Tropical Medicine and Travelers' Health (ACCTMTH) Martin S. Wolfe Mentoring Award

Chair: Stephen Hoffman, *Sanaria, Inc., United States*

The Clinical Group has established an award to honor the life of inspiring mentorship by our friend, teacher and colleague, Martin S. Wolfe, MD, FACP, FASTMH. This award, new in 2019, recognizes individuals who have served as exemplary and inspiring mentors. It is presented to a member of the American Committee on Clinical Tropical Medicine and Travelers' Health (ACCTMTH, the Clinical Group) who has been exceptional in guiding the professional growth of careers in tropical and travel medicine.

2020 Recipient

A. Clinton White, *University of Texas Medical Branch, United States*

ACCTMTH Clinical Research Award

Co-Chairs: Obinna Nnedu, *Ochsner Medical Center, United States* and M. Patricia Joyce, *Retired, United States*

This award recognizes excellence in clinically-oriented research presented by students (within six months of completing undergraduate or Master's level training, including medical undergraduate degrees) or those in graduate medical training of work submitted and presented at the Annual Meeting. 2020 recipients will be determined at the competitive judging event held on Sunday, November 15, during the virtual Annual Meeting.

2019 Recipients

(selected during ASTMH 68th Annual Meeting, November 2019)

First Place:

Titus Kwambai, *Kenya Medical Research Institute, Kisumu, Kenya*

Second Place:

Melinda Tanabe, *University of Texas Medical Branch, United States*

Third Place:

Ruwandi Kariyawasam, *University of Toronto, Canada*

Continue the Conversation

For sessions held in the Meeting Rooms, attendees will have the chance to continue the conversation after a session ends by joining a Zoom meeting. These Zoom meetings will be available for 48 hours after the session, allowing for transition to the next session's conversation.

Disclaimer

ASTMH is not responsible for the opinions expressed by speakers or the content of speaker slides and handout materials.

Program Information

ACCTMTH Clinical Research Award Competition

Sunday, November 15, 11 a.m. – 1 p.m.

This award recognizes excellence in clinically-oriented research presented by students (within six months of completing undergraduate or Master's level training, including medical undergraduate degrees, or those in graduate medical training), of work submitted and presented at the virtual Annual Meeting. Support these young scientists by attending their presentations during this session. View the session schedule on page 70.

Young Investigator Award Competition

Sunday, November 15, 10 a.m. – 1 p.m.

The Young Investigator Award is presented to outstanding young researchers during the virtual Annual Meeting. This award encourages developing young scientists to pursue careers in various aspects of tropical disease research. Support these young scientists by attending their presentations during this session. View the session schedule on page 68.

Late-Breaker Abstracts

These sessions feature brief presentations of important new data obtained after the closing date for abstract submission. Late-Breaker poster presentations will take place during the poster sessions on Monday, Tuesday and Wednesday.

A schedule of Late-Breaker Abstract presentations is available [here](#).

Symposium 32:

Alan J. Magill Malaria Eradication Symposium

Monday, November 16, TIME

Supported with funding from the Bill & Melinda Gates Foundation

This annual symposium honors the life and work of ASTMH Past President Alan Magill, who at the time of his untimely death in 2015 was promoting the bold goal of global malaria eradication in his role as the Malaria Director at the Bill & Melinda Gates Foundation.

Despite important progress malaria still claims too many lives. In sub-Saharan Africa (SSA), the decreasing trend of malaria morbidity and mortality has stalled in the last several years. Although all current tools are effectively deployed, in some areas of the SSA malaria cases are either not decreasing or the disease is returning after a few years of decline. This demonstrates a clear need for the development of novel tools to effectively eliminate malaria in SSA. The discovery of these novel tools requires vibrant basic research not only in Northern labs but also

in labs that are closest to the patients in sub-Saharan Africa. This symposium will showcase some of the best basic research by young African scientists working in research Institutions in Africa. Understanding how Dantu blood group protects against severe malaria, deciphering the function of a Laveranian conserved protein in Plasmodium falciparum, editing drug resistance genes in clinical isolates or searching for new therapies for non-falciparum malaria species are some of the research that will be presented by emerging science leaders in Africa. Retaining and nurturing the next generation of African scientists in Africa and the added value of cutting edge basic research in accelerating malaria elimination in Africa will be discussed.

Looking for Meet the Professors Sessions?

The very popular Meet the Professors sessions will be held as webinars beginning in early 2021. Watch your email for an announcement in January about the schedule. The Meet the Professors webinars will feature interesting clinical case(s) of tropical diseases or relevant public health challenges that the professors have encountered over the course of their career. In addition, the professors will discuss how their careers have developed as an example to others.

ACMCIP Abstracts

Throughout this book, you will notice that some abstracts are followed by the notation "(ACMCIP abstract)." This notation means the abstract content pertains to molecular, cellular or immunoparasitology. ACMCIP refers to the American Committee of Molecular, Cellular and Immunoparasitology, an ASTMH subgroup. For more information, go to astmh.org/subgroups/acmcip.

Calling All Early- and Mid-Career Attendees

Events for Students, Trainees, Fellows, Residents and Junior Faculty

Are you a trainee or otherwise fairly new to research, global public health or clinical tropical medicine? The following sessions are designed to help build fundamental skills and perspectives for a successful start to your career. Mark your planner and learn from experienced members of the various ASTMH professional communities.

Young Investigator Award Competition

Sunday, November 15, 10 a.m. – 1 p.m.

Meeting Rooms 1, 2, 3, 4, 5

ACCTMTH Clinical Research Award Competition

Sunday, November 15, 11 a.m. – 1 p.m.

Meeting Room 6

Program Information

Symposium 21

Clinical Group Symposium II (American Committee on Clinical Tropical Medicine and Travelers' Health – ACCTMTH): Tropical Medicine Jeopardy

Monday, November 16, 3 p.m. - 4:45 p.m.

Meeting Room 4

Symposium 151

American Committee on Arthropod-Borne Viruses (ACAV) Trainee Panel: Outbreak Response—Focusing on Communication

Thursday, November 19, 3 p.m. - 4:45 p.m.

Meeting Room 3

Trainee Chats

Trainee members, including students, post-docs, medical residents, early-career members, and others, are welcome to join us for a series of conversations and drop-in hours. We will provide a forum to meet up with old friends and colleagues, meet new peers from around the world, chat about career pathways and transitions, and discuss the issues that matter to us as early-career ASTMH participants. We'll offer multiple themed and drop-in events over the course of the week to accommodate our members in different time zones.

Burroughs Wellcome Fund-ASTMH Postdoctoral Fellowship in Tropical Infectious Diseases

BURROUGHS
WELLCOME
FUND 

Following are abstract presentations to be made by recipients of the Burroughs Wellcome Fund-ASTMH Postdoctoral Fellowship in Tropical Infectious Diseases:

Emily Ciccone

Abstract 926

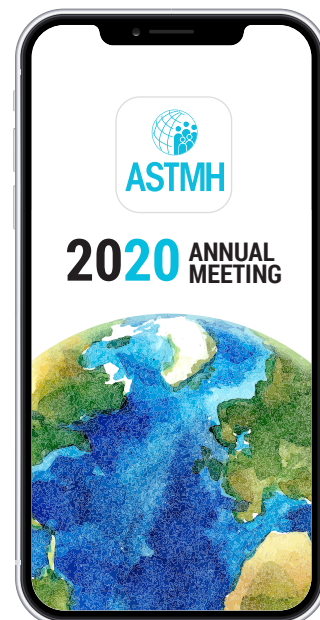
DeAnna J. Friedman-Klabanoff

Abstract 1248

Jonathan Parr

Abstract 483

Looking for the App?
This year, stay organized by logging on to the Annual Meeting platform.



Program Information

Poster Sessions

Three poster sessions will be held in the Poster Hall. During these sessions, presenters are encouraged to be available for discussion via a real-time chat feature. There are additional times for poster viewing (presenters need not be available during these time periods). We encourage attendees to visit the Poster Hall throughout the day.

POSTER SESSION SCHEDULE

All times in United States Eastern Time Zone

Poster Session A

Monday, November 16

Abstracts #36 - 437

Late-Breaker Abstracts #LB-5000 through LB-5061

Viewing | Midnight – 7 p.m.

Real-Time Chat Discussion
with Presenters* | 1:30 p.m. – 3 p.m.

**Please note that time zone differences may preclude presenter attendance.*

Poster Session B

Tuesday, November 17

Abstracts #533 - 945

Late-Breaker Abstracts #LB-5069 through LB-5137

Viewing | Midnight – 7 p.m.

Real-Time Chat Discussion
with Presenters* | 11:45 a.m. – 1:15 p.m.

**Please note that time zone differences may preclude presenter attendance.*

Poster Session C

Wednesday, November 18

Abstracts #1004 - 1393

Late-Breaker Abstracts #LB-1004 through LB-1393

Viewing | Midnight – 7 p.m.

Real-Time Chat Discussion
with Presenters* | 11:45 a.m. – 1:15 p.m.

**Please note that time zone differences may preclude presenter attendance.*

Meet us in the Subgroups Hall

Exhibit Hall

Sponsor and Subgroup Lobby

Visit the Subgroups Hall and visit with representatives from:

- ▶ American Committee of Medical Entomology (ACME)
- ▶ American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP)
- ▶ American Committee on Arthropod-Borne Viruses (ACAV)
- ▶ American Committee on Clinical Tropical Medicine and Travelers' Health (ACCTMTH – Clinical Group)
- ▶ ASTMH Committee on Global Health (ACGH)
- ▶ ASTMH/AJTMH

Our subgroups provide unique forums for members to engage in core scientific, educational, advocacy and policy issues related to a specific expertise with fellow stakeholders of similar interests. Benefits include networking and pre-meeting courses and symposia activities planned for Annual Meetings to enhance career development.

Learn more about:

- ▶ What subgroups do
- ▶ How to get involved
- ▶ The benefits of becoming an ASTMH member
- ▶ Submitting material to the *American Journal of Tropical Medicine and Hygiene*

Don't forget to stop at
the TropMed Central!

I wouldn't miss it.
See you there!

Program Information

The 3rd Annual Innovations Pitch Competition:

Bold Ideas to Accelerate Prediction, Prevention and Response for Epidemic-Prone Diseases

The 3rd Annual Innovations Pitch Competition at the ASTMH 2020 Annual Meeting will focus on the innovative solutions to improve children's current and future health and well-being in low-resource settings, for a healthier, more sustainable world. This year's competition will highlight tools and methods that will improve vaccine acceptance, accessibility and delivery, diagnosis and treatment of high impact diseases in the pediatric population living in low resource settings. Innovators are from a person or team currently working and residing in low- and low-middle income countries (LMIC), and/or have a partner based in an LMIC who is actively involved in the development of the innovation.

Many thanks to the Ronald McDonald House Charities (RMHC) and Roche for their funding contributions. A special thank you to Past President Peter Hotez, MD, PhD, FASTMH, FAAP, recipient of the 2019 RMHC Awards of Excellence, for sharing his grant award with ASTMH.



Social Media at the 2020 Annual Meeting

Follow the 69th Annual Meeting on ASTMH social media channels.

Visit astmh.org where you can access all social media outlets as follows:



Subscribe to the ASTMH Facebook page for updates from the Annual Meeting and for relevant content year round.



Follow [@ASTMH](https://twitter.com/ASTMH). During the conference, you will be able to follow what your colleagues are tweeting by using the [#TropMed20](https://twitter.com/hashtag/TropMed20) and [#IamTropMed](https://twitter.com/hashtag/IamTropMed) hashtags.



Enjoy archived video from past Annual Meetings, Alan Magill Symposia, Faces of TropMed, webinars and interviews with pioneers in the field.



Did you know that ASTMH has an active LinkedIn presence with over 1,250 followers? Visit our LinkedIn page and click "follow" to see our latest news and opportunities in your feed. Don't forget to list your ASTMH membership or announce your Annual Meeting presentation with [@American Society for Tropical Medicine and Hygiene](https://twitter.com/AmericanSocietyforTropicalMedicine) on your LinkedIn profile. It helps demonstrate your commitment to tropical medicine and global health, and can raise your professional profile.

Sponsored Symposia

Re-starting Malaria R&D in the Face of COVID-19

Sponsored by the RBM Partnership to End Malaria, the European Developing Countries Clinical Trials Partnership and Medicines for Malaria Ventures

Meeting Room 2

Tuesday, November 17, 6:45 a.m. – 8:30 a.m.

COVID-19 has put a halt to much of the health research happening worldwide. It is vital that malaria R&D clinical trials are re-started as soon as possible to ensure that we do not lose valuable time bringing much-needed innovations to market. This session will share perspective from research programmes and funders on how COVID-19 has affected their operations and their planning for re-starting R&D in a safe and effective manner. Holding this symposium will allow stakeholders to share their learnings about re-starting R&D in the face of COVID-19.

SETTING THE STAGE ON MALARIA IN AFRICA AND DISCUSSING THE IMPORTANCE OF NEW TOOLS TO FIGHT MALARIA AND RE-STARTING R&D AND CLINICAL TRIALS AS SOON AS POSSIBLE

Co-Chair: Abdourahmane Diallo
CEO, The RBM Partnership to End Malaria, Geneva, Switzerland

ADDRESSING THE SITUATION ON THE GROUND IN CONDUCTING CLINICAL TRIALS

Co-Chair: Bernhards Ogutu
Chief Research Officer, Kenya Medical Research Institute (KEMRI) and Senior Clinical Trialist, Malaria Clinical Trials Alliance of the INDEPTH-Network, Nairobi, Kenya

DISCUSSION OF WHITE PAPER ON INNOVATION AND OVERALL VIEWS ON INNOVATION AND ACCESS ON THE CONTINENT

Catherine Kyobutuni
Executive Director, African Population and Health Research Centre, Nairobi, Kenya

HOW COVID-19 HAS AFFECTED NOVARTIS R&D TIMELINES AND INITIAL LEARNINGS FROM RE-STARTING TRIALS

Caroline Boulton
Global Programme Head, Malaria, Novartis, Basel, Switzerland

HOW COVID-19 HAS AFFECTED THEIR R&D PARTNERSHIPS, HOW THEY HAVE BEEN DOING SCENARIO PLANNING AND HOW FUNDING STREAMS HAVE BEEN AFFECTED

David Reddy
CEO, Medicines for Malaria Venture, Geneva, Switzerland

HOW EDCTP IS HANDLING THE IMPACT OF COVID-19 ON R&D AS A FUNDER

Michael Makanga
CEO, European & Developing Countries Clinical Trials Partnership, The Hague, Netherlands

INFORMING R&D PRIORITIES THROUGH AFRICAN-WIDE DIGITAL PLATFORM FOR INFECTIOUS DISEASES

Lacina Koné
Director General, Smart Africa, Kigali, Rwanda

Observational study to evaluate the value added for High sensitive RDT (HS-RDTs) and ease of use for Smartphone Reporting in Uganda

Sponsored by Abbott

Meeting Room 3

Tuesday, November 17, 6:45 a.m. – 8:30 a.m.

Conventional rapid diagnostic tests (cRDT) for detecting malaria has been in use for many years but are unable to detect malaria in people who have low levels of parasitemia and are asymptomatic. As a result, highly sensitive rapid diagnostic tests (HS-RDT) were developed which is 10 times more sensitive. Join us as the Uganda study team presents their findings from a large study that was recently completed in the Mpigi district in Uganda where they evaluated the HS-RDT against cRDT.

WELCOME AND INTRODUCTION

Chair: Kuku Appiah
Abbott, Woodmead, South Africa

RESULTS OF HIGHLY SENSITIVE RAPID TESTS WITH SMARTPHONE READERS IN UGANDA

Daniel Kyabayinze
Ministry of Health and WHO Uganda Office, Kampala, Uganda

THE IMPACT OF INCREASED DETECTION ON MALARIA CONTROL USING HIGHLY SENSITIVE RAPID DIAGNOSTIC TEST

Giuseppe Caputo and Smarth Lakhnapal
Vista Health Pte Ltd, Singapore

Food for Thought: "Food Evolution" – Narrated by Neil DeGrasse Tyson, featuring Bill Nye, Mark Lynas & Michael Pollan

Sponsored by Bayer

Grand Ballroom

Tuesday, November 17, 3:45 p.m. – 5:30 p.m.

This film explores the importance of scientific innovation in agriculture to ensure that the expected population of 9.5 billion people have access to adequate nutrition. The film also reviews how these advances can decrease the need for pesticides while at the same time improve disease resistance and the nutrient profile of crops. The film also discusses the current controversies and challenges facing agriculture and farmers all around the world. Of note, the production of this film was independent of industry funding.

Co-Chair: S. Eliza Dunn
Medical Affairs Lead, Bayer, St. Louis, Missouri, USA

Co-Chair: Scott Hamilton Kennedy
Director, Food Evolution, Los Angeles, California, USA

Alison Van Eenennaam
Animal Scientist, Extension Specialist: Animal Biotechnology and Genomics, Department of Animal Science, UC Davis, Davis, California, USA

What, When, Where

Information Desk Hours

ASTMH Support Hours:

Sunday, November 15

8 a.m. – 6 p.m.

Monday, November 16

7 a.m. – 6 p.m.

Tuesday, November 17

8 a.m. – 6 p.m.

Wednesday, November 18

8 a.m. – 6 p.m.

Thursday, November 19

8 a.m. – 6 p.m.

Tech Support Hours:

Sunday, November 15

8 a.m. – 6 p.m.

Monday, November 16

8 a.m. – 6 p.m.

Tuesday, November 17

5:45 a.m. – 5 p.m.

Wednesday, November 18

8 a.m. – 6:30 p.m.

Thursday, November 19

8 a.m. – 8 p.m.

- ▶ Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity.
- ▶ Attendees seeking ABIM MOC credit must provide their ABIM MOC ID number and date of birth during the registration process.

Physician Assistant Continuing Education Credit

AAPA accepts certificates of participation for educational activities certified for *AMA PRA Category 1 Credit™* from organizations accredited by ACCME or a recognized state medical society. Physician Assistants may receive a maximum of 20 *AMA PRA Category 1 Credits™* for completing this program. Register for CME credit (\$150 US) at the ASTMH registration desk and submit an evaluation following the conference at astmh.org/annual-meeting.

Continuing Education Credit Continuing Medical Education (CME) Accreditation

ASTMH is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. ASTMH designates this live activity for a maximum of 20 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Register for CME Credit

The CME documentation fee is \$150 US. CME certificates will be mailed in January 2021. Complete your online CME Attendance and Evaluation Form by accessing the evaluation form at astmh.org/annual-meeting.

American Board of Internal Medicine (ABIM) Maintenance of Certification (MOC) Credit

Submit CME Survey and CME Claim Form by Monday, November 23 in order to receive ABIM MOC credit.

If you wish to receive ABIM MOC credit, you must register for CME credit for \$150. We cannot issue ABIM MOC credit unless the registration includes payment for CME credit. Successful completion of this Annual Meeting CME activity, which includes participation in the evaluation component, enables the participant to earn up to 20 Medical Knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. Your participation information, as well as your ABIM member ID and date of birth will be shared with the American Board of Internal Medicine via the Accreditation Council for CME PARS system for the purpose of reporting MOC completion.

PLEASE NOTE:

- ▶ The CME fee of \$150 must be paid in order to receive ABIM MOC credit.
- ▶ CME registrants seeking ABIM MOC credit must complete the CME Survey and CME Claim Form by Monday, November 23, in order to receive ABIM MOC credit.
- ▶ Pre-meeting courses are not eligible for ABIM MOC credit.

Veterinarian Continuing Education Credit

To better serve the continuing education needs of the full range of disciplines participating in the Annual Meeting, ASTMH offers accredited CE sessions for veterinarians. The Society's application is reviewed by the determining body, the American Association of Veterinary State Boards RACE Committee. Anticipating approval, ASTMH is typically notified just prior to the start of the Annual Meeting. To receive veterinarian continuing education credit, attendees must pay the \$150 documentation fee. An evaluation form will be e-mailed to attendees that register for veterinarian continuing education credit. This form will indicate the specific sessions that qualify for veterinary CE credits. A continuing education certificate will be sent by postal mail in January 2021.

Full Disclosure Policy Affecting CME Activities

Consistent with ASTMH policy, faculty are required to disclose any economic or other personal interests that create, or may be perceived as creating, a conflict of interest related to the material discussed. ASTMH has policies in place to resolve all conflicts of interest. Faculty are required to disclose at the beginning of their presentation(s) any relevant financial relationships, as well as any product or drug mentioned during the presentation that is not labeled for the use under discussion or is still investigational. This policy is intended to allow attendees to form their own judgments about such material.

ASTMH is at Work All Year Round!

Diploma Courses in Clinical Tropical Medicine and Travelers' Health

The Society advocates and facilitates the development of new training programs in clinical tropical medicine and travelers' health and has established a mechanism for accrediting them. These courses, known as Diploma Courses, may vary considerably in format and even in broad objectives, but to be accredited by the Society they must cover the topic matter included on the Certificate Exam and have an expectation of conferring on the examinee a certain degree of competence in the key subjects. Most confer a Diploma in Clinical Tropical Medicine and Travelers' Health; some confer a different diploma or degree in which the same expectations are included.

Update Course in Clinical Tropical Medicine and Travelers' Health

This two-day condensed course provides a broad overview of core topics in clinical tropical medicine and travelers' health. It is designed for all healthcare providers working in tropical medicine or travelers' health and for those planning to take the ASTMH Certificate Examination (CTropMed®).

CTropMed® – Certificate of Knowledge in Clinical Tropical Medicine and Travelers' Health

Fostering professional development in the fields of clinical tropical medicine and travelers' health is one of the Society's highest priorities. To that end, ASTMH developed the Certificate of Knowledge in Clinical Tropical Medicine and Travelers' Health (CTropMed® Program) as a means to distinguish individuals who have demonstrated advanced knowledge and experience in clinical tropical medicine and travelers' health. The CTropMed® Certificate is conferred on licensed medical professionals who 1) have passed an ASTMH-accredited diploma course or have extensive professional experience in clinical tropical medicine, 2) have experience in a clinical setting in the tropics or a domestic clinical activity meaningful to clinical tropical medicine and travelers' health and/or refugee medicine and 3) have passed the ASTMH Examination in Clinical Tropical Medicine and Travelers' Health.

Fellow of ASTMH (FASTMH)

Fellow member status (also known as Fellowship) in the Society is an honor recognizing sustained professional excellence in any phase of tropical medicine, hygiene, global health and related disciplines.

Membership Directory

This resource, available exclusively to ASTMH members, puts thousands of experts in tropical medicine and global health at your fingertips. The directory provides member listings in alphabetical order and by geographic location to ease the search for colleagues around the world.

The American Journal of Tropical Medicine and Hygiene

The *American Journal of Tropical Medicine and Hygiene*, the leading international journal in tropical medicine, is a peer-reviewed journal published on a monthly basis. Content includes original scientific articles and cutting-edge science covering new research with an emphasis on laboratory science and the application of technology in the fields of tropical medicine, parasitology, immunology, infectious diseases, epidemiology, basic and molecular biology, virology and international medicine. The *Journal* publishes unsolicited peer-reviewed manuscripts, invited review articles, short reports, case studies, reports on the efficacy of new drugs and methods of treatment, prevention and control methodologies, new testing methods and equipment, book reports and letters to the Editor. Topics range from applied epidemiology in such relevant areas as AIDS to the molecular biology of vaccine development.

Why publish with the American Journal of Tropical Medicine and Hygiene?

- ▶ The leading journal focused on all aspects of tropical medicine
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- ▶ No charge to publish supplementary data online
- ▶ Support for authors from low- and low-middle income countries
- ▶ Open Access publishing options
- ▶ A panel of Section Editors with expertise in all aspects of tropical medicine
- ▶ Average time to first review decision of less than four weeks
- ▶ Advance online publication

We would like to take the opportunity to thank all of you who have published papers in *AJTMH* and we hope you will continue to submit your research to us. Remember, ASTMH members receive a discount on page charges for publishing in the *Journal* so if you are not already a member, please consider [joining today](#).

MARK YOUR CALENDAR

World Malaria Day 2021

April 25, 2021

World Malaria Day is observed each year on April 25 to give countries in affected regions a chance to learn from each other's experiences and support one another's efforts in the fight against malaria; to enable new donors to join in a global partnership against malaria and for research and academic institutions to reveal scientific advances to the public; and to give international partners, companies and foundations a chance to showcase their efforts and reflect on how to scale-up what has worked.

NEW! ASTMH GOTropMED

Available NOW!

GOTropMED

ASTMH Global Online
Tropical Medical Education Website

gotropmed.astmh.org



GOTropMED, the ASTMH Global Online Tropical Medical Education website, is a members-only benefit offering online talks and presentations by world experts in tropical medicine, hygiene and global health, including rarely seen interviews with TropMed luminaries. Who can benefit from these resources? Researchers, clinicians, students and trainees, health professionals, and policy-focused members interested in obtaining a better understanding of these diseases and conditions in evidence based policy development.

Free and unlimited access to GOTropMED is a benefit of membership to ASTMH. Non-members are able to access the website for a one-time introductory period through December 31, 2020. For continued access to GOTropMED, non-members will need to **join ASTMH.**

Check Out Our Online Page for Students, Trainees, Post-Docs, Medical Residents and Fellows

Your one-stop-shop to help build fundamental skills and perspectives for a successful start to Tropical Medicine/Global Health Careers:

- ▶ Membership Benefits
- ▶ Subgroup Information
- ▶ Career Center
- ▶ Fellowships and Awards
- ▶ Clinical Research Award Competition
- ▶ Annual Meeting
- ▶ Young Investigator Awards
- ▶ Advocacy
- ▶ Trainee Chats

Look for the Pre-/Post-Docs page under the Education & Resources tab on the ASTMH website.



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Students, Trainees, Post-Docs, Medical Residents and Fellows Resources

Are you a trainee or otherwise new to research, global public health or clinical tropical medicine? Are you looking to get more involved? This page is for you, to help you build fundamental skills and perspectives for a successful start to your career.

 "If there was ever a professional medical society that has embraced the equity agenda, embraced inclusiveness at scientific meetings, embraced trainees and students – I understand a third of us gathered here are either trainees or students – I can't think of any other and it is an honor, as ever, to be a member of this Society." – Paul Farmer, MD, PhD Co-Founder and Chief Strategist of Partners In Health, 2017 Annual Meeting Keynote

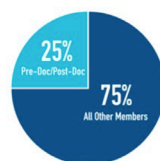
What ASTMH Offers You

(click on a link below to explore the benefits)

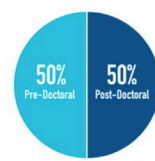
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Total Members



Pre-Doc/Post-Doc Members

Session Topic Guide

General Interest/Multi-Disciplinary

Sunday

Plenary Session 1: Opening Plenary Session and Awards Program

Monday

Plenary Session 16: Plenary Session II: COVID-19: Lessons Learned and Future Challenges

Poster Session 17: Poster Session A

Tuesday

Plenary Session 48: Plenary Session III: Charles Franklin Craig Lecture

Poster Session 49: Poster Session B

Wednesday

Plenary Session 80: Plenary Session IV: President's Address

Poster Session 81: Poster Session C

Thursday

Plenary Session 116: Plenary Session V: Race and Social Justice: Tropical Medicine's Troubled Past and Future Challenge

Symposium 151: American Committee on Arthropod-Borne Viruses (ACAV) Trainee Panel: Outbreak Response—Focusing on Communication

Clinical Tropical Medicine

Monday

Symposium 4: Clinical Group Symposium I (American Committee on Clinical Tropical Medicine and Travelers' Health – ACCTMTH): Marcolongo Lecture and Panel Discussion

Symposium 21: Clinical Group Symposium II (American Committee on Clinical Tropical Medicine and Travelers' Health – ACCTMTH): Tropical Medicine Jeopardy

Tuesday

Symposium 33: Human Challenge Infections: Learning from Nature in Controlled Settings

Symposium 34: Sepsis in Low- and Middle-Income Countries (LMICs): Current Challenges and Triumphs Illustrated Through Clinical Cases

Scientific Session 36: Clinical Tropical Medicine: VHF-Related, Viruses

Symposium 50: From Detection to Therapy: The Continuum of Cancer Care in a Global Context

Symposium 51: Severe Tropical Diseases in the ICU: An Anatomical Tour

Symposium 53: The front lines of an epidemic: taking on the first cases of COVID-19 in the United States

Wednesday

Symposium 73: Clinical Conundrums in Tropical Medicine

Scientific Session 82: Clinical Tropical Medicine: Vaccines, Travel

Late-Breaker Abstract Session 101: Late-Breakers in Clinical and Applied Sciences

Thursday

Scientific Session 149: Clinical Tropical Medicine: Parasites/Toxins and Other Topics

Symposium 153: Clinical Tropical & Travel Medicine: Hot List of Literature

Diarrhea and Bacterial Illness

Monday

Scientific Session 6: Bacteriology: Enteric Infections I - Cholera and ETEC

Scientific Session 23: Bacteriology: Enteric Infections II

Tuesday

Scientific Session 35: Bacteriology: Systemic Infections

Scientific Session 54: Bacteriology: Trachoma and Other Bacterial Infections

Symposium 55: Sero-epidemiology: The Future of Enteric Disease Surveillance?

Wednesday

Symposium 74: Antimicrobial Resistant Bacterial Infections as a Cause of Stillbirths and Child Death in Low- and Middle-Income Countries: From Evidence to Treatment and Prevention Strategies

Symposium 110: Genomics for Typhoid Surveillance in South Asia

Session Topic Guide

Ectoparasite-Borne Diseases

Monday

Scientific Session 5: Ectoparasite-Borne Disease

Entomology

Monday

Symposium 7: Human Landing Catches: Alternatives and Directions for the Future

Scientific Session 22: Arthropods: Other Arthropods

Symposium 24: Aedes Surveillance in Africa: (Re-) Building Capacity to Address Growing Arboviral Disease Threats

Tuesday

Symposium 38: American Committee of Medical Entomology (ACME) Symposium I: Annual Business Meeting, Awards and Hoogstraal Medal Presentation

Symposium 56: American Committee of Medical Entomology (ACME) Symposium II: The Origin of ACME: Past, Present and Future of Medical Entomology

Wednesday

Scientific Session 75: Mosquitoes: Vector Biology - Epidemiology I

Scientific Session 94: Mosquitoes: Vector Biology - Epidemiology II

Scientific Session 111: Mosquitoes: Molecular Genetics and Genomics

Thursday

Scientific Session 127: Mosquitoes: Insecticide Resistance and Control I

Symposium 128: The Impact of Multiple Blood Meals on the Vector-pathogen Interface

Scientific Session 143: Mosquitoes: Insecticide Resistance and Control II

Scientific Session 157: Mosquitoes: Biochemistry and Molecular Biology

Symposium 172: Arbovirus Vectors in Brazil: Recent Advances

Filariasis

Monday

Symposium 8: Onchocerciasis Elimination Mapping in Four Countries in Africa: Ensuring that No Village is Left Behind

Wednesday

Scientific Session 76: Filariasis: Epidemiology and Control I

Scientific Session 95: Filariasis: Epidemiology and Control II

Scientific Session 112: Filariasis: Molecular Biology, Immunology and Diagnostics

Thursday

Symposium 129: Operationalizing the WHO Guidelines for Onchocerciasis: Experiences and Best Practices

Scientific Session 155: Filariasis: Clinical

Global Health

Monday

Symposium 2: Confronting the Climate Change Crisis

Symposium 13: ASTMH Committee on Global Health (ACGH) Symposium I: Pathogen Metagenomics in the Developing World: Four Stories in Four Countries

Scientific Session 18: Global Health: Planetary Health and Malaria

Symposium 29: ASTMH Committee on Global Health (ACGH) Symposium II: Parity and Equity in Global Health: Improving Collaborations between LMIC and HIC Researchers

Symposium 31: Using Laboratory Methods to Increase Data Available for Public Health Decisions: The Nigeria Multi-disease Serologic Surveillance using Stored Specimens (NMS4) Experience

Tuesday

Symposium 47: Flames, Floods, Fevers and Fetuses - Can Humans Survive?

Symposium 52: Intersection of Advocacy, Policy and Social Media: A Washington, DC, Primer

Symposium 62: A World in Transition: Human Movement and Health in the Context of a Changing Climate

Symposium 63: Innovation Pitch Session for Healthy Children, Healthy Planet

Session Topic Guide

Wednesday

Symposium 93: Evidence to Action: Accelerating Introduction of Typhoid Conjugate Vaccines in Africa

Symposium 100: Lessons from West Africa Ebola: The Potential for Community-Based Initiatives in Addressing Security Concerns, Fear and Public Distrust as an Integral Component of Outbreak Response

Scientific Session 102: Global Health: Global Health Security and Information, Communications, Technology

Symposium 108: The Future is in Our Hands! Diagnostics for AMR

Symposium 114: Measuring Progress and Challenges for Chagas Disease Control in the Americas

Thursday

Plenary Session 116: Plenary Session V: Race and Social Justice: Tropical Medicine's Troubled Past and Future Challenge

Symposium 125: Game Changers and Innovations During the 2018-2020 Ebola Outbreak in Democratic Republic of Congo

Symposium 135: Counting the Dead: Making the Dead Count

Symposium 136: Where Are We in Reaching Zero Leprosy?

Scientific Session 137: Global Health: Maternal, Newborn and Child Health

Symposium 138: Ethical and Equitable Digital Global Health - Issues and Opportunities

Symposium 139: Female Genital Mutilation: Ending the Practice

Symposium 140: Spatial Intelligence to Optimize Public Health Interventions

Symposium 144: Ahead of the Curve: Challenges and Opportunities for Outbreak Science

Symposium 145: The Dynamic Global Distribution of *Angiostrongylus cantonensis*

Symposium 146: Deploying Pathogen Genomics Approaches for Disease Control and Public Health: Applications and Challenges in LMICs

Scientific Session 152: Global Health: Maternal, Newborn, Child Health and Neglected Tropical Diseases

Symposium 154: 10 years of Joint Global Health Trials: What Lessons Have We Learned from Translating Research to Policy and Practice?

Symposium 156: Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Health in Low- and Middle-Income Countries: The Struggle for Global Health Equity

Symposium 158: Of Dogs and Dragons: Understanding Parasite Transmission Ecology and Applying It to the Global Guinea Worm Eradication Program

Symposium 159: Identifying Optimal Ways to Support Countries Achieve the Last Mile in NTD Elimination

Symposium 174: Building Out Vector-borne Diseases in Sub-Saharan Africa

Symposium 175: The Skin: Where the Planet and Your Body Meet

HIV and Tropical Co-Infections

Monday

Scientific Session 14: HIV and Tropical Co-Infections

Integrated Control Measures for Neglected Tropical Diseases (NTDs)

Tuesday

Symposium 37: Overcoming the Deworming Cliff: Challenges in Maintaining Mass Treatment for Soil Transmitted Helminths When Lymphatic Filariasis Program Stops

Wednesday

Symposium 77: Promoting Operational & Financial Sustainability for Neglected Tropical Disease Programs in West Africa: Tools to estimate the costs and benefits and support sustainability planning

Symposium 87: The Path from Development to Delivery: Accelerated Development and Introduction of Ivermectin, DEC, and Albendazole (IDA) Triple Therapy; How Was It Done?

Symposium 96: Realizing the Potential of New Approaches to Lymphedema Management

Symposium 113: Multisectoral Collaboration for Neglected Tropical Diseases (NTDs): Barrier Analyses and Opportunities for Multisector Coordination to Sustain NTD Programming

Session Topic Guide

Thursday

Scientific Session 170: Integrated Control Measures for Neglected Tropical Diseases

Intestinal and Tissue Helminths, Cestodes

Monday

Scientific Session 10: Intestinal and Tissue Helminths: Soil-Transmitted Helminths - Treatment and Diagnosis

Scientific Session 26: Intestinal and Tissue Helminths: Soil-Transmitted Helminths - Control

Tuesday

Scientific Session 40: Cestodes and Nematodes: Molecular Biology, Pathology and Epidemiology

Wednesday

Symposium 78: Large Scale and Large Success: Implementing, Evaluating and Future Planning of India's National Soil-Transmitted Helminth Control Program

Thursday

Symposium 130: Chances and Challenges for the Control and Elimination of Soil-transmitted Helminth Infections

Kinetoplastida

Monday

Scientific Session 27: Kinetoplastida: Epidemiology

Tuesday

Scientific Session 41: Kinetoplastida: Immunopathology and Vaccine Development

Symposium 59: Leishmania Vaccine Development: From Research and Development to Licensure

Thursday

Scientific Session 141: Kinetoplastida: Diagnosis and Treatment

Malaria

Monday

Symposium 3: Can We Ignore "Asymptomatic" Low-density Malaria Any More?

Symposium 19: Mechanistic Dose-Response Modelling of Antimalarial Drugs

Symposium 20: A Fundamental Way to Prevent Malaria in Pregnancy: Improving Health Outcomes for Pregnant Women and Their Babies One Nurse and Midwife at a Time

Tuesday

Symposium 32: Alan J. Magill Malaria Eradication Symposium: Basic Research in Africa for Sustained Malaria Elimination and Eradication

Scientific Session 46: Malaria: Chemotherapy and Drug Resistance

Wednesday

Symposium 64: Strengthening Malaria Surveillance Systems: Do We Have a Good Understanding of the Level of Investment Needed?

Symposium 65: Ivermectin and Antimalarial Mass Drug Administration for Malaria Control and Elimination: Preliminary Field Trial Results and Trial Designs

Symposium 66: Lessons from the National Malaria Elimination Program in China

Symposium 68: Triple Artemisinin Combination Therapies: A New Paradigm for the Treatment of Uncomplicated falciparum Malaria?

Symposium 69: Surveillance of Malaria: Sampling Strategies, Technical Tools and Analytic Methods to Most Accurately Represent Sampled Populations

Late-Breaker Abstract Session 70: Late-Breakers in Malaria

Scientific Session 71: Malaria Epidemiology I: Infection and Disease in High-Transmission Settings

Scientific Session 72: Malaria: Plasmodium Genetics and Genomics

Symposium 83: Monoclonal Antibodies to Prevent Malaria Infection and Transmission – from Antibody Identification to Clinical Evaluation

Symposium 84: Towards Regional Elimination of Malaria in Central America

Symposium 85: Host-directed Therapeutics for Malaria

Symposium 86: Severe Malaria: Improving the Continuum of Care

Scientific Session 89: Malaria Epidemiology II: Dynamics and Heterogeneity in Low-Transmission Settings

Session Topic Guide

Scientific Session 90: Malaria: Biology and Pathogenesis

Scientific Session 91: Malaria: Modeling to Support Implementation and New Approaches

Scientific Session 92: Malaria: SMC and Beyond

Symposium 104: Accelerating New Tools for Radical Cure of vivax Malaria from Clinical and Operational Research to Policy

Symposium 106: G6PD Deficiency: Advances in Point of Care Testing

Symposium 109: Using the Data You Have: Innovative Methods to Enhance Vector Control Evaluation and Decision-Making

Thursday

Symposium 117: Vaccines Against Placental Malaria

Symposium 118: Persistence and Transmissibility of Malaria Infections – Examples from Different Malaria Endemic Settings

Symposium 119: Cross-disciplinary Sciences to Understand Malaria Vaccine Immunity

Symposium 120: Translation of Research into Policy and Practice: Using Mathematical Models to Inform Decision Making for Malaria Elimination Strategies

Symposium 121: Comprehensive Surveillance in the Setting of a Dramatic Decline in Malaria Following Sustained Control Interventions in a Historically High Transmission Area of Uganda: From Mosquito to Human and Back Again

Symposium 122: The RTS,S Malaria Vaccine Pilot Implementation in Africa: Generating Data for Decision-making

Scientific Session 124: Malaria Control: Innovations and Opportunities for Healthcare Systems

Scientific Session 126: Malaria: Pre-Clinical Drug Development and Clinical Trials

Scientific Session 160: Malaria: Immunology

Symposium 163: Responding to the Challenge of Vector Borne Diseases in the Context of Urban Expansion

Symposium 164: Integrating Functional, Population Genomic and Transcriptomic Data to Decipher Antimalarial Drug Resistance and Guide Drug Discovery

Symposium 166: Current Knowledge of Mosquito-Stage Malaria Parasite Biology: Implications for Developing a Robust in vitro Culturing System

Symposium 167: Tracking the Threat of pfhrp2/3 Gene Deletions and Future Alternatives to HRP2-based Malaria Diagnosis

Scientific Session 168: Malaria: Developing and Evaluating LLINs

Scientific Session 169: Malaria: New Approaches to Improve the Diagnosis of Malaria

Scientific Session 171: Malaria: Vaccines

Molecular Parasitology

Monday

Symposium 12: American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP) Symposium: Friend or Foe: The Many Faces of Myeloid Cells in Parasitic Infections

Scientific Session 25: American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Immunoparasitology and Vaccine Development

Scientific Session 28: American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Malaria - Genomics

Tuesday

Late-Breaker Abstract Session 42: Late-Breakers in Basic Sciences

Plenary Session 48: Plenary Session III: Charles Franklin Craig Lecture

Scientific Session 58: American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Malaria - Molecular Mechanisms of Pathogenesis

Wednesday

Scientific Session 79: American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Parasite Biology, Genomics and Genome Editing

Symposium 97: "Next Generation" Genetic Crosses in Malaria, Cryptosporidium and Schistosomes

Scientific Session 107: American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Malaria - New Molecular and Omic Tools

Session Topic Guide

Thursday

Scientific Session 142: American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Parasite Biology and Drug Targets

One Health: Interface of Human Health/Animal Diseases

Tuesday

Scientific Session 43: One Health: Interface of Human Health/Animal Diseases

Wednesday

Symposium 60: How to Combat Tropical Zoonoses beyond Medical Interventions: Global One Health reflecting COVID-19

Symposium 98: Mitigating the Risk for Henipavirus Pandemics: From Ecology to Vaccines

Opportunistic and Anaerobic Protozoa

Monday

Scientific Session 11: Protozoa

Pneumonia, Respiratory Infections and Tuberculosis

Tuesday

Symposium 44: Epidemiologic characteristics and forecasting of COVID-19

Thursday

Scientific Session 133: Pneumonia, Respiratory Infections and Tuberculosis

Schistosomiasis-Helminths

Thursday

Scientific Session 131: Schistosomiasis - Trematodes: Epidemiology and Control

Scientific Session 147: Schistosomiasis - Trematodes: Immunology, Pathology, Cellular, Molecular

Scientific Session 161: Schistosomiasis and Other Trematodes: Diagnosis and Treatment

Symposium 176: Schistosomiasis and Climate Change

Virology

Monday

Symposium 9: Forty-Year Anniversary of Smallpox Eradication: Great News, But What Next for Poxviruses?

Symposium 15: American Committee on Arthropod-Borne Viruses (ACAV) Symposium I: Annual Business Meeting, Awards, Beyond Arboviruses

Plenary Session 16: Plenary Session II: COVID-19: Lessons Learned and Future Challenges

Symposium 30: American Committee on Arthropod-Borne Viruses (ACAV) Symposium II: This Week in Virology "Live" at ASTMH

Tuesday

Scientific Session 39: Dengue: Vaccines and Immunity

Symposium 45: Cytomegalovirus and Epstein-Barr Virus in Sub-Saharan Africa

Scientific Session 61: Coronaviruses and Alphaviruses

Wednesday

Scientific Session 67: Zika

Plenary Session 80: Plenary Session IV: President's Address

Scientific Session 88: Zika: Vaccines and Immunity

Scientific Session 99: Dengue: Transmission and Virus-Host Interactions

Late-Breaker Abstract Session 103: Late-Breakers in Coronavirus I

Scientific Session 105: West Nile and Other Viruses

Thursday

Late-Breaker Abstract Session 123: Late-Breakers in Coronavirus II

Scientific Session 134: Viral Hemorrhagic Fevers

Symposium 150: Crimean-Congo Hemorrhagic Fever, Updates on a Lesser Known Viral Hemorrhagic Fever with Widespread Impact

Symposium 151: American Committee on Arthropod-Borne Viruses (ACAV) Trainee Panel: Outbreak Response—Focusing on Communication

Session Topic Guide

Symposium 173: Frontiers in Immunologic Evaluation of Filovirus Vaccines

Water, Sanitation, Hygiene and Environmental Health

Thursday

Scientific Session 132: Water, Sanitation, Hygiene and Environmental Health (WaSH-E) and Behavior

Scientific Session 148: Water, Sanitation, Hygiene and Environmental Health (WaSH-E): Transmission and Exposure

Scientific Session 162: Water, Sanitation, Hygiene and Environmental Health (WaSH-E): Water Access, Quality and Treatment

Symposium 177: Revitalizing Informal Settlements and their Environments (RISE)

Thank you to our Virtual Exhibitors!

BEI Resources

Bioinformatics Resource Centers (BRCs) for Infectious Diseases

Chan Zuckerberg Initiative, IDseq

ClinEpiDB - University of Pennsylvania

Eck Institute for Global Health

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Abbott is the global leader in point-of-care (POC) diagnostics with the broadest portfolio of best-in-class rapid tests, services, and handheld devices across all healthcare settings: the lab, the clinic, remote healthcare outposts, retail outlets, the patient's bedside and at home. Abbott's offering of industry-leading near patient tests and services is unmatched across key health and therapeutic areas, including: infectious disease, cardiometabolic, informatics, toxicology and consumer diagnostics.

Barcelona Institute for Global Health (ISGlobal)

hosted by ISGlobal

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"What is MESA Track?" describes the **MESA Track online platform**, an open and living database of malaria research. This user-friendly and open-access tool informs the malaria community about which questions are being addressed, which innovative strategies are being tested, and aids collaboration and information-sharing. The platform has been used by stakeholders such as the Global Malaria Programme at the World Health Organization to support their policy-development processes, as well as by the malERA Consultative Process to picture the current status of malaria research, among others. Know more and join the database of researchers, funders and institutions working to combat malaria. MESA is hosted by ISGlobal and is supported by a grant from the Bill & Melinda Gates Foundation.

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Bayer Crop Science – Agriculture Division

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Website: www.cropscience.bayer.com/

Throughout history, humanity has improved lives and inspired breakthroughs for our biggest challenges. Our shared sense of inventiveness gave us *agriculture*—one of the oldest and most important inventions—and we believe it can do even more. We're using innovation to shape what's possible for farmers, consumers, and the planet as we seek to deliver world-class innovation, set new standards in sustainability, and drive digital transformation.

BEI Resources

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BEI Resources, funded by NIAID, is the leading source for high-quality microbial cultures, reagents and assays for investigating tropical and emerging infectious diseases including viral, bacterial and parasitic pathogens and arthropod vectors.

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Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people's health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people – especially those with the fewest resources – have access to the opportunities they need to succeed in school and life. Based in Seattle, the foundation is led by CEO Mark Suzman, under the direction of Bill and Melinda Gates and Warren Buffett.

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Bioinformatics Resource Centers (BRCs) for Infectious Diseases

Contact: Omar Harb, Director of Outreach and Education

Email: oharb@upenn.edu

Website: <https://www.niaid.nih.gov/research/bioinformatics-resource-centers-infectious-diseases>

The NIAID-funded Bioinformatics Resource Centers (BRCs) for Infectious Diseases program provides free public access to genomic scale data and analyses tools for infectious disease pathogens, vectors of transmission and interactions with their hosts. Two BRCs are currently funded: 1. VEuPathDB.org, supporting eukaryotic pathogens and invertebrate vectors of infectious diseases; 2. BV-BRC (patricbrc.org, fludb.org & viprbrc.org), supporting bacteria and viruses. Representatives from the BRCs will be available for live chats and discussions from the virtual booth.

Burroughs Wellcome Fund

Address P.O. Box 13901

Research Triangle Park,
NC 27709 USA

Phone: +1-919-991-5100

Website: www.bwfund.org

Twitter: @BWFPATH

The Burroughs Wellcome Fund is an independent private foundation dedicated to advancing the biomedical sciences by supporting research and other scientific and educational activities. Within this broad mission, BWF has two primary goals: To help scientists early in their careers develop as independent investigators and to advance fields in the basic biomedical sciences that are undervalued or in need of particular encouragement. BWF's financial support is channeled primarily through competitive peer-reviewed award programs.

Chan Zuckerberg Initiative, IDseq

Contact: Liz Fahsbender

Address: 601 Marshall St

Redwood City, CA 94063

Phone: (727)735-7633

Email: help@idseq.net

Website: <https://www.discoveridseq.com/>

Twitter: @czscience

IDseq is free open source cloud-based service for pathogen detection and surveillance. Our mission is to make complex analysis pipelines globally accessible to empower data-driven decision making about disease prevention and detection around the world. The IDseq portal is a metagenomics pipeline, which serves to reduce the barrier to entry for mNGS data analysis.

Center for Health in the Human Ecosystem (CHHE), University of Idaho

Address: 875 Perimeter Drive MS 1122

Moscow, Idaho 83844-1122

Phone: 1-208-885-0937

Email: chhe@uidaho.edu

Website: uidaho.edu/cals/chhe

Twitter: @ui_CHHE

The University of Idaho Center for Health in the Human Ecosystem (CHHE) is hosting its annual Biology of Vector-borne Diseases six-day course, Sunday through Friday, June 20-25, 2021, on the UI campus in Moscow, Idaho. This course provides accessible, condensed training and "knowledge networking" for advanced graduate students, postdoctoral fellows, new faculty and current professionals to ensure competency in basic biology, current knowledge and cutting edge technology for U.S. and global vector-borne diseases of plants, animals and humans. This course seeks to create an enduring community of participants and instructors who understand the biological connections across diverse vector-borne diseases to expand the impact and sustainability of integrated solutions to their control in complex human ecosystems.

ClinEpiDB

Contact: Sheena Tomko, Outreach Specialist

Phone: 215-573-1205

Email: stomko@sas.upenn.edu

Website: <https://clinepidb.org>

Twitter: @ClinEpiDB

The Clinical Epidemiology Database Resource, ClinEpiDB (<https://ClinEpiDB.org>), is a global open-access, epidemiological data resource charged with enabling investigators to maximize the utility and reach of their data and make optimal use of information released by others. ClinEpiDB is a project of the NIH/NIAID funded Bioinformatics Resource Center, VEuPathDB, and funded by the Bill & Melinda Gates Foundation. ClinEpiDB staff will demo the resource, discuss availability of data and answer questions.

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Drugs for Neglected Diseases initiative – North America

Contact: Ilan Moss, Head, Media
and Content
Address: 40 Rector Street, 16th Floor
New York, NY 10006, USA
Phone: 646 266 5216
Email: imoss@dndi.org
Website: www.dndi.org
Twitter: @DNDi

The Drugs for Neglected Diseases initiative (DNDi) is a not-for-profit, patient-oriented research and development organization working to deliver safe, effective, and accessible treatments for millions of people living in vulnerable conditions and affected by neglected diseases, notably Chagas disease, leishmaniasis, sleeping sickness, paediatric HIV, hepatitis C, filarial infections, and mycetoma. DNDi recently participated in the launch of a coalition to accelerate research on COVID-19 in low- and middle-income countries.

Eck Institute for Global Health/University of Notre Dame's Eck Institute for Global

Contact: Kelly Thomson
Phone: 574.631.2171
Email: eigh@nd.edu
Website: globalhealth.nd.edu
Twitter: @ndeckinstitute

The University of Notre Dame's Eck Institute for Global Health (EIGH) serves as a university-wide enterprise that recognizes health as a fundamental human right and works to promote research, training, and service to advance health standards and reduce health disparities for all. The EIGH brings together multidisciplinary teams to understand and address health challenges that disproportionately affect the poor and to train the next generation of global health leaders.

Elsevier

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Elsevier is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, and deliver better care.

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FHI Clinical

Contact: Jonsi Cousin
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Website: <https://www.fhiclinical.com/>
Twitter: <https://twitter.com/FHIClinical>

FHI Clinical is a full-service contract research organization (CRO) with the global expertise, responsive approaches and proven solutions to manage complex clinical research in resource-limited settings around the world. Our mission is to address unmet research needs and achieve maximum social impact by supporting the development of life-saving vaccines and medicines. For more information, please refer to fhiclinical.com.

GSK

Contact : Rebecca Lisle
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A science-led global healthcare company with a special purpose to help people do more, feel better, live longer. We have three global businesses that discover, develop and manufacture innovative pharmaceutical medicines, vaccines and consumer healthcare products. Every day, we help improve the health of millions of people around the world.

Global Health Innovative Technology Fund (GHIT Fund)

Contact: Hironobu Itabashi
Address: Ark Hills Sengokuyama, Mori Tower, 25F
1-9-10 Roppongi
Minato-ku, Tokyo
Email: hironobu.itabashi@ghitfund.org
Website: www.ghitfund.org
Twitter: @GHITFUND

The Japan-based GHIT Fund is an international public-private partnership fund for global health R&D that mobilizes Japanese industry, academia, and research institutes to create new drugs, vaccines, and diagnostics for malaria, tuberculosis, and neglected tropical diseases, in collaboration with global partners.

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Hemex Health

Contact: A. Garceau
Address: 4640 Macadam Ave
Portland, Oregon 97239
Phone: (603) 475-9942
Email: a.garceau@hemexhealth.com
Website: www.hemexhealth.com

Hemex Health connects innovation to Global Health with its affordable, life-changing medical diagnostics designed to reach at-risk populations. Our easy-to-use Gazelle™ Diagnostic Device supports an affordable, one-minute malaria test that is more accurate than existing diagnostics as well as the first affordable hemoglobin variant diagnostic (e.g. for sickle cell anemia) to provide both identification and quantification of hemoglobin types.

Henry M. Jackson Foundation for the Advancement of Military Medicine

Contact: Robyn Hulvey
Address: 6720A Rockledge Drive, Suite 100
Phone: 240-694-2239
Email: rhulvey@hjff.org
Website: www.hjff.org
Twitter: @HJFMilMed

The Henry M. Jackson Foundation for the Advancement of Military Medicine is a global nonprofit organization supporting the military medical research benefiting warfighters, veterans, their families and civilians. HJF offers administrative and program management services to investigators and clinicians. For nearly 40 decades, HJF has helped guide scientific investigators through the administrative challenges associated with managing tropical disease research. From writing proposals to staffing labs, HJF is ready to be your research partner worldwide.

IAMAT – International Association for Medical Assistance to Travellers

67 Mowat Avenue, Suite 036
Toronto, ON M6K 3E3 Canada
Email: info@iamat.org
Website: www.iamat.org
Twitter: @IAMAT_Travel

Our mission is to make the world a healthier place to travel. This year we celebrate our 60th anniversary. We award scholarships to doctors and nurses from countries where travel medicine is an emerging specialty. Our scholars introduce travel health services and improve health standards in their community, benefitting local patients and travellers. Since 1990, IAMAT has sponsored the annual ASTMH Vincenzo Marcolongo Memorial Lecture in honor of IAMAT's founder, a specialist in tropical medicine who dedicated his life to the health needs of travelers.

ICF

Contact: Yazoume Ye, PhD, Msc
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Technical Director, PMI Measure Malaria Project (PMM)
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ICF is a global consulting services company with over 7,000 full- and part-time employees, but we are not your typical consultants. At ICF, business analysts and policy specialists work together with digital strategists, data scientists and creatives. We combine unmatched industry expertise with cutting-edge engagement capabilities to help organizations solve their most complex challenges. Since 1969, public and private sector clients have worked with ICF to navigate change and shape the future.

Indiana University School of Medicine

Contact: Katrina Co
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Indianapolis, IN 46202
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Twitter: @AMPATH
@IUCGH
@ChandyJohnLab
@IUPedsID
@iurwc

The Indiana University School of Medicine is a national leader in global health. At the Center for Global Health, AMPATH, and the Ryan White Center for Pediatric Infectious Disease and Global Health, we conduct innovative programs in global health research. Primary global health research areas at the Indiana University School of Medicine include malaria, HIV, HPV, and infections in neonates and children with sickle cell disease.

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International Society of Travel Medicine

Contact: Michelle Clark
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Suite 160
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Email: mclark@istm.org
Website: <https://www.istm.org/>
Twitter: https://twitter.com/_istm_

The ISTM, with more than 4,300 members in close to 100 countries, is the largest organization of professionals dedicated to the advancement of the specialty of travel medicine. Members include physicians, nurses and other health professionals from academia, government and the private sector. In cooperation with health care providers, academic centers, the travel industry and the media, ISTM advocates and facilitates education, service, and research activities in the field of travel medicine.

Mahidol Oxford Tropical Medicine Research Unit

Contact: Rita Chanviriyavuth
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Email: Rita@tropmedres.ac
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Twitter: @MORUBKK

MORU (Mahidol Oxford Tropical Medicine Research Unit, University of Oxford) is a Bangkok-headquartered multinational network of clinical and laboratory research units and collaborating sites in 11 Asian and 9 African countries. We seek practical ways to prevent and treat infectious diseases and Improve the health of the tropical rural poor. We study infectious diseases such as malaria, melioidosis, scrub and murine typhus, CNS infections, critical care medicine, maternal and child health, childhood pneumonia, and COVID-19.

Malaria Consortium

Contact: Sarah Bond
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244-254 Cambridge Heath Road
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Website: malariaconsortium.org
Twitter: @FightingMalaria

Established in 2003, Malaria Consortium is one of the world's leading non-profit organisations specialising in the prevention, control and treatment of malaria and other communicable diseases among vulnerable populations. Our mission is to improve lives in Africa and Asia through sustainable, evidence-based programmes that combat targeted diseases and promote child and maternal health.

Medical Care Development International (MCDI)

Contact: Matthew S. Lynch
Address: 8401 Colesville Rd Suite# 425
Silver Springs, MD 20910
Phone: (301) 562-1920
Email: mlynch@mcdi.org
Website: <https://mcdinternational.org/>
Twitter: @MCDItweets

Medical Care Development International (MCDI) has been improving the health of vulnerable populations worldwide through integrated, sustainable, and locally-driven interventions for nearly 50 years in over 40 countries. Our practical, evidence-based, and high-impact approaches transform the communities we serve. We collaborate with donors, the public and private sectors, health agencies, communities, and local stakeholders in malaria control and elimination; maternal, neonatal and child health; water, sanitation and hygiene; tuberculosis; HIV/AIDS; and other communicable diseases.

Motic Scientific

Contact: Chaz Madrid
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Website: www.moticeasyscan.com
Twitter: @MoticScientific

Description: Established in 1983, Motic China Group Co. Ltd. has grown to become the world's largest manufacturer of microscopes. With offices in China, Germany, the United States, Canada, Hong Kong, and Spain, Motic is dedicated to providing quality microscopy and optical products. Motic Scientific, a division of Motic China Group Co. Ltd, was established to lead high-end product development. Motic Scientific is committed to providing customers advanced digital microscopy solutions with an outstanding price-to-performance value.

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PEPperPRINT GmbH

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Twitter: @PEPperCHIP

PEPperPRINT provides high-content peptide microarrays for antibody epitope mapping, as well as profiling of immune responses in blood sera linked with infection, immunization, autoimmune diseases, or cancer. The PEPperCHIP® peptide microarrays are synthesized with a patented, laser printer-based method directly on the chip. The benefits of this approach are a unique flexibility in terms of custom peptide content, a high spot density, and reduced material consumption.

Roche Diagnostics GmbH

Address: DE-82377 Penzberg
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Phone: +49-8856 60 0
Website: <http://www.roche.de>

As a global leader in healthcare, Roche Diagnostics offers a broad portfolio of products, tools and services that help in the prevention, diagnosis and management of infectious diseases as well as many other medical conditions. These products and services are used by researchers, physicians, patients, hospitals and laboratories worldwide to help improve people's lives.

Takeda Pharmaceuticals International AG

Contact: Mayumi Fujino Chang
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Twitter: @TakedaPharma

For more than 70 years, Takeda has developed and provided vaccines to support national immunization programs to protect the health of people in Japan. Building upon this longstanding business in Japan, Takeda is applying innovation to develop vaccines that tackle the world's most challenging infectious diseases affecting millions of people, such as dengue, Zika and norovirus.

Vysnova Partners, Inc.

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Landover, MD 20785
Phone: 301-830-8885
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Website: <https://www.vysnova.com/>
Twitter: @VysnovaPartners

Vysnova Partners is a fast-growing program management firm that primarily delivers professional and technical Public/Global Health services worldwide for US governmental and commercial clients. With over 30 years of experience, Vysnova provides subject matter expertise and institutional support to its clients in Public/Global Health, Research and Development in the Life Sciences, Government Operations and Acquisition, and Information Technology. Our clients include; Department of Health and Human Services / Centers for Disease Control and Prevention, Department of Defense, US Agency for International Development, Department of State, and the Veterans Administration among others.

CONTRIBUTOR

SPONSOR

Tuesday, November 10

Clinical Pre-Meeting Course: Where Flatworms Roam: Controversies and Updates in Management of Neurocysticercosis and Echinococcus

Tuesday, November 10,

7:45 a.m. - 4 p.m. U.S. Eastern Time Zone

This one-day course will go beyond the basics of the diagnosis, imaging and management of both cestodes and larval cestodes. Expert speakers will present updates and explore controversies in diagnosis and management, unusual manifestations and imaging challenges. Imaging presentations will focus on understanding the differential diagnosis of suspicious lesions. Uncommon cestode infections also will be discussed, including alveolar hydatidosis, sparganosis and coenurosis. Presentations will be highly interactive with opportunities for active audience participation and discussion with the experts.

COURSE CO-CHAIRS

Christina Coyle

Albert Einstein College of Medicine, Bronx, NY, United States

Michael Libman

McGill University, Montreal, QC, Canada

7:45 a.m.

INTRODUCTION

8 a.m.

TAENIASIS, NATURE'S HERMAPHRODITIC FREIGHT TRAIN

Michael Libman

McGill University, Montreal, QC, Canada

8:30 a.m.

CYSTIC ECHINOCOCCOSIS: THE CLINICAL APPROACH

Thomas Junghanss

Heidelberg University Hospital, Heidelberg, Germany

9:15 a.m.

ULTRASOUND STAGING FOR ECHINOCOCCUS

Enrico Brunetti

University of Pavia, Pavia, Italy

10:45 a.m.

BREAK

10:15 a.m.

ECHINOCOCCUS MULTILOCULARIS

Bruno Gottstein

University of Bern, Bern, Switzerland

11 a.m.

CHALLENGING ECHINOCOCCAL CLINICAL CASES: PANEL DISCUSSION

MODERATORS:

Christina Coyle

Albert Einstein College of Medicine, Bronx, NY, United States

Michael Libman

McGill University, Montreal, QC, Canada

PANELISTS:

Thomas Junghanss

Heidelberg University Hospital, Heidelberg, Germany

Enrico Brunetti

University of Pavia, Pavia, Italy

Bruno Gottstein

University of Bern, Bern, Switzerland

11:45 a.m.

LUNCH

12:15 p.m.

OVERVIEW OF NEUROCYSTICERCOSIS AND APPROACH TO PARENCHYMAL DISEASE

Hugo Garcia

University Peruana Cayetano Heredia, Lima, Peru

1 p.m.

NEUROCYSTICERCOSIS: AN OVERVIEW OF CALCIFIED DISEASE

Javier A. Bustos

Universidad Peruana Cayetano Heredia, Lima, Peru

1:30 p.m.

DIAGNOSTIC TOOLS IN NEUROCYSTICERCOSIS

Elise O'Connell

National Institutes of Health, Bethesda, MD, United States

2 p.m.

INTRAVENTRICULAR NEUROCYSTICERCOSIS: MANAGEMENT ISSUES

A. Clinton White

University of Texas Medical Branch, Galveston, TX, United States

2:45 p.m.

SUBARACHNOID NEUROCYSTICERCOSIS: MANAGEMENT ISSUES

Christina Coyle

Albert Einstein College of Medicine, Bronx, NY, United States

3:30 p.m.

BREAK

3:45 p.m.

CHALLENGING NEUROCYSTICERCOSIS CLINICAL CASES: PANEL DISCUSSION

MODERATORS:

Christina Coyle

Albert Einstein College of Medicine, Bronx, NY, United States

Michael Libman

McGill University, Montreal, QC, Canada

PANELISTS:

Hugo Garcia

Universidad Peruana Cayetano Heredia, Lima, Peru

Javier A. Bustos

Universidad Peruana Cayetano Heredia, Lima, Peru

A. Clinton White

University of Texas Medical Branch, Galveston, TX, United States

4:15 p.m.

COURSE ADJOURNS

Wednesday, November 11

Global Health Pre-Meeting Course: Modeling for Disease Outbreaks – A Practical Approaches to Understanding and Using Models

Wednesday, November 11

9 a.m. - 4:30 p.m. U.S. Eastern Time Zone

The COVID-19 outbreak has demonstrated to the world again how rapidly a disease can move through populations, spread exponentially in numbers and locations, and impact human health, transportation, economies, and other important and significant aspects of life. The ability to plan and implement an effective response depends on predicting as accurately as possible who, where, how many and when cases will occur, with limited information and under a range of assumptions. With this knowledge, responders can allocate resources to maximum benefit, and enact the best preventive, containment and mitigation measures. This prediction requires accurate data, an understanding of pathogen transmission dynamics, the context in which the disease is transmitted, and a range of mathematical modeling methods. Modeling is an essential tool in the study of infectious disease epidemiology which allows informed policymaking, nowcasting and forecasting of epidemics, and real-time risk assessments. COVID-19 has clearly demonstrated how model implementation is a multi-disciplinary effort best grounded in a thorough understanding of the principles and limits of communicable disease models.

This Pre-Meeting Course will provide instruction to first-time or introductory modelers in 1) key concepts of infectious disease modeling; 2) understanding the strengths and limitations of modeling in order to critically review modeling results; 3) provide a list of resources including modelers and open source modeling programs; and 4) a practical session to provide hands-on experience implementing, running and using models.

At the end of the activity, participants will be able to:

- Understand the principles underlying infectious disease modeling
- Describe dynamics in pathogen transmission
- Identify necessary data elements for accurate disease modeling
- Analyze different models and their outputs and understand limitations
- Consider different resources and programs when determining the most appropriate modeling approach
- Develop and demonstrate mastery of basic modeling using a simulated example

COURSE CO-CHAIRS

Julie Pavlin

National Academies of Sciences, Engineering and Medicine, Bethesda, MD, United States

Kathryn A. Anderson

SUNY Upstate Medical University, Syracuse, NY, United States

9 a.m.

WELCOME, INTRODUCTION OF TOPICS AND LOGISTICS

9:15 a.m.

KEYNOTE ADDRESS: METHODS AND MOTIVES FOR INFECTIOUS DISEASE MODELS - THE TALE OF COVID-19

Nicholas G. Reich

University of Massachusetts Amherst School of Public Health and Health Sciences, Amherst, MA, United States

9:45 a.m.

QUESTION AND ANSWER

10 a.m.

ADDRESSING COMMON PITFALLS IN APPLIED PUBLIC HEALTH MODELING

Michael Johansson

Centers for Disease Control and Prevention Dengue Branch, Atlanta, GA, United States

10:15 a.m.

THE INTERSECTION BETWEEN MODELING AND CLINICAL TRIAL DESIGN DURING AN EPIDEMIC

Natalie Dean

University of Florida, Gainesville, FL, United States

10:30 a.m.

MODELING COVID-19 IN ECUADOR: EVALUATING THE IMPACT OF REVERSING SOCIAL DISTANCING MEASURES IN SPRING/SUMMER 2020

Miguel Reina Ortiz

University of South Florida, Tampa, FL, United States

11 a.m.

BREAK

11:15 a.m.

PANEL DISCUSSION - CRITICAL EVALUATION OF EPIDEMIC MODELS FOR REAL-WORLD USE: A PRAGMATIC APPROACH

Moderator: Alex Perkins

University of Notre Dame, Notre Dame, IN, United States

PANELISTS:

Simon Pollett

Uniformed Services University, Bethesda, MD, United States

Sara Del Valle

Los Alamos National Laboratory, Los Alamos, NM, United States

11:45 a.m.

DISCUSSION SESSION WITH PANEL TO INCLUDE ADDITIONAL PANELISTS

Sheetal Silal

Modelling and Simulation Hub, Africa, University of Cape Town, Cape Town, South Africa

Michael Johansson

Centers for Disease Control and Prevention Dengue Branch, Atlanta, GA, United States

12:30 p.m.

LUNCH

1 p.m.

PRACTICAL EXAMPLE OF EPIDEMIC MODEL INTERPRETATIONS

1 p.m.

ENSEMBLE FORECASTING AND REVIEW OF COVID-19 FORECASTHUB

Estee Cramer

University of Massachusetts Amherst School of Public Health and Health Sciences, Amherst, MA, United States

1 p.m.

MODELING OF VECTOR-BORNE DISEASES IN TROPICAL SETTINGS

Benjamin M. Althouse

Institute for Disease Modeling, Bellevue, WA, United States

1:30 p.m.

QUESTION AND ANSWER

2 p.m.

BREAK

2:15 p.m.

TALES FROM THE FIELD - MODELING TO SUPPORT MALARIA ELIMINATION

Sheetal Silal

Modelling and Simulation Hub, Africa, University of Cape Town, Cape Town, South Africa

2:30 p.m.

TALES FROM THE FIELD - MODELS BORNE OF NECESSITY: PREPARING OUR COMMUNITY AND HOSPITALS FOR COVID-19 IN CENTRAL NEW YORK

Kathryn A. Anderson

SUNY Upstate Medical University, Syracuse, NY, United States

2:45 p.m.

DISEASE OUTBREAK SCENARIOS

3 p.m.

TIME FOR EXPERIMENTATION ON OWN AND SUBMIT RESULTS/ QUESTIONS

4 p.m.

RECONVENE AND REVIEW OF MODELING RESULTS AND DISCUSSION

Corey Chivers

University of Pennsylvania Health System, Philadelphia, PA, United States

James Colborn

Clinton Health Access Initiative, Inc., Evergreen, CO, United States

Kathryn A. Anderson

SUNY Upstate Medical University, Syracuse, NY, United States

Simon Pollett

Uniformed Services University, Bethesda, MD, United States

4:30 p.m.

COURSE ADJOURNS

Thursday, November 12

Medical Entomology Pre-Meeting Course: Vector-Borne Disease Risk and Prevention for the Clinician

Thursday, November 12

9 a.m. - 4:15 p.m. U.S. Eastern Time Zone

Blood-sucking insects and ticks transmit some of the most devastating, yet in many cases preventable, human diseases including malaria, dengue, chikungunya, Zika, Lyme disease, leishmaniasis and Chagas disease. In this course, we will review the basic biology of major arthropod vectors; discuss the geographic and behavioral risks posed by vector-borne diseases; and highlight preventive options, including personal protection and environmental control methods. The course is designed to help medical professionals advise their patients about the risks and prevention measures against biting insects and ticks.

COURSE ORGANIZERS

Christopher Barker

University of California Davis, Davis, CA, United States

Laura C. Harrington

Cornell University, Ithaca, NY, United States

9 a.m.

OVERVIEW OF THE COURSE - VECTOR BIOLOGY 101

Christopher Barker

University of California Davis, Davis, CA, United States

9:30 a.m.

TICKS AND LYME DISEASE

Robert Smith

Maine Medical Center, Portland, ME, United States

10:30 a.m.

MOSQUITOES AND MALARIA

Nicole L. Achee

University of Notre Dame, Notre Dame, IN, United States

11:30 a.m.

BREAK

11:45 a.m.

MOSQUITOES AND ARBOVIRAL DISEASES

Laura C. Harrington

Cornell University, Ithaca, NY, United States

12:45 p.m.

LUNCH

1:15 p.m.

EMERGING VECTOR BORNE DISEASE EPIDEMIOLOGY

Christopher Gregory

Centers for Disease Control and Prevention, Fort Collins, CO, United States

2:15 p.m.

KISSING BUGS AND CHAGAS DISEASE

Pamela Pennington

Universidad del Valle de Guatemala, Guatemala, Guatemala

3:15 p.m.

QUESTION AND ANSWER SESSION

MODERATORS:

Christopher Barker

University of California Davis, Davis, CA, United States

Laura C. Harrington

Cornell University, Ithaca, NY, United States

4:15 p.m.

COURSE ADJOURNS

Friday, November 13

Parasitology Pre-Meeting Course: The Science and Business of Vaccines Against Tropical Parasitic Diseases in the COVID19 Era

Friday, November 13

7:45 a.m. - 4:30 p.m. U.S. Eastern Time Zone

There is no vaccine for a human parasitic infection that has marketing authorization (licensure) anywhere in the world. However, we are on the verge of licensed vaccines for malaria, and are making enormous progress for diseases caused by other protozoans like leishmaniasis and helminths like hookworm. A distinguished international faculty from the biotechnology industry, the government, and academia will communicate their experience and insights regarding how to approach successful development of vaccines against parasites, including identification of the immunological mechanisms of protection and the antigenic targets of protective humoral and cellular immune responses, the construction of vaccine delivery systems (recombinant proteins, recombinant viruses, nucleotide (eg. mRNA), and whole wild type and genetically altered parasites) and achieving regulatory approval for conducting phase 1-3 clinical trials and translating from the laboratory to the clinic to assess safety and vaccine efficacy in the era of COVID-19.

COURSE ORGANIZERS

John H. Adams

University of South Florida, Tampa, FL, United States

Stephen L. Hoffman

Sanaria Inc., Rockville, MD, United States

7:45 a.m.

WHY WE NEED VACCINES AND WHY THERE AREN'T ANY LICENSED VACCINES AGAINST PARASITES

Stephen L. Hoffman

Sanaria, Inc., Rockville, MD, United States

8:15 a.m.

THE EUROPEAN UNION MALARIA FUND: A NEW PARADIGM FOR FUNDING PRIVATE SECTOR MALARIA VACCINE R&D

Holm Keller

kENUP Foundation and EU Malaria Fund, Republic of Malta, Malta

8:45 a.m.

DETERMINING THE MECHANISMS OF PROTECTIVE IMMUNITY AND ESTABLISHING THEY ARE INDUCED BY VACCINES

HUMORAL IMMUNITY (ANTIBODIES): SYSTEMS IMMUNOLOGY TOOLS TO DETERMINE THE ROLE OF HUMORAL IMMUNITY IN PROTECTION AGAINST MALARIA, COVID-19 AND OTHER INFECTIOUS DISEASES AND TO MONITOR VACCINE RESPONSE

Galit Alter

Harvard Medical School and Ragon Institute of MGH, MIT and Harvard, Cambridge, MA, United States

CELLULAR IMMUNITY (T CELLS): CELLULAR IMMUNOLOGY TOOLS TO DETERMINE THE ROLE OF PROTECTIVE IMMUNITY IN PROTECTION AGAINST MALARIA, COVID-19, AND OTHER INFECTIOUS DISEASES AND TO MONITOR VACCINE RESPONSE

Robert A. Seder

Vaccine Research Center, National Institutes of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States

9:45 a.m.

DETERMINING THE TARGETS OF PROTECTIVE IMMUNITY

TARGETS OF ANTIBODIES I: STRUCTURAL VACCINOLOGY: DEFINING B CELL EPITOPE TARGETS OF PROTECTIVE IMMUNITY TO MALARIA

Niraj Tolia

National Institutes of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States

TARGETS OF ANTIBODIES II: DETERMINING TARGETS OF NATURALLY ACQUIRED PROTECTIVE IMMUNITY USING PROTEIN MICROARRAYS AND FUNCTIONAL ASSAYS

Faith Osier

Centre for Tropical Medicine and Global Health, Kilifi, Kenya

TARGETS OF CELLULAR IMMUNE RESPONSES: DETERMINING THE TARGETS OF CELLULAR IMMUNE RESPONSES AFTER NATURAL INFECTION WITH AND IMMUNIZATION AGAINST PARASITES AND SARS-CoV-2

Alessandro Sette

La Jolla Institute, La Jolla, CA, United States

11 a.m.

QUESTIONS AND ANSWERS

11:15 a.m.

BREAK

11:30 a.m.

PRODUCING/MANUFACTURING IMMUNOGENS TO INDUCE THE REQUIRED IMMUNE RESPONSES AGAINST THE IDENTIFIED TARGETS AND THE MANUFACTURING AND REGULATORY CHALLENGES OF TRANSITIONING FROM PHASE 1-3, AND SCALING UP TO MEET COMMERCIAL DEMAND

RECOMBINANT PROTEIN VACCINES (VLPS) AND ADJUVANTS

Simon J. Draper

University of Oxford, Oxford, United Kingdom

R21 AND CHADS AND A PATH TO MALARIA AND CORONAVIRUS VACCINES

Adrian Hill

University of Oxford, Oxford, United Kingdom

NUCLEOTIDE VACCINES (DNA/MRNA)

Andrea Carfi

Moderna, Cambridge, MA, United States

SPEAKER TBD WILD TYPE AND GENETICALLY ALTERED WHOLE PARASITE AND ATTENUATED BACTERIA VACCINES

B. Kim Lee Sim

Sanaria, Inc. and Protein Potential LLC, Rockville, MD, United States

1:30 p.m.

QUESTIONS AND ANSWERS

1:45 p.m.

LUNCH

2:15 p.m.

EVALUATING SAFETY AND PROTECTIVE EFFICACY OF VACCINES IN THE ERA OF COVID-19

CONTROLLED HUMAN INFECTIONS TO ASSESS MALARIA, SCHISTOSOMIASIS AND HOOKWORM VACCINES

Meta Roestenberg

Leiden University Medical Center, Leiden, Netherlands

FIELD AND CHMI TRIALS OF MALARIA VACCINES IN AFRICA

Said Jongo

Ifakara Health Institute and Bioko Island Malaria Elimination Program, Dar es Salaam, United Republic of Tanzania

TRANSLATING PARASITIC DISEASE AND COVID-19 VACCINES FROM DISCOVERY TO THE CLINIC

Peter J. Hotez

National School of Tropical Medicine, Baylor College of Medicine and Texas Children's Center for Vaccine Development, Houston, TX, United States

CONDUCTING TRIALS OF COVID-19 THERAPEUTICS, COVID-19 VACCINES, AND MALARIA VACCINES AT THE SAME TIME

Peter G. Kremsner

University of Tübingen and Centre de Recherches Médicales de Lambaréné (CERMEL), Tübingen, Germany

4:15 p.m.

QUESTIONS AND ANSWERS

4:30 p.m.

COURSE ADJOURNS

Sunday, November 15

ASTMH Information Desk

Lobby

Sunday, November 15

8 a.m. - 6 p.m. U.S. Eastern Time Zone

Exhibit Hall

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Young Investigator Award Sessions

CHAIR

Edward Mitre

Uniformed Services University, Bethesda, MD, United States

The Young Investigator Award is presented to outstanding young researchers during the Annual Meeting. This award encourages developing young scientists to pursue careers in various aspects of tropical disease research. Support these young scientists by attending their presentations during this session.

Supported with funding from Friends of the Young Investigators
William A. Petri, Jr. in memory of William A. Petri, Sr.
Mary Denton Roberts and David Lyerly in memory of Annie Liberati

Young Investigator Award Session A

Meeting Room 1

Sunday, November 15

10 a.m. - 1 p.m. U.S. Eastern Time Zone

JUDGE

Fernando Bruno

Touro College of Osteopathic Medicine and Harvard T. H. Chan School of Public Health and, Middletown, NY, United States

Tahaniyat Lalani

Infectious Disease Clinical Research Program, Portsmouth, VA, United States

Matthew Laurens

University of Maryland School of Medicine, Baltimore, MD, United States

Elise Michelle O'Connell

National Institutes of Health, Bethesda, MD, United States

10 a.m.

319

A COMPARISON OF TRADITIONAL DIARRHOEA SURVEILLANCE METHODS WITH STOOL MICROBIOLOGICAL INDICATORS IN THE FORCIBLY DISPLACED MYANMAR NATIONALS CAMPS IN COX'S BAZAR, BANGLADESH

Ryan T. Rego¹, Samuel I. Watson¹, Mohammad Atique Ul Alam², Syed Asif Abdullah², Mohammad Yunus², Mohammad Sirajul Islam², A.S.G Faruque², Azharul Islam Khan², John Clemens², Richard J. Lilford³

¹University of Warwick, Coventry, United Kingdom, ²International Center for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ³University of Birmingham, Birmingham, United Kingdom

10:15 a.m.

337

RISK FACTORS AND OUTCOMES ASSOCIATED WITH INCREASED MORTALITY DUE TO CHOLERA INFECTION IN LMIC SETTINGS: A CASE FOR THE DOMINICAN REPUBLIC

Miguel A. Delgadillo

School of Medicine, Universidad Iberoamericana, Santo Domingo, Dominican Republic

10:30 a.m.

461

FILARIAL COINFECTION IS ASSOCIATED WITH HIGHER BACTERIAL BURDENS AND ALTERED PLASMA CYTOKINE AND CHEMOKINE RESPONSES IN TUBERCULOUS LYMPHADENITIS

Gokul Raj Kathamuthu

NIH-ICER-NIRT, Chennai, India

10:45 a.m.

624

ZIKA VIRUS RECRUDESCENCE IN THE MURINE MALE REPRODUCTIVE TRACT FOLLOWING IMMUNOSUPPRESSION

Megan B. Vogt, Nisha K. Duggal

Virginia Polytechnic Institute and State University, Blacksburg, VA, United States

11 a.m.

890

INTRACARDIAC TUBERCULOMA IN THE IMMUNE-COMPROMISED POPULATION - A RE-VISITATION

Cornelius C. Nwora

Texas Southern University, Houston, TX, United States

11:15 a.m.

912

MAPPING THE ENVIRONMENTAL SUITABILITY OF MONKEYPOX IN HUMANS ACROSS AFRICA

Erin N. Hulland¹, Austin N. Hardcastle¹, Joshua C. Osborne¹, Julia D. Morgan¹, Shreya Shirude¹, Kiana F. Henny¹, Peter Rabinowitz², Judith N. Wasserheit², Molly K. Miller-Petrie¹, Julia Hon¹, Simon I. Hay¹, David M. Pigott¹

¹Institute for Health Metrics and Evaluation, Seattle, WA, United States, ²University of Washington School of Medicine, Seattle, WA, United States

11:30 a.m.

925

THE PREVALENCE OF *M. TUBERCULOSIS* AMONG ACID FAST CULTURES FROM MILITARY HEALTH SYSTEM BENEFICIARIES FROM HAWAII AND PACIFIC ISLANDS FROM JANUARY 2002 TO NOVEMBER 2019

Elena M. Crecelius, Michael B. Lustik, Timothy S. Horseman, Milissa U. Jones

Tripler Army Medical Center, Honolulu, HI, United States

11:45 p.m.

1285

THE EPIDEMIOLOGY AND CLINICAL COURSE OF INVASIVE STAPHYLOCOCCUS AUREUS AND GROUP A STREPTOCOCCUS INFECTIONS IN FIJI, A PROSPECTIVE STUDY

Li Jun Thean¹, Adam Jenney², Lucia Romani³, Daniel Engelman¹, Handan Wand³, Aalisha Sahukhan⁴, Mike Kama⁴, Meciusela Tuicakau⁴, Joseph Kado⁵, Natalie Carvalho⁶, Margot Whitfeld⁷, Ross Andrews⁸, John Kaldor³, Andrew C. Steer¹
¹Murdoch Children's Research Institute, Melbourne, Australia, ²Fiji National University, Suva, Fiji, ³Kirby Institute, Sydney, Australia, ⁴Fiji Ministry of Health and Medical Services, Suva, Fiji, ⁵Ministry of Health and Medical Services, Suva, Fiji, ⁶University of Melbourne, Melbourne, Australia, ⁷University of New South Wales, Sydney, Australia, ⁸Menzies School of Health Research, Brisbane, Australia

Noon

1589

THE GLOBAL BURDEN OF SNAKEBITES: A MODELING STUDY OF MORTALITY AND NONFATAL HEALTH OUTCOMES

Nicholas L. Roberts, Erin Hamilton, Theo Vos, Spencer James, David Pigott
 Institute for Health Metrics and Evaluation, Seattle, WA, United States

Young Investigator Award Session B

Meeting Room 2

Sunday, November 15

10 a.m. - 1 p.m. U.S. Eastern Time Zone

JUDGE

Sasisekhar Bennuru
 National Institutes of Health, Bethesda, MD, United States

Stephen Davies
 USUHS, Bethesda, MD, United States

David Diemert
 George Washington University, Washington, DC, United States

Ann M Moormann
 University of Massachusetts, Worcester, MA, United States

10 a.m.

134

HETEROLOGOUS FLAVIVIRUS EXPOSURE PROVIDES VARYING DEGREES OF CROSS-PROTECTION FROM ZIKA VIRUS DISEASE IN A MOUSE MODEL OF INFECTION

Mariah Hassert¹, Tara Steffen¹, Bryce G. Dorfinger², Jacquelyn Dayton², Abigail Coleman¹, Lillian Cruz-Orengo², James D. Brien^{*1}, Amelia K. Pinto^{*1}
¹Saint Louis University, St. Louis, MO, United States, ²University of California-Davis, Davis, CA, United States

10:15 a.m.

445

CHARACTERIZATION OF THE ADAPTIVE IMMUNE RESPONSE ELICITED BY REPEATED EXPOSURE TO THE BITES OF AN INSECT VECTOR: IMPLICATIONS FOR VECTOR TRANSMITTED DISEASES

Chukwunonso O. Nzelu, Matheus B. Carneiro, Nathan C. Peters
 Snyder Institute for Chronic Diseases, Departments of Microbiology, Immunology and Infectious Diseases, Cumming School of Medicine and Comparative Biology and Experimental Medicine, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada

10:30 a.m.

513

MTOR MEDIATED IMMUNE CELL MIGRATION LEADS TO IMMUNOPATHOLOGY DURING LEISHMANIA MAJOR INFECTION

Gopinath Venugopal¹, Jordan Bird², Hayden Roys¹, Charity Washam², Anne Bowlin¹, Manjunath Bettadapura³, Stephanie Byrum², Tiffany Weinkopf¹
¹Dept. of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR, United States, ²Dept. of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR, United States, ³Dept. of Biology, University of Arkansas at Little Rock, Little Rock, AR, United States

10:45 a.m.

728

A CONFORMATIONALLY-CONSTRAINED PEPTIDE FROM PVDDB ELICITS ANTIBODIES THAT CROSS-REACT WITH P FALCIPARUM VAR2CSA

Catherine J. Mitran¹, Lauren Higa¹, Michael F. Good², Stephanie K. Yanow¹
¹University of Alberta, Edmonton, AB, Canada, ²Institute for Glycomics, Griffith University, Southport, Australia

11 a.m.

1082

CHARACTERIZATION OF SEROLOGICAL RESPONSE TO DENGUE AND ZIKA VIRUSES IN PREGNANT WOMEN DURING THE ZIKA OUTBREAK IN BRAZIL

Kaitlin Driesse¹, Wen-Yang Tsai¹, Carlos Brites², Celia Pedroso², Wei-Kung Wang¹
¹John A. Burns School of Medicine, University of Hawaii at Manoa, Honolulu, HI, United States, ²LAPI-Laboratório de Pesquisa em Infectologia- School of Medicine, Federal University of Bahia, Salvador, Brazil

11:15 a.m.

1093

LAG-3: A POTENTIAL CHECKPOINT OF THE HUMORAL IMMUNE RESPONSE TO IMMUNIZATION

Brien K. Haun, Albert To, Teri Wong, Eileen Nakano, Lishomwa Ndhlovu, Axel T. Lehrer
 The University of Hawaii, Honolulu, HI, United States

11:30 a.m.

1095

CANONICAL PRR SIGNALING PATHWAYS ARE NOT VITAL IN THE ANTIVIRAL RESPONSE AGAINST ZIKV INFECTION IN HUMAN SERTOLI CELLS

Boonyanudh Jiyarom¹, Daniel P. Strange¹, Nataliya Panova¹, Pei-Yong Shi², Michael Gale Jr.³, Saguna Verma¹
¹University of Hawaii at Manoa, Honolulu, HI, United States, ²University of Texas Medical Branch, Galveston, TX, United States, ³University of Washington School of Medicine, Seattle, WA, United States

11:45 a.m.

1452

PROFILING OF THE EPIOTOPE DIVERSITY AND EVOLUTION OF DENGUE BINDING ANTIBODIES BY PEPTIDE MICROARRAY

Francesca Falconi-Agapito¹, Karen Kerkhof¹, Xiomara Merino², Marjan Van Esbroeck³, Michael Talledo², Kevin K. Ariën¹
¹Virology Unit, Institute of Tropical Medicine, Antwerp, Belgium, ²Virology Unit, Instituto de Medicina Tropical Alexander von Humboldt, Lima, Peru, ³Department of Clinical Sciences, National Reference Center for Arboviruses, Institute of Tropical Medicine, Antwerp, Belgium

Sunday
November 15

Young Investigator Award Session C

Meeting Room 3

Sunday, November 15

10 a.m. - 1 p.m. U.S. Eastern Time Zone

JUDGE

Sara Anne Healy

National Institutes of Health, Rockville, MD, United States

Tracey Lamb

University of Utah, Salt Lake City, UT, United States

Nathan W. Schmidt

Indiana University, Indianapolis, IN, United States

Prakash Srinivasan

Johns Hopkins School of Public Health, Baltimore, MD, United States

10 a.m.

156

BLOCKING PLASMODIUM HOST CELL INVASION USING SMALL MOLECULE INHIBITORS TARGETING AN ESSENTIAL PROTEIN-PROTEIN INTERACTION

Geervani Daggupati¹, Adam Yasgar², Elena Fernandez Alvaro³, Maria Jesus Almela-Armendariz³, Maria Isabel Castellote-Alvaro³, Dolores Jimenez-Alfaro-Mtnez³, Francisco Javier Gamo³, Anton Simeonov², Louis Miller⁴, Prakash Srinivasan¹

¹Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States;

²National Center for Advancing Translational Sciences, National Institutes of Health, Bethesda, MD, United States;

³Tres Cantos Medicine Development Campus, GlaxoSmithKline, Parque Tecnológico de Madrid, Tres Cantos, Spain;

⁴Laboratory of Malaria and Vector Research, Division of Intramural Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States

10:15 a.m.

674

IVERMECTIN - A DOSE-ASCENDING, RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE-BLIND CLINICAL TRIAL ON THE EFFICACY AND SAFETY OF IVERMECTIN FOR THE TREATMENT OF PLASMODIUM FALCIPARUM INFECTIONS IN ASYMPTOMATIC GABONESE ADULTS: PRELIMINARY RESULTS

Dorothea Sträßner¹, Rella Zoleko Manego², Jana Held³, Benjamin Mordmüller³, Laura C. Kalkman², Ayola A. Adegnika², Michael Ramharter¹, Ghyslaine Mombongo-Ngoma²

¹Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany;

²Centre de Recherches Médicales de Lambaréné, Lambaréné, Gabon;

³Institute of Tropical Medicine, University of Tübingen, Tübingen, Germany

10:30 a.m.

680

THE EFFECT OF DIHYDROARTEMISININ-PIPERAQUINE INTERMITTENT PREVENTIVE TREATMENT DURING PREGNANCY COMPARED TO SULFADOXINE-PYRIMETHAMINE ON CLINICAL MALARIA AND *P. FALCIPARUM* INFECTION DURING INFANCY

Liana R. Andronesco¹, Yuanyuan Liang¹, Martin Kachingwe², Andy Bauleni², Witness Kachepa², Julie R. Gutman³, Jobiba Chinkhumba², Don P. Mathanga², Miriam K. Laufer¹

¹University of Maryland Baltimore, Baltimore, MD, United States;

²Malaria Alert Center, University of Malawi College of Medicine, Blantyre, Malawi;

³Centers for Disease Control and Prevention, Malaria Branch, Atlanta, GA, United States

10:45 a.m.

692

HIGHER ODDS OF SYMPTOMATIC *PLASMODIUM FALCIPARUM* INFECTION WHEN EXPOSED TO NOVEL COMPARED TO RECURRENT MALARIA INFECTIONS OVER TIME

Kelsey M. Sumner¹, Elizabeth Freedman², Lucy Abel³, Andrew Obala⁴, Steven R. Meshnick¹, Brian W. Pence¹, Wendy Prudhomme-O'Meara², Steve M. Taylor²

¹University of North Carolina at Chapel Hill, Chapel Hill, NC, United States;

²Duke University, Durham, NC, United States;

³Moi Teaching and Referral Hospital, Eldoret, Kenya;

⁴Moi University, Eldoret, Kenya

11 a.m.

694

ASSESSMENT OF PVMSP8 AS SEROLOGICAL MARKER OF RECENT *P. VIVAX* EXPOSURE IN THE PERUVIAN AMAZON

Katherine Garro^{*1}, Elizabeth Villasis^{*1}, Angel Rosas-Aguirre^{*2}, Pamela Rodriguez¹, Jason Rosado³, Anthony Gave¹, Mitchel Guzman¹, Paulo Manrique¹, Niko Speybroeck⁴, Joseph Vinetz⁵, Dionicia Gamboa⁶, Katherine Torres⁶

¹Laboratorio ICEMR-Amazonia, Laboratorios de Investigación y Desarrollo, Facultad de Ciencias y Filosofía Abraham Vaisberg Wolach, Facultad de Ciencias y Filosofía,

Universidad Peruana Cayetano Heredia, Lima, Peru;

²Fund for Scientific Research FNRS, Brussels, Belgium;

³Unit of Malaria, Parasites and hosts, Institut Pasteur, Paris, France;

⁴Research Institute of Health and Society (IRSS), Université catholique de Louvain, Brussels, Belgium;

⁵Section of Infectious Diseases, Department of Internal Medicine, Yale School of Medicine, New Haven, CT, United States;

⁶Instituto de Medicina Tropical Alexander von Humboldt, Universidad Peruana Cayetano Heredia, Lima, Peru

11:15 a.m.

1649

LOOKING AHEAD IN MALARIA: R21/MATRIX-M, AN EXCITING NEW VACCINE CANDIDATE

Mehreen S. Datto¹, Meera Madhavan¹, Duncan Bellamy¹, Megan Baker¹, Fernando Ramos-Lopez¹, Amy Flaxman¹, Nick J. Edwards¹, Daniel Jenkin¹, Hazel Morrison¹, Rebecca Makinson¹, Jeremy Aboagye¹, Ian Poulton¹, Nguyen Tran¹, Alison Lawrie¹, Anna Goodman², Katrina Pollock³, Andrew Blagborough⁴, Jake Baum⁵, Saul Faust⁶, Brian Angus⁷, Umesh Shaligram⁸, Katie J. Ewer¹, Adrian V. Hill¹

¹Jenner Institute, University of Oxford, Oxford, United Kingdom;

²Department of Infectious Diseases, Guy's & St Thomas' NHS Foundation, London, United Kingdom;

³NIHR Imperial Clinical Research Facility, Imperial College, London, United Kingdom;

⁴University of Cambridge, Cambridge, United Kingdom;

⁵Department of Life Sciences, Imperial College, London, United Kingdom;

⁶NIHR Wellcome Trust Clinical Research Facility, University of Southampton, Southampton, United Kingdom;

⁷Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom;

⁸Serum Institute of India, Pune, India

Young Investigator Award Session D

Meeting Room 4

Sunday, November 15

10 a.m. - 1 p.m. U.S. Eastern Time Zone

JUDGE

Vitaliano A Cama

CDC, Atlanta, GA, United States

Peter Crompton

NIH, Rockville, MD, United States

Naomi W Lucchi

CDC, Atlanta, GA, United States

Mostafa Zamanian

University of Wisconsin-Madison, Madison, WI, United States

10 a.m.

155

ASSOCIATION BETWEEN PLACENTAL MALARIA INFLAMMATORY AND ANGIOGENIC FACTORS IN PREGNANT WOMEN WITH PREECLAMPSIA**Dorotheah Obiri¹**, Daniel Oduro², Isaac Erskine³, Jones Amponsah¹, Thomas Addison¹, Kwame Adu-Bonsaffoh⁴, Kwadwo Asamoah Kusi¹, Michael Ofori¹, Ben Gyan¹¹Noguchi Memorial Institute for Medical Research, University of Ghana, Accra, Ghana, ²Department of Animal Biology and Conservation Science, University of Ghana, Accra, Ghana, ³Department of Pathology, Korle-Bu Teaching Hospital, Accra, Ghana, ⁴Department of Obstetrics & Gynecology, Korle-Bu Teaching Hospital, Accra, Ghana

10:15 a.m.

423

ABO BLOOD GROUPS DO NOT PREDICT SCHISTOSOME INFECTION PROFILES IN HIGHLY ENDEMIC VILLAGES OF UGANDA**Rachel Francoeur¹**, Moses Arinaitwe², Alon Atuhaire², Poppy Lamberton¹, Simon Babayan¹, Edridah Muheki²¹University of Glasgow, Glasgow, United Kingdom, ²Vector Control Division, Ministry of Health, Kampala, Uganda

10:30 a.m.

717

A HIGH-THROUGHPUT PHENOTYPIC SCREEN UNRAVELS *PLASMODIUM FALCIPARUM* GENES ESSENTIAL FOR MALARIA TRANSMISSION (GAMETOCYTE DEVELOPMENT)**Jyotsna Chawla¹**, Jenna Oberstaller¹, Min Zhang¹, Chengqi Wang¹, Shulin Xu¹, Anatoli Naumov¹, Andreas Seyfang¹, Thomas D. Otto², Julian C. Rayner³, John Adams¹¹Center for Global Health and Infectious Diseases Research, University of South Florida, Tampa, FL, United States, ²Institute of Infection, Immunity and Inflammation, College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, United Kingdom, ³Cambridge Institute for Medical Research, University of Cambridge, Cambridge, United Kingdom

10:45 a.m.

1002

CHARACTERIZATION OF THE CHEMOSENSORY PATHWAY OF FILARIAL WORMS**Nicolas J. Wheeler**, Zachary W. Heimark, Paul M. Airs, Alexis Mann, Lyric C.Bartholomay, Mostafa Zamanian
University of Wisconsin-Madison, Madison, WI, United States

11 a.m.

1183

INVESTIGATING IMMUNE SIGNATURES PREDICTIVE OF INCIDENT *PLASMODIUM FALCIPARUM* INFECTIONS IN MALIAN CHILDREN**Jyoti Bhardwaj¹**, Leetah C. Senkpeil², Aditi S. Upadhye¹, Aissata Ongoiba³, Joaquin Cardozo⁴, Aarti Jain⁵, Safiatou Doumbo³, Kassoum Kayentao³, Hongyu Gao⁶, Hans Ackerman⁷, Xiaoling Xuei⁶, Phillip L. Felgner⁵, Yunlong Liu⁶, Boubacar Traoré³, Peter D. Crompton⁸, Tuan M. Tran¹¹Division of Infectious Diseases, Department of Medicine, Indiana University School of Medicine, Indianapolis, IN, United States, ²Indiana Bio-Medical Gateway Program, Indiana University School of Medicine, Indianapolis, IN, United States, ³Mali International Center of Excellence in Research, University of Sciences, Technique and Technology of Bamako, Bamako, Mali, ⁴Oberlin College, Oberlin, OH, United States, ⁵Division of Infectious Diseases, Department of Medicine, University of California, Irvine, CA, United States, ⁶Department of Medical & Molecular Genetics, Indiana University School of Medicine, Indianapolis, IN, United States, ⁷Laboratory of Malaria and Vector Research, National Institute of Allergy and Infectious Diseases, Rockville, MD, United States, ⁸Laboratory of Immunogenetics, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD, United States

11:15 a.m.

1612

CD163 GENE EXPRESSION AND SOLUBLE CD163 LEVELS INCREASE IN MALARIA INFECTED PREGNANT WOMEN**Bartholomew N. Ondigo¹**, Ian N. Moore², Sundar Ganesan³, Kevin W. Bock², Paul S. Blank⁴, Almahamoudou Mahamar⁵, Oumar Attaher⁵, Bacary S. Diarra⁵, Youssoufa Sidibe⁵, Jillian Neal⁶, Alassane Dicko⁵, Patrick E. Duffy⁶, Michal Fried⁶¹Department of Biochemistry and Molecular Biology, Egerton University - Kenya, Laboratory of Malaria Immunology and Vaccinology, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States, ²Comparative Medicine Branch, Infectious Disease Pathogenesis Section, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD, United States, ³Research Technologies Branch, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States, ⁴Section on Integrative Biophysics, Division of Basic and Translational Biophysics, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD, United States, ⁵Malaria Research & Training Center, Faculty of Medicine, Pharmacy and Dentistry, University of Sciences Techniques and Technologies of Bamako, Bamako, Mali, ⁶Laboratory of Malaria Immunology and Vaccinology, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States**Young Investigator Award Session E**

Meeting Room 5

Sunday, November 15

10 a.m. - 1 p.m. U.S. Eastern Time Zone

JUDGE

Lyric Bartholomay

University of Wisconsin - Madison, Madison, WI, United States

Gregory A. Deye

NIAID, Rockville, MD, United States

Nicholas Komar

CDC, Fort Collins, CO, United States

Courtney Murdock

University of Georgia, Athens, GA, United States

10 a.m.

87

EVALUATING THE COMPETENCY OF THE INVASIVE MOSQUITO SPECIES, *Aedes j. japonicus*, IN TRANSMITTING VARIOUS JAPANESE ENCEPHALITIS VIRUS GENOTYPES**Astri N. Faizah¹**, Daisuke Kobayashi², Haruhiko Isawa², Michael Amoa-Bosompem³, Kozue Miura¹, Kazuhiro Hirayama¹, Kyoko Sawabe²¹The University of Tokyo, Tokyo, Japan, ²National Institute of Infectious Diseases, Tokyo, Japan, ³Tokyo Medical and Dental University, Tokyo, Japan

10:15 a.m.

988

INDICES OF HUMAN EXPOSURE TO *ANOPHELES* BITES IN CENTRAL AND SOUTHERN MALAWI**Evelyn A. Olanga¹**, Nellie C. Kaunde¹, Eggey A. Kambewa¹, Judith S. Banda¹, Christopher M. Jones², Lisa Reimer³, Charles Wondji⁴, Philip McCall³, Hilary Ranson³, Themba Mzilahowa¹¹Malaria Alert Centre of the College of Medicine, Malawi, Blantyre, Malawi, ²Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi, ³Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ⁴Centre for Research in Infectious Diseases, Yaounde, Cameroon

10:30 a.m.

1064

SPATIAL DISTRIBUTION AND DISPERSION OF MALARIA VECTORS ACROSS LOCAL MICRO-HABITATS IN THE PERUVIAN AMAZON

Edgar Manrique¹, Manuela Herrera-Varela¹, Marlon Saavedra¹, Samantha Solis¹, Joseph M. Vinetz², Gabriel Carrasco-Escobar³, Jan E. Conn⁴

¹Laboratorio ICEMR-Amazonia - Universidad Peruana Cayetano Heredia, Lima, Peru, ²Section of Infectious Diseases, Yale University School of Medicine, New Haven, CT, United States, ³Division of infectious diseases, Medicine School, University of California San Diego, San Diego, CA, United States, ⁴Wadsworth Center, New York State Department of Health; Department of Biomedical Sciences, School of Public Health, State University of New York at Albany, Albany, NY, United States

10:45 a.m.

1406

ASSESSING ANTIVIRAL FUNCTIONS OF A ZIKV-NEUTRALIZING HUMAN IGM AS A CANDIDATE FOR ANTIBODY-BASED PROPHYLAXIS DURING PREGNANCY

Tulika Singh¹, Kwan Ki-Hwang¹, Rebecca Jones¹, Joshua Eudailey¹, Helen Webster¹, Cesar Lopez², Premkumar Lakshmanane², Kan Luo¹, Robert J. Edwards¹, Camila Giuberti³, Summer Zhang⁴, Morgan Gladden¹, Jesse Mangold¹, Joshua Tu¹, Maria Dennis¹, Reynaldo Dietze³, Aravinda de Silva², Helen Lazear², Eng Eong Ooi⁴, Sallie Permar¹, Mattia Bonsignori¹

¹Duke University, Durham, NC, United States, ²University of North Carolina – Chapel Hill, Chapel Hill, NC, United States, ³Universidade Federal do Espírito Santo, Vitoria, Brazil, ⁴Duke University-National University of Singapore Medical School, Singapore, Singapore

11 a.m.

1468

STRUCTURE BASED ANALYSIS OF ANTIBODY BINDING TO FLAVIVIRUS E-DIMER AS MECHANISM OF POTENT NEUTRALIZATION

Cameron R. Adams¹, Huy Tu², Ellen Young¹, Sean Diehl², Ralph Baric¹, Aravinda de Silva¹, Premkumar Lakshmanane¹

¹University of North Carolina, Chapel Hill, NC, United States, ²University of Vermont, Burlington, VT, United States

11:15 a.m.

1550

EFLORNITHINE ANTITRYPANOSOMAL EFFECTS ELICITED BY ITS L-STEREISOMER *IN VITRO*

Mikael Boberg¹, Monica Cal², Marcel Kaiser², Rasmus Jansson-Löfmark³, Pascal Mäser², Michael Ashton¹

¹Unit for Pharmacokinetics and Drug Metabolism, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, ²Parasite Chemotherapy Unit, Department of Medical Parasitology and Infection Biology, Swiss Tropical and Public Health Institute & University of Basel, Basel, Switzerland, ³DMPK, Research and Early Development Cardiovascular, Renal and Metabolism, BioPharmaceuticals R&D, AstraZeneca, Gothenburg, Sweden

11:30 p.m.

1560

INSECTICIDE RESISTANCE ALTERS THE MICROBIOTA OF *ANOPHELES COLUZZII* FROM AGBOVILLE—A REGION WITH INTENSE PYRETHROID RESISTANCE IN CÔTE D'IVOIRE

Bethanie Pelloquin¹, Mojca Kristan¹, Constant Edi², Anne Meiwald¹, Emma Clark¹, Claire Jeffries¹, Thomas Walker¹, Nsa Dada³, Louisa Messenger¹

¹Faculty of Infectious Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Centre Suisse de Recherche Scientifique en Côte d'Ivoire, Abidjan, Côte D'Ivoire, ³Faculty of Science and Technology, Norwegian University of Life Sciences, Aas, Norway

Clinical Research Award Session

Meeting Room 6

Sunday, November 15

11 a.m. - 1 p.m. U.S. Eastern Time Zone

CHAIR

Obinna Nnaemeka Nnedu

Ochsner Clinic Foundation, New Orleans, LA, United States

M. Patricia Joyce

Tucker, GA, United States

German Henostroza

University of Alabama at Birmingham, Birmingham, AL, United States

Kristina Krohn

University of Minnesota, St. Paul, MN, United States

Miguel Cabada

University of Texas Medical Branch, Galveston, TX, United States

Bryan N Tegomoh

University of Yaounde I Medical School, Cameroon, Yaounde, Cameroon

Eva Parker

Vanderbilt University, Nashville, TN, United States

11 a.m.

328

SPECIES IDENTIFICATION OF MEALIE MEAL SPOILAGE ORGANISMS AND PATHOGENIC BACTERIA FROM SELECTED FOOD STORES IN LUSAKA DISTRICT OF ZAMBIA

Dayo Omodele Adeyemo, Bernard Hang'ombe, John Muma, Choolwe Munkombwe, Muso Munyeme, Kaunda Ndashe
University of Zambia, Lusaka, Zambia

11:15 a.m.

926

POTENTIAL USE OF RAPID, POINT-OF-CARE DIAGNOSTICS TO REDUCE ANTIBIOTIC PRESCRIPTION RATES AMONG PEDIATRIC PATIENTS PRESENTING WITH RESPIRATORY ILLNESS IN SOUTHWESTERN UGANDA

Emily J. Ciccone¹, Lydia Kabugho², Emmanuel Baguma², Rabbison Muhindo², Jonathan J. Juliano¹, Edgar Mulogo², Ross M. Boyce¹

¹University of North Carolina, Chapel Hill, NC, United States, ²Mbarara University of Science and Technology, Mbarara, Uganda

11:30 a.m.

848

DELAYS IN HEPATITIS C FIBROSIS STAGING ON TREATMENT RETENTION

Austin T. Jones¹, Lisa Moreno-Walton², Torrence Tran¹, Christopher Briones¹, Rachael Stevens¹, Katharine Isaacson¹, Alexander Jafari¹, Mandy Majidian¹, Patricia Kissinger¹

¹Tulane University, New Orleans, LA, United States, ²Louisiana State University Health Sciences Center, New Orleans, LA, United States

11:45 a.m.

1169

TEMPORAL GENETIC VARIATION OF *PLASMODIUM FALCIPARUM* PARASITES FOLLOWING THE IMPLEMENTATION OF ARTEMISININ-BASED THERAPIES IN THE VILLAGE OF FALADJÉ IN MALI

Fatoumata Maiga¹, Antoine Dara¹, Jeffrey Shaffer², Jian Li², Cheickna Cisse¹, Wele Mamadou¹, Abdoulaye Djimdé³

¹African Center of Excellence in Bioinformatics in Bamako, University of Sciences Technics and Technologies of Bamako, Bamako, Mali, ²Tulane University, New Orleans, LA, United States, ³Molecular Epidemiology and Drug Resistance Unit, University of Sciences Technics and Technologies of Bamako, Bamako, Mali

Noon

929

SPUTUM MICROBIAL PROFILE AND CLINICAL FEATURES OF PATIENTS WITH GENEXPERT AND AFB NEGATIVE IN SAN LAZARO HOSPITAL MANILA-PHILIPPINESCrespoo Mbe-cho Ndiabamoh
TMGH, Nagasaki, Japan

12:15 p.m.

536

LITTLE DROPS MAKE AN OCEAN: HOW COMMUNITY-BASED HEALTH INSURANCE DOES AN OCEAN OF GOOD AT THE BWINDI COMMUNITY HOSPITAL, UGANDABenjamin Norton¹, Scott Kellermann², Michael C. Borecky³, Thomas E. Borecky³, Birungi Mutahunga⁴, Nahabwe Haven⁴, Latha Rajan¹¹Tulane University School of Public Health and Tropical Medicine, New Orleans, LA, United States, ²Fulbright Scholarship Program, Kanungu, Uganda, ³Loma Linda University School of Medicine, Loma Linda, CA, United States, ⁴Church of Uganda Bwindi Community Hospital, Kinkizi Diocese, Kanungu, Uganda

12:30 p.m.

674

IVERCURE - A DOSE-ASCENDING, RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE-BLIND CLINICAL TRIAL ON THE EFFICACY AND SAFETY OF IVERMECTIN FOR THE TREATMENT OF PLASMODIUM FALCIPARUM INFECTIONS IN ASYMPTOMATIC GABONESE ADULTS: PRELIMINARY RESULTSDorothea Sträßner¹, Rella Zoleko Manego², Jana Held³, Benjamin Mordmüller³, Laura C. Kalkman², Ayola A. Adegnika², Michael Ramharter¹, Ghyslain Mombo-Ngomu²¹Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany, ²Centre de Recherches Médicales de Lambaréné, Lambaréné, Gabon, ³Institute of Tropical Medicine, University of Tübingen, Tübingen, Germany**Press Room****Sunday, November 15**

The ASTMH media team is available for assistance at the following:

- Preeti Singh psingh@burness.com, tel: +1 703-862-2515
- Bridget DeSimone, bdesimone@burness.com, tel: +1 202-468-0766
- Anna Chen, achen@burness.com, tel: +1 215-262-7670

Review research highlights and more: <https://astmhpressroom.wordpress.com/annual-meeting-2020/>**Plenary Session 1****Opening Plenary Session and Awards Program**

Grand Ballroom

Sunday, November 15

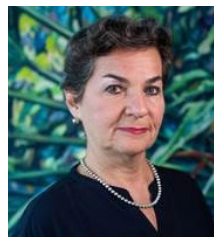
3 p.m. - 5 p.m. U.S. Eastern Time Zone

CHAIRJoel G. Breman
Fogarty International Center, Bethesda, MD, United States

3 p.m.

WELCOMING REMARKSDaniel G. Bausch
UK Public Health Rapid Support Team, London, United Kingdom

3:10 p.m.

KEYNOTE ADDRESS**Christiana Figueres**Global Optimism
Costa Rica

Christiana Figueres helped deliver the historic Paris Agreement on climate change during her tenure as Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC). During her tenure at the UNFCCC from 2010 to 2016, Ms. Figueres brought together national and sub-national governments, corporations and activists, financial institutions and NGOs to jointly deliver the historic Paris Agreement on climate change. Under the terms of the agreement, 195 sovereign nations agreed on a collaborative path forward to limit future global warming to well below 2°C, and strive for 1.5°C, in order to protect the most vulnerable. For this achievement, Ms. Figueres has been credited with forging a new brand of collaborative diplomacy and received multiple awards. Since then she has continued to accelerate the global response to climate change. Today, she is the co-founder of Global Optimism, co-host of the podcast "Outrage & Optimism" and is the co-author of the recently published book, *The Future We Choose: Surviving the Climate Crisis*. Ms. Figueres lives in Costa Rica, sits on multiple executive and advisory boards, and is a frequent public speaker and media commentator. She is a graduate of Swarthmore College in Pennsylvania and the London School of Economics.

3:30 p.m.

AWARDS PROGRAMPresiding Officer: Joel G. Breman
Fogarty International Center, Bethesda, MD, United States**AWARD FOR OUTSTANDING SERVICE TO THE GLOBAL PUBLIC AS A TRUSTED VOICE IN SCIENCE**Anthony Fauci
National Institute of Allergy and Infectious Diseases, United States**Recognition of ASTMH/BMGF Annual Meeting Travel Awards****Recognition of Presidents' Challenge Travel Awards****Recognition of Burroughs Wellcome Fund - ASTMH Postdoctoral Fellowship in Tropical Infectious Diseases****Recognition of 2020 Fellows of ASTMH (FASTMH)****Recognition of ASTMH Distinguished International Fellows**Nadira Karunaweera
University of Colombo, Faculty of Medicine, Sri LankaSuma Krishnasastri
Government T.D. Medical College, IndiaKarin Leder
Royal Melbourne Hospital, AustraliaPeter Leggat
WHO Collaborating Centre VBD NTD, AustraliaRic Price
Menzies School of Health Research, Global and Tropical Health, AustraliaSunday
November 15

Vasanthapuram Ravi
National Institute of Mental Health and Neuro Sciences, India

David Schellenberg
London School of Hygiene & Tropical Medicine, United Kingdom

Njeri Wamae
United States International University, Kenya

2020 ALAN J. MAGILL FELLOW

Awa Beinta Deme
University Cheikh Anta Diop, Senegal

Subgroup Medals and Awards

Harry Hoogstraal Medal (ACME)

William Trager Award for Basic Parasitology (ACMCIP)

Martin S. Wolfe Mentoring Award (ACCTMTH)

Society Level Medals and Awards

COMMUNICATIONS AWARD

"Exclusive: Behind the front lines of the Ebola wars"

Amy Maxmen
Nature

BAILEY K. ASHFORD MEDAL

Mahalia Desruisseaux
Yale University School of Medicine, United States

Christian Happi
Redeemer's University, Nigeria

Meta Roestenberg
Leiden University Medical Center, The Netherlands

Andrew Steer
Royal Children's Hospital, Australia

CLARA SOUTHMAYD LUDLOW MEDAL

Stephen Hoffman
Sanaria Inc., United States

WALTER REED MEDAL

Myron Levine
University of Maryland School of Medicine, United States

Monday, November 16

Press Room

Monday, November 16

The ASTMH media team is available for assistance at the following:

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- Bridget DeSimone, bdesimone@burness.com, tel: +1 202-468-0766
- Anna Chen, achen@burness.com, tel: +1 215-262-7670

ASTMH Information Desk

Lobby

Monday, November 16

8 a.m. - 6:45 p.m. U.S. Eastern Time Zone

Poster Session A Viewing

Poster Hall

Monday, November 16

Midnight - 1:30 p.m. U.S. Eastern Time Zone

Exhibit Hall

Visit the Exhibit Hall to view the schedule for each exhibit booth and connect with our exhibitors and learn about their products and services.

Sponsor Hall

Visit the Sponsor Hall to connect with our sponsors and learn about their work.

TropMed Central

Visit TropMed Central to connect with colleagues and attendees.

Symposium 2

Confronting the Climate Change Crisis

Meeting Room 2

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Climate change is the most important public health issue of our lifetimes and while much progress has been made in gaining awareness, a coordinated global effort still has not been effective to respond to its impact. Therefore, this symposium will present the latest assessments of the impact of climate change in different areas as well as some of the populations at risk and the actions launched globally to address its effects. The Lancet Countdown annual report is a critical assessment prepared by a panel of independent scientists, while the impacts of climate change in indigenous populations across the globe will highlight the risks faced by some of the most vulnerable populations in the planet, particularly in tropical regions. Highly complementary initiatives

from the both the north and south are highlighted by speakers from Johns Hopkins and Cayetano Universities, illustrating how the whole tropical medicine and global health community can contribute in a meaningful way to addressing the climate change crisis. This symposium will emphasize contributions from low and middle income country institutions and scientists, and what they can do for their own regions.

CHAIR

Andres G. Lescano
Universidad Peruana Cayetano Heredia, Lima, Peru

Sherilee L. Harper
University of Alberta, School of Public Health, Alberta, Canada

9 a.m.

THE LANCET COUNTDOWN ON HEALTH AND CLIMATE CHANGE ANNUAL REPORT

Marina Romanello
The Lancet Countdown: Tracking Progress on Health and Climate Change, London, United Kingdom

9:20 a.m.

CLIMATE CHANGE IMPACTS ON INDIGENOUS PEOPLES HEALTH ACROSS THE GLOBE

Sherilee L. Harper
University of Alberta, Alberta, Canada

9:40 a.m.

CLIMA, THE LATIN AMERICAN CENTER OF EXCELLENCE FOR CLIMATE CHANGE AND HEALTH

Stella M. Hartinger
Universidad Peruana Cayetano Heredia, Lima, Peru

10 a.m.

MOBILIZING AND ORGANIZING AN INSTITUTION-WIDE RESPONSE TO CLIMATE CHANGE IN US UNIVERSITIES

Peter John Winch
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

Symposium 3

Can We Ignore “Asymptomatic” Low-density Malaria Any More?

Meeting Room 3

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Recent developments in ultra-sensitive diagnostics coupled with the renewed push for malaria elimination has forced the malaria community to consider closely the extent and implications of low level infections which contribute to the malaria reservoir. Major questions arise as to whether this so-called asymptomatic population infected with low level parasite burden are in fact clinically and developmentally affected by harboring parasites. This is especially true for malaria in pregnancy where low level infections may lead to adverse outcomes for the newborn. While intermittent preventive regimens address this population to some degree, empiric approaches are fraught with issues such as drug resistance, toxicity, and whether in fact the protective effect is related to the anti-malarial activity at all. Recent data has also emerged that the asymptomatic malaria reservoir may in fact

be a major contributor to ongoing malaria transmission. The symposium seeks to tackle these issues head on using a cross-cutting approach, delving into knowledge of the true burden of asymptomatic malaria based on modeling, recent developments in diagnostics, clinical medicine, and vector transmission.

CHAIR

Dylan R. Pillai
University of Calgary, Calgary, AB, Canada

Lucy Okell
Imperial College London, London, United Kingdom

9 a.m.

THE GLOBAL EPIDEMIOLOGY OF LOW-DENSITY MALARIA

Lucy Okell
Imperial College London, London, United Kingdom

9:25 a.m.

THE CHANGING LANDSCAPE OF MALARIA DIAGNOSTICS

Dylan R. Pillai
Univ of Calgary, Calgary, AB, Canada

9:50 a.m.

THE CLINICAL EFFECTS OF LOW-DENSITY MALARIA

Gilles Cottrell
Institute of Research for Sustainable Développement (IRD), Paris, France

10:15 a.m.

ASYMPTOMATIC MALARIA: PARASITE DENSITY DISTRIBUTIONS, GAMETOCYTE DENSITIES, AND TRANSMISSION POTENTIAL

Fitsum G. Tadesse
Armauer Hansen Research Institute, Addis Ababa, Ethiopia

Symposium 4

Clinical Group Symposium I (American Committee on Clinical Tropical Medicine and Travelers' Health – ACCTMTH): Marcolongo Lecture and Panel Discussion

Meeting Room 4

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Supported with funding from the International Association for Medical Assistance to Travellers (IAMAT)

This session features the Vincenzo Marcolongo Lecture, delivered by our distinguished speaker, Dr. Soumya Swaminathan from the WHO. The Marcolongo Lecture is followed by an expert panel discussion on the topic of “TB control in the setting of COVID-19”. The expert panel session will be interactive and will feature audience Q&A. The highlight of this session is the Marcolongo Lecture, which honors Dr. Vincenzo Marcolongo (1922–1988), founder of IAMAT - International Association for Medical Assistance to Travelers. To quote Dr. Vincenzo Marcolongo, “Distinguished physicians and respected medical institutions, with a sense of solidarity which makes them like one family, are now working in harmony to assist the traveler who may require medical assistance on his journey...The need for peace and understanding between the peoples of the world has never been as great as

now. Peace can come only with understanding, and travel is an important means of acquiring it. It is, however, only through the full consciousness of 'The essence of the human' that we shall be able to open the difficult paths of international relationships. As a traveler you have an excellent opportunity to serve your country and the world in creating ties of friendship. To you, therefore, we bring this message, a message sparked with beauty all its own: 'The search for the human'."

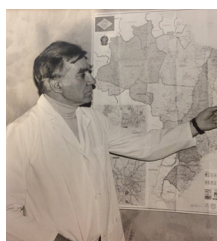
CHAIR

Latha Rajan
Tulane University, New Orleans, LA, United States

9 a.m.

INTRODUCTION OF MARCOLONGO LECTURE

Latha Rajan
Tulane University, New Orleans, LA, United States



The Marcolongo Lecture honors Vincenzo Marcolongo (1922–1988), founder of IAMAT - International Association for Medical Assistance to Travellers. A graduate of the medical school at the University of Rome, Dr. Marcolongo did his postgraduate training at McGill University in Montreal and returned to Italy to obtain his doctorate in tropical

medicine. Dr. Marcolongo made the medical needs of travelers his life's work. Of particular interest to him was malaria and preventing the unnecessary morbidity and mortality it causes among travelers. In an era of increasing international travel, he realized that there was a need for collaboration among medical practitioners around the world to help travelers. In 1960 he founded IAMAT, a non-profit organization that awards scholarships to doctors and nurses from countries where travel medicine is an emerging practice. Through IAMAT, Dr. Marcolongo worked tirelessly to inform travelers of health risks and raise awareness of travelers' health among travel industry professionals and medical practitioners worldwide. His foresight, compassion and generosity continue to serve as inspiration for IAMAT's work.

9:05 a.m.

VINCENZO MARCOLONGO MEMORIAL LECTURE: TUBERCULOSIS: UPDATE AND CURRENT CHALLENGES



Soumya Swaminathan, MBBS, MD
Chief Scientist
World Health Organization
Geneva Switzerland

Dr. Soumya Swaminathan was appointed WHO's first Chief Scientist in March 2019.

A pediatrician from India and a globally recognized researcher on tuberculosis and HIV, she brings with her 30 years of experience in clinical care and research and has worked throughout her career to translate research into impactful programs. Dr. Swaminathan was Secretary to the Government of India for Health Research and Director General of the Indian Council of Medical Research from 2015 to 2017. In that position, she focused on bringing science and evidence into health policy

making, building research capacity in Indian medical schools and forging south-south partnerships in health sciences. From 2009 to 2011, she also served as Coordinator of the UNICEF/UNDP/World Bank/WHO Special Program for Research and Training in Tropical Diseases in Geneva.

She received her academic training in India, the United Kingdom, and the United States of America, and has published more than 350 peer-reviewed publications and book chapters. She is an elected Foreign Fellow of the US National Academy of Medicine and a Fellow of all three science academies in India. The Science division's role is to ensure that WHO stays ahead of the curve and leverages advances in science and technology for public health and clinical care, as well as ensuring that the norms, standards and guidelines produced by WHO are scientifically excellent, relevant and timely. Her vision is to ensure that WHO is at the cutting edge of science and is able to translate new knowledge into meaningful impact on population health worldwide.

9:50 a.m.

PANEL DISCUSSION: TB CONTROL IN THE SETTING OF COVID-19

MODERATOR:

Latha Rajan
Tulane University, New Orleans, LA, United States

PANELISTS:

Ken Castro
USAID and Emory University, Atlanta, GA, United States

Cheri Vincent
U.S. Agency for International Development, Washington, DC, United States

Zolelwa Sifumba
TB Proof, Department of Health, Harding, KwaZulu Natal, South Africa

Sundari Mase
Sonoma County Department of Health Services, Santa Rosa, CA, United States

10:35 a.m.

SESSION WRAP-UP

Scientific Session 5

Ectoparasite-Borne Disease

Meeting Room 5

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Laura Backus
University of California Davis, Davis, CA, United States

Eliza A. Little
Connecticut Agricultural Experiment Station, New Haven, CT, United States

1

CLIMATIC AND ENVIRONMENTAL DETERMINANTS OF THE SPATIAL DISTRIBUTION AND ABUNDANCE OF DISEASE VECTORS, *IXODES SCAPULARIS* AND *AMBLIOMMA AMERICANUM*, BASED ON PASSIVE SURVEILLANCE IN CONNECTICUT

Eliza A. Little, Kirby Stafford, Goudarz Molaei
Connecticut Agricultural Experiment Station, New Haven, CT, United States

2

TRACKING THE EMERGENCE OF TICKS AND TICK-BORNE DISEASES IN NEW YORK THROUGH COMMUNITY-ENGAGED TICK SURVEILLANCE

Charles E. Hart, Erin Reynolds, Jahnvi Reddy-Bhaskar, Meghan Hermance, Allen Esterly, Matthew Mahoney, Ana Martinez, Martin Earl
Upstate Medical University, Syracuse, NY, United States

3

PASSIVE TICK SURVEILLANCE, ENVIRONMENTAL FACTORS AND NEIGHBORING EFFECTS AS PREDICTORS OF LYME DISEASE RISK AT FINE SPATIAL SCALES

Maria Pilar Fernandez¹, Donal Bisanzio², Richard Reithinger², Jennifer White³, Melissa A. Prusinski³, Bryon P. Backenson³, Maria A. Diuk-Wasser¹
¹*Columbia University, New York, NY, United States*, ²*RTI International, Washington DC, DC, United States*, ³*New York State Department of Health, Albany, NY, United States*

4

EFFECT OF INCREASED TEMPERATURE ON HOST SELECTION BY THE BROWN DOG TICK

Laura H. Backus, Andrés M. López-Pérez, Janet E. Foley
University of California Davis, Davis, CA, United States

5

TICK SALIVARY FACTORS EXACERBATE THE CLINICAL OUTCOME OF HEARTLAND VIRUS DISEASE

Erin Reynolds¹, Jacob Wooldridge², Heather Stevenson³, Saravanan Thangamani¹
¹*SUNY Upstate Medical University, Syracuse, NY, United States*, ²*Columbia University, New York, NY, United States*, ³*University of Texas Medical Branch, Galveston, TX, United States*

6

REPTILE HOSTS OF *IXODES SCAPULARIS*: WHAT ROLE DO REPTILES PLAY IN THE EPIDEMIOLOGY OF LYME DISEASE IN THE SOUTHEASTERN US?

Carrie De Jesus, Samantha Wisely, Coleman Sheehy, David Blackburn
University of Florida, Gainesville, FL, United States

7

ROLE OF NON-*IXODES* TICKS TRANSMITTING *BABESIA* SPP. IN DOGS IN THE US

Kurayi Mahachi, Breanna Scorza, Julia Poje, Eric Kontowicz, Tyler Baccam, Christine Petersen
University of Iowa, Iowa City, IA, United States

Scientific Session 6**Bacteriology: Enteric Infections I - Cholera and ETEC**

Meeting Room 6

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Subhra Chakraborty

Johns Hopkins University, Baltimore, MD, United States

Ana Weil

University of Washington, Seattle, WA, United States

8

IMPACT OF GUT MICROBIOME ORGANISM PARACOCCUS AMINOVORANS ON *VIBRIO CHOLERA* VIRULENCE

Denise Chac¹, Kelsey Barasso², Meti Debela³, Stephen Calderwood³, Edward Ryan³, Regina LaRocque³, Taufiq Bhuiyan⁴, Jason Harris³, Firdausi Qadri⁴, Wai-Leung Ng², **Ana Weil**¹

¹*University of Washington, Seattle, WA, United States*, ²*Tufts University, Boston, MA, United States*, ³*Massachusetts General Hospital, Boston, MA, United States*, ⁴*International Center for Diarrheal Diseases Research, Bangladesh, Dhaka, Bangladesh*

9

SINGLE-CELL T CELL RECEPTOR ANALYSIS REVEALS CLONALITY OF MUCOSAL-ASSOCIATED INVARIANT T (MAIT) CELLS DURING *VIBRIO CHOLERA* INFECTION

Taliman Afro¹, Hasan Al Banna², Jahidul Islam², Md. Imran Hossain Bhuiyan², Ioana Pop¹, Owen Jensen¹, Ashraful I. Khan², Kaiissar Mannoor³, Jason B. Harris⁴, Stephen B. Calderwood⁴, Edward T. Ryan⁴, Firdausi Qadri², Taufiq R. Bhuiyan², **Daniel T. Leung**¹

¹*Division of Infectious Diseases, University of Utah, Salt Lake City, UT, United States*, ²*icddr, Dhaka, Bangladesh*, ³*Institute of Developing Science and Health Initiatives, Dhaka, Bangladesh*, ⁴*Massachusetts General Hospital, Boston, MA, United States*

11

INVESTIGATING CHOLERA TRANSMISSION DYNAMICS USING WHOLE GENOME SEQUENCING OF WATER AND CLINICAL *VIBRIO CHOLERA* ISOLATES IN DHAKA, BANGLADESH (CHOBIT TRIAL)

Christine Marie George¹, Matthew Dorman², K.M. Saif-Ur-Rahman³, Shirajum Monira³, Shirajum Monira³, Md. Sazzadul Islam Bhuiyan³, Khaled Hasan¹, Fatema-Tuz Johura³, Toslim T. Mahmud³, Shan Li⁴, Jessica Brubaker¹, Jamie Perin¹, Zillur Rahman³, Munshi Mustafiz³, David A. Sack¹, Munirul Alam³, O Colin Stine⁴, Nicholas Thomson⁵, Daryl Domman⁶

¹*Johns Hopkins University, Baltimore, MD, United States*, ²*Wellcome Sanger Institute, Hinxton, United Kingdom*, ³*International Center for Diarrheal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh*, ⁴*University of Maryland School of Medicine, Baltimore, MD, United States*, ⁵*Wellcome Sanger Institute and London School of Hygiene and Tropical Medicine, Keppel St, London, England, Hinxton, United Kingdom*, ⁶*University of New Mexico School of Medicine and Wellcome Sanger Institute, Hinxton, United Kingdom, Albuquerque, NM, United States*

12

INTESTINAL & SYSTEMIC INFLAMMATION INDUCED BY SYMPTOMATIC & ASYMPTOMATIC ENTEROTOXIGENIC *E. COLI* INFECTION IN AN EXPERIMENTAL CHALLENGE MODEL IN HUMANS

Subhra Chakraborty¹, Jessica Brubaker¹, A Louis Bourgeois², David Sack¹

¹*Johns Hopkins University, Baltimore, MD, United States*, ²*PATH, Washington, DC, United States*

13

PROTECTION OF MICE AGAINST ETEC-INDUCED DIARRHEA AND WEIGHT LOSS BY IMMUNIZATION WITH BI-VALENT RECOMBINANT TY21A TYPHOID ETEC VACCINE

Tint T. Wai¹, David T. Bolick², Minglin Li¹, Lixin Gao¹, Sumana Chakravarty³, Eric R. James³, Weiping Zhang⁴, David A. Sack⁵, Richard L. Guerrant², Stephen L. Hoffman³, **B. Kim Lee Sim**¹

¹*Protein Potential, Rockville, MD, United States*, ²*University of Virginia, Charlottesville, VA, United States*, ³*Sanaria, Rockville, MD, United States*, ⁴*University of Illinois, Urbana, IL, United States*, ⁵*Johns Hopkins University, Baltimore, MD, United States*

GUT MICROBIOME COMMUNITY COMPOSITION INFLUENCES ON DIARRHEA SYMPTOMS ASSOCIATED WITH *E. COLI* INFECTIONS

Kelsey J. Jessor¹, Angela Peña-Gonzalez², Janet K. Hatt³, William Cevallos⁴, Gabriel Trueba⁵, Kostantinos T. Konstantinidis³, Karen Levy¹

¹Emory University, Atlanta, GA, United States, ²University of Los Andes, Bogota, Colombia, ³Georgia Institute of Technology, Atlanta, GA, United States, ⁴Universidad Central del Ecuador, Quito, Ecuador, ⁵Universidad San Francisco de Quito, Quito, Ecuador

ACUTE NOROVIRUS GASTROENTERITIS AMONG INTERNATIONAL TRAVELLERS: RESULTS FROM A PROSPECTIVE COHORT STUDY

Robert Steffen¹, Christine L. Moe², Christoph Hatz³, Martin Alberer⁴, Hans D. Nothdurft⁴, Lisa Lindsay⁵, Amy E. Kirby², Henry M. Wu⁶, Thomas Verstraeten⁵, Herbert L. Dupont⁷

¹University of Zurich, Epidemiology, Biostatistics and Prevention Institute, WHO Collaborating Centre for Travellers' Health, Zurich, Switzerland, ²Emory University, Rollins School of Public Health, Atlanta, GA, United States, ³Swiss Tropical and Public Health Institute, Basel, Switzerland, ⁴Division of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians-University (LMU) Munich, Munich, Germany, ⁵P95 Epidemiology and Pharmacovigilance, Leuven, Belgium, ⁶Emory University Travel Well Clinic, Atlanta, GA, United States, ⁷University of Texas McGovern Medical School of Public Health, Houston, TX, United States

Symposium 7

Human Landing Catches: Alternatives and Directions for the Future

Meeting Room 7

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Human landing catches (HLCs), are a method of mosquito collection which use humans and their natural production of CO₂, heat, and odor as bait to capture mosquitoes. This method has historically been considered a gold standard in malaria vector surveillance as it provides metrics on host-seeking mosquitoes such as human biting rate, location of biting, and peak hourly biting time. It has also been considered the gold standard in the calculation of the entomological inoculation rate (EIR), an estimation of the number of malaria infectious bites an individual in a region may get over a specified period of time. However, despite the high-resolution data obtained, HLCs have been a topic of debate for decades. Standard protocols necessitate the use of malaria prophylaxis in collectors; however, these individuals may still be exposed to other vector-borne pathogens, such as chikungunya virus and Leishmania spp. Innovative alternative trapping methods to HLCs have emerged and can broadly be characterized into human baited tent traps, electrocuting box traps, and odor or human baited light traps. In recent years a few malaria endemic countries have removed HLCs from their standard operating procedures due to risk of illness to the collectors and additional workers compensation concerns. This symposium will describe existing alternative trapping methods and initiate a panel discussion to coordinate research strategies and optimize next steps in the event of countries further considering or implementing HLC prohibition. Specifically, speakers will 1) identify cost-comparable alternative trapping methods for indoor and outdoor use based on existing evidence, 2) develop a framework for translating results from new alternative collection methods

to standard HLC-derived metrics, and 3) develop clear research plans that use data in quantifying the risk of on-the-job pathogen exposure for HLC collectors. Ultimately, this combined symposium and panel can be used to develop coordinated and data-driven vector surveillance strategies that avoid the use of HLCs as National Malaria Control Programs are considering their removal.

CHAIR

Sarah Zohdy
Centers for Disease Control and Prevention, Atlanta, GA, United States

Jenny S. Carlson
USAID, Arlington, VA, United States

9 a.m.

THE MOSQUITO ELECTROCUTING TRAP AS AN ALTERNATIVE TO THE HUMAN LANDING CATCH FOR SURVEILLANCE OF ANOPHELES AND AEDES VECTORS

Heather Ferguson
University of Glasgow, Glasgow, United Kingdom

THE MOSQUITO ELECTROCUTING TRAP AS AN ALTERNATIVE TO THE HUMAN LANDING CATCH FOR SURVEILLANCE OF ANOPHELES AND AEDES VECTORS

Nicodem J. Govella
Bioimmedial and Environtal Sciences, Ifakara Health Institute, Morogoro Region, United Republic of Tanzania

9:20 a.m.

NOTHING MORE ATTRACTIVE THAN A HUMAN: DEVELOPING HUMAN-BAITED TRAPS TO ACCURATELY EVALUATE KEY MEDICAL ENTOMOLOGICAL PARAMETERS

Krijn Paaijmans
Arizona State University, Tempe, AZ, United States

9:30 a.m.

DO HLCs SYSTEMATICALLY UNDER-ESTIMATE BITING RATE – AND HOW CAN WE KNOW?

Frances M. Hawkes
University of Greenwich, Kent, United Kingdom

9:40 a.m.

HUMAN-BAITED TENT TRAPS FOR SAMPLING HOST-SEEKING MALARIA VECTORS IN WEST AFRICA

Brian D. Foy
Colorado State University, Fort Collins, CO, United States

9:50 a.m.

HLC - THE GOLD STANDARD IN ENTOMOLOGICAL MONITORING

John Gimnig
Centers for Disease Control and Prevention, Atlanta, GA, United States

Symposium 8

Onchocerciasis Elimination Mapping in Four Countries in Africa: Ensuring that No Village is Left Behind

Meeting Room 8

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Onchocerciasis, also known as river blindness, is a parasitic disease caused by the filarial worm *Onchocerca Volvulus*

transmitted by infected female blackflies of the genus *Simulium*. It is a neglected tropical disease targeted for global elimination. Until 2012, global efforts and policy focused on control, not elimination. Mapping surveys done prior to 2012 were focused on definition of the most intense transmission zones, and control of symptoms in these locations through mass treatment. Areas with low transmission intensity were left untreated, under the assumption that the disease will be controlled everywhere if transmission is interrupted in high and moderate settings. The global shift from control of symptoms to elimination of transmission adds an entirely new dimension to previous mapping efforts; the need for identification of all active onchocerciasis transmission zones – the geographic areas where onchocerciasis is transmitted and maintained locally. Onchocerciasis elimination mapping (OEM) is the stepwise process for identifying the location of any remaining ivermectin-naïve areas where onchocerciasis transmission is ongoing and where treatment is therefore required. The World Health Organization provides some high level guidance through reports of their Onchocerciasis Technical Advisory Committee, and several countries have successfully completed OEM within their territories. Despite this, challenges in conducting OEM are several, including: i) difficulties in identifying blackfly breeding sites in medium – low transmission settings, ii) lack of experts consensus on methods of determination of first -line and second -line villages in medium – low transmission settings, iii) the lack of gold -standard laboratory and/or rapid diagnostic tools, iv) difficulties in sourcing and importing diagnostics and controls into endemic countries to complete OEM. In the face of such challenges there is a danger that OEM will not receive the priority it deserves, hampering long-term elimination efforts. This symposium will highlight OEM success stories from four diverse settings, drawing out both common approaches in each country, and unique adaptations that allowed each country to tailor their methods for success. In doing so, the onchocerciasis elimination agenda is driven forward, through illustrating clear and implementable OEM strategies that have proven successful in a range of different settings, and further, providing a toolkit for overcoming existing perceived barriers to the successful role out of OEM more widely. This symposium aims to enable countries to fast-track onchocerciasis surveillance and control; the tools and strategies outlined here are applicable to other onchocerciasis survey types, and other neglected tropical diseases.

CHAIR

Daniel Boakye
End Fund, Accra, Ghana

Louise C. Hamill
Sightsavers, Hayward's Heath, United Kingdom

9 a.m. **CHALLENGES IN ASSESSING THE NEEDS FOR MAPPING OF ONCHOCERCIASIS IN NIGER**

Salissou Adamou
Ministry of Health, Niamey, Niger

9:20 a.m. **ONCHOCERCIASIS ELIMINATION MAPPING IN NIGERIA - A TALE OF TWO DIAGNOSTICS.**

Michael Igbe
Federal Ministry of Health Nigeria, Abuja, Nigeria

9:45 a.m. **ONCHOCERCIASIS ELIMINATION MAPPING WHERE THERE IS NO ONCHOCERCIASIS PROGRAM**

Rassul Nala
Instituto Nacional de Saúde de Moçambique, Vila de Marracuene, Mozambique

10 a.m. **ONCHOCERCIASIS ELIMINATION MAPPING WHERE THERE IS NO ONCHOCERCIASIS PROGRAM**

Marilia Massangaie
Instituto Nacional de Saúde de Moçambique, Vila de Marracuene, Mozambique

Symposium 9

Forty-Year Anniversary of Smallpox Eradication: Great News, But What Next for Poxviruses?

Meeting Room 9

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

2020 marks the 40-year anniversary of the eradication of smallpox, one of the most significant public health achievements in history, saving many thousands of lives and sparing countless more from the suffering of this terrible disease. The success of the campaign spurred ambition of eradication of other diseases, and the now classic approach of ring vaccination has become a routine component of outbreak response. However, variola virus, the causative agent of smallpox, is not the last of the Poxviridae family. Monkeypox and other zoonotic pox viruses continue to pose threats. Furthermore, while there are successes to be celebrated, the world and its pathogens continue to evolve, bringing new infectious disease challenges, such as COVID-19 and Ebola virus. This symposium will revisit the success of the smallpox eradication effort, discuss the other pox viruses that remain threats to human and animal health, and explore how past lessons can be adapted to meet new challenges.

CHAIR

David Heymann
London School of Hygiene & Tropical Medicine, London, United Kingdom

Joel G. Breman
Fogarty International Center, Bethesda, MD, United States

9 a.m. **SMALLPOX ERADICATION: LESSONS FROM SUCCESS**

Bill Foege
Emory University, Atlanta, GA, United States

9:15 a.m. **THE ORIGIN OF THE SMALLPOX VACCINE: TRYING TO SET THE RECORD STRAIGHT**

Jose Esparza
University of Maryland School of Medicine, Baltimore, ME, United States

9:30 a.m.

BENEFITS AND RISKS OF RETAINING VARIOLA VIRUS STOCKS: WHAT HAVE WE ACHIEVED AND WHAT IS NEXT?

Rosamund Lewis
World Health Organization, Geneva, Switzerland

9:45 a.m.

MONKEYPOX SURVEILLANCE AND CONTROL IN CENTRAL AFRICA

Anne W. Rimoin
UCLA, Los Angeles, CA, United States

10 a.m.

REEMERGENCE OF MONKEYPOX IN NIGERIA

Chikwe Ihekweazu
Nigeria Centre for Disease Control, Abuja, Nigeria

Scientific Session 10

Intestinal and Tissue Helminths: Soil-Transmitted Helminths - Treatment and Diagnosis

Meeting Room 10

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Sanjaya Dhakal
The Task Force for Global Health, Atlanta, GA, United States

Raffi Van Aroian
UMASS Medical School, Worcester, MA, United States

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RECOMBINANT PARAPROBIOTICS: A NEW PARADIGM FOR TREATING GASTROINTESTINAL NEMATODES OF HUMANS

Raffi Van Aroian¹, Hanchen Li¹, Ambily Abraham¹, David Gazzola¹, Yan Hu², Kelly Flanagan¹, Ernesto Soto-Villatoro¹, Florentia Rus¹, Zeynep Mirza¹, Gary Ostroff¹
¹UMASS Medical School, Worcester, MA, United States, ²Worcester State University, Worcester, MA, United States

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MOLECULAR MODELING TO ANALYZE DIFFERENCES IN ALBENDAZOLE BINDING SITES OF THE BETA TUBULIN OF HUMAN SOIL TRANSMITTED HELMINTHS

Brian Medernach¹, Yash Gupta², Steven Goicoechea², Ravi Durvasula², Prakasha Kempaiah²
¹Loyola University Medical Center, Chicago, IL, United States, ²Loyola University Chicago Stritch school of Medicine, Maywood, IL, United States

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EFFICACY AND SAFETY OF ALBENDAZOLE AND HIGH-DOSE IVERMECTIN TREATMENT COMBINATION IN CHILDREN WITH *TRICHURIS TRICHIURA* INFECTION

Gabriela Matamoros¹, Ana Sanchez², Samary Rodriguez³, Andres Escalada⁴, Ramiro Avelaño⁴, María Mercedes Rueda³, Carol Rodriguez³, Maritza Canales³, Marisa Juarez⁴, Pamela Cajal⁴, Alejandro Krolewiecki⁴
¹Instituto de Investigaciones en Microbiología, Universidad Nacional Autónoma de Honduras, Tegucigalpa, Honduras, ²Brock University, St. Catharines, ON, Canada, ³Universidad Nacional Autónoma de Honduras, Tegucigalpa, Honduras, ⁴Instituto de Investigaciones de Enfermedades Tropicales, Universidad Nacional de Salta, Salta, Argentina

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COMPARISON OF RESULTS FROM SCHOOL- AND COMMUNITY-BASED SURVEYS ASSESSING THE IMPACT OF PREVENTIVE CHEMOTHERAPY FOR SOIL-TRANSMITTED HELMINTHIASIS CONTROL

Sanjaya Dhakal¹, Md. Jahirul Karim², Abdullah Kawsar², Cara Tupps³, Rubina Imtiaz³
¹The Task Force for Global Health, Decatur, GA, United States, ²Elimination of Lymphatic Filariasis & STH Control Program, Dhaka, Bangladesh, ³Children Without Worms, Decatur, GA, United States

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ACANR3990, GENOME MINING LEADS TO AN IMPROVED RAT LUNGWORM PCR

William Sears¹, Yvonne Qvarnstrom², Eric Dahlstrom³, Jan Slapeta⁴, David Modry⁵, Vojto Balaz⁵, Lisa Kaluna⁶, Kirsten Snook⁷, Susan Jarvi⁷, Thomas B. Nutman¹
¹NIH, Bethesda, MD, United States, ²CDC, Atlanta, GA, United States, ³RML Genomics, Hamilton, MT, United States, ⁴The University of Sydney, Sydney, Australia, ⁵University of Veterinary and Pharmaceutical Sciences Brno, Brno, Czech Republic, ⁶Daniel K. Inouye College of Pharmacy, University of Hawai'i at Hilo, Hilo, HI, United States, ⁷Daniel K. Inouye College of Pharmacy, University of Hawai'i at Hilo, Hilo, HI, United States

Scientific Session 11

Protozoa

Meeting Room 12

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

M. Jahangir Hossain
Medical Research Council Unit The Gambia at the London School of Hygiene & Tropical Medicine, Banjul, Gambia

Jaya Shrivastava
Public Health England, London, United Kingdom

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PREVALENCE, SEASONAL TREND, AND CLINICAL SEVERITY OF *CRYPTOSPORIDIUM*-ASSOCIATED DIARRHEAL DISEASE IN UNDER FIVE CHILDREN IN THREE SUB-SAHARAN AFRICAN COUNTRIES: RESULTS FROM THE VACCINE IMPACT ON DIARRHEA IN AFRICA (VIDA) STUDY, 2015-2018

M. Jahangir Hossain¹, Helen Powell², Leslie P. Jamka², Samba Sow³, Richard Omore⁴, Jennifer Verani⁵, Joquina Chiquita M. Jones¹, Syed M.A. Zaman¹, Henry Badji¹, Stephen R. C. Howie¹, Golam Sarwar¹, Irene Kasumba², Uma Onwuchekwa³, Sanogo Doh⁴, Alex Ondeng⁴, Sharon M. Tennant², Dilruba Nasrin², Anna Roose², Jie Liu⁶, James Platts-Mills⁵, Martin Antonio¹, Eric Houpt⁵, Karen L. Kotloff²
¹Medical Research Council Unit The Gambia at the London School of Hygiene & Tropical Medicine, Banjul, Gambia, ²Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, MD, United States, ³Center for Vaccine Development-Mali, Bamako, Mali, ⁴Kenya Medical Research Institute, Center for Global Health Research (KEMRI-CGHR), Kisumu, Kenya, ⁵Division of Global Health Protection, US Centers for Disease Control and Prevention, Nairobi, Kenya, ⁶Division of Infectious Diseases and International Health, Department of Medicine, University of Virginia, Charlottesville, VA, United States

23

EPIDEMIOLOGY OF INFECTION WITH *BLASTOCYSTIS HOMINIS* AND ASSOCIATED OUTCOMES IN SLUM-DWELLING MALNOURISHED ADULTS IN BANGLADESH

Shah Mohammad Fahim¹, Md. Amran Gazi¹, Md. Ashraful Alam¹, Subhasish Das¹, Mustafa Mahfuz¹, M Masudur Rahman², Rashidul Haque¹, Shafiqul Alam Sarker¹, Tahmeed Ahmed¹
¹icddr, Dhaka, Bangladesh, ²Sheikh Russel National Gastro Liver Institute and Hospital, Dhaka, Bangladesh

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NANOPARTICLE-ASSISTED DETECTION OF OPPORTUNISTIC *T. GONDII* INFECTIONS IN PLHIV THROUGH NOVEL MASS SPECTROMETRY BASED ANTIGEN DISCOVERY

Hannah E. Steinberg¹, Andrea Diestra², Cusi Ferradas², Maritza Calderon², Catherine Apaza², Marilly Donayre Urquiza³, Daniela E. Kirwan⁴, Lilia Cabrera⁵, Freddy Tinajeros⁶, Viviana Pinedo Cancino⁷, Lastenia Ruiz³, Cesar Ramal⁸, Paul Russo⁹, Nancy Freitag¹, Natalie M. Bowman¹⁰, Lance A. Bowman⁹, Alessandra Luchini⁹, Robert H. Gilman⁹

¹University of Illinois, Chicago, Chicago, IL, United States, ²Universidad Peruana Cayetano Heredia, Lima, Peru, ³Universidad Nacional de la Amazonia Peruana, Iquitos, Peru, ⁴St George's, University of London, London, United Kingdom, ⁵AB Prisma, Lima, Peru, ⁶Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ⁷Universidad Nacional de la Amazonia of Illinois, Chicago, Iquitos, Peru, ⁸Hospital Regional de Loreto, Iquitos, Peru, ⁹George Mason University, Fairfax, VA, United States, ¹⁰University of North Carolina, Chapel Hill, NC, United States

(ACMCIP Abstract)

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OLD PARASITE, NEW LESSONS: HOW SECULAR CHANGES IN *TOXOPLASMA GONDII* ENDEMICITY INFLUENCE THE INCIDENCE OF CONGENITAL DISEASE IN HUMAN POPULATIONS

Gregory Milne, Joanne P. Webster, Martin Walker
Royal Veterinary College, Brookmans Park, United Kingdom

Symposium 12**American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP) Symposium: Friend or Foe: The Many Faces of Myeloid Cells in Parasitic Infections**

Meeting Room 13

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Supported with Funding from the Burroughs Wellcome Fund

During Parasitic infections myeloid cells can serve both pathogenic, as parasite reservoirs, and protective, modulating host immunopathology, roles. This symposium seeks to highlight new ground-breaking research into understanding how the cross-talk between myeloid cells and parasites regulates the host's immune response and immunopathology during the course of infection. Representative of the range of parasitology covered by ACMCIP, the symposium will cover a range of significant species known to modulate myeloid cell function, including *Leishmania* which uses monocytic cells as a parasite reservoir, *Toxoplasma gondii* which manipulates innate immune cells to resist host clearance, *Plasmodium falciparum*, which can cause cerebral malaria in vulnerable children, and *Schistosoma mansoni* which modulates myeloid effector function and metabolism. The symposium will demonstrate the multifunctionality of myeloid cells during chronic parasite infection, focusing on regulation of the parasite niche vs. immunopathology.

CHAIR

Keke C. Fairfax
University of Utah School of Medicine, Salt Lake City, UT, United States

Michael Ferdig
University of Notre Dame, Notre Dame, IN, United States

9 a.m.**TH1/TH2 CROSS-REGULATION CONTROLS EARLY LEISHMANIA INFECTION IN THE SKIN BY MODULATING THE SIZE OF THE PERMISSIVE MONOCYTIC HOST CELL RESERVOIR**

Nathan Peters
University of Calgary, Calgary, AB, Canada

9:20 a.m.**INNATE IMMUNITY IN THE VASCULATURE AND CNS DURING TOXOPLASMA GONDII INFECTION**

Melissa Loeden
University of California Irvine, Irvine, CA, United States

9:40 a.m.**EPH RECEPTORS MODULATE IMMUNITY TO MALARIA**

Tracey Lamb
University of Utah School of Medicine, Salt Lake City, UT, United States

10 a.m.**SEX-DEPENDENT MODULATION OF MACROPHAGE METABOLISM DURING SCHISTOSOMA MANSONI INFECTION**

Keke C. Fairfax
University of Utah School of Medicine, Salt Lake City, UT, United States

10:20 a.m.**ACMCIP ANNUAL BUSINESS MEETING**

Michael Ferdig
University of Notre Dame, Notre Dame, IN, United States

Symposium 13**ASTMH Committee on Global Health (ACGH) Symposium I: Pathogen Metagenomics in the Developing World: Four Stories in Four Countries**

Meeting Room 14

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Metagenomics is the process of sequencing all genetic material in a biological sample to include commensals, environmental contaminants as well as disease-causing pathogens. Pathogen metagenomics in the realm of public health and outbreak response has grown in popularity since the term "precision public health" was coined in 2015. Despite major advances in next-generation sequencing techniques, significant decreases in the costs associated with sequencing, and availability of more rugged sequencers, necessary skills to prepare sequencing libraries and sufficient bioinformatics capabilities for timely analysis are still a challenge in the developing world. However, implementation of next-generation sequencing in field settings proved crucial to the containment of the recent Ebola virus epidemic in West Africa as well as to the development of countermeasures. In 2020, sequencing of the 2019-nCoV (named SARS-CoV-2 by ICTV on Feb 12, 2020) outbreak is resulting in an unprecedented amount of sequence data sharing that is guiding outbreak response to understand transmission of a previously unknown virus. This symposium highlights four separate LMIC settings where metagenomic next generation sequencing has been implemented and applied for a variety of public health aims, while providing a foundation for outbreak readiness strategies. Speakers will review their proposed research objectives, highlight barriers and

subsequent solutions for implementation, and describe results via open-access, cloud-based metagenomics bioinformatics pipelines.

CHAIR

Jessica Manning
National Institute of Allergy and Infectious Diseases Cambodia, Phnom Penh, Cambodia
Miguel Reina Ortiz
University of South Florida, Tampa, FL, United States

9 a.m.

PATHOGEN METAGENOMICS: A VERSATILE AND EFFICIENT TOOL DURING COVID19 OUTBREAK IN CAMBO

Jessica Manning
National Institute of Allergy and Infectious Diseases CAMBODIA, Phnom Penh, Cambodia

9:20 a.m.

UNBIASED METAGENOMICS ILLUSTRATES DIVERSE ETIOLOGIES OF PEDIATRIC MENINGITIS IN BANGLADESH

Senjuti Saha
Child Health Research Foundation, Dhaka, Bangladesh

9:40 a.m.

DISCOVERING CAUSES OF CHILDHOOD DEATHS AND ENCEPHALOPATHY

James Berkley
KEMRI/Wellcome Trust Research Programme, Centre for Geographic Medicine Research – Coast, Kilifi, Kenya

10 a.m.

WILD FRUIT BAT SURVEILLANCE AND THE LANDSCAPE OF EMERGING ZOOSES

Cara Brook
Institut Pasteur Madagascar, Antananarivo, Madagascar

10:20 a.m.

ACGH ANNUAL BUSINESS MEETING

Robert D. Newman
The Aspen Institute, Washington, DC, United States

Scientific Session 14

HIV and Tropical Co-Infections

Meeting Room 15

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Betty Mwesigwa
Makerere University Walter Reed Project, Kampala, Uganda

Christina Polyak
Walter Reed Army Institute of Research, Bethesda, MD, United States

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SAFETY AND IMMUNOGENICITY OF ACCELERATED HETEROLOGOUS TWO-DOSE EBOLA VACCINE REGIMENS IN HIV-INFECTED AND HIV-UNINFECTED ADULTS IN AFRICA

Betty Mwesigwa¹, Fredrick Sawe², Janet Oyieko³, Nyanda Ntinginya⁴, Joel Mwakisile⁴, Josphat Kosgei⁵, Elizabeth Ngetich⁶, Ilesh Jani⁷, Edna Viegas⁷, Kokogho Afoke⁸, Akindiran Akintunde⁹, Georgi Shukarev¹⁰, Leigh Anne Eller¹¹, Michael Eller¹², Lucy Ward¹³, Janice Rusnak¹⁴, Callie Bounds¹³, Christopher Badorrek¹⁴, Christina Polyak¹¹, Lalaine Anova¹², Amber Moodley¹¹, Chi Tran¹¹, Melissa Van Alst¹⁰, Dickson Anumendem Nkafu¹⁵, Auguste Gaddah¹⁵, Viki Bockstal¹⁰, Kerstin Luhn¹⁰, Macaya Douguuih¹⁰, Cynthia Robinson¹⁰, Prossy Naluyima¹, Monica Millard¹⁶, Hannah Kibuuka¹, Julie Ake¹⁷

¹Makerere University Walter Reed Project, Kampala, Uganda, ²U.S. Military HIV Research Program, Walter Reed Army Institute of Research/Henry M. Jackson Foundation

Medical Research International, Kericho, Kenya, ³Henry M. Jackson Foundation Medical Research International/Kenya Medical Research Institute/U.S. Army Medical Research Directorate-Africa/Kenya, Kisumu, Kenya, ⁴National Institute for Medical Research-Mbeya Medical Research Center, Mbeya, United Republic of Tanzania, ⁵Kenya Medical Research Institute/U.S. Army Medical Research Directorate-Africa, Kericho, Kenya, ⁶Kenya Medical Research Institute/U.S. Army Medical Research Directorate-Africa/Kenya, Kericho, Kenya, ⁷Polana Caniço Health Research and Training Center, Maputo, Mozambique, ⁸U.S. Military HIV Research Program, Walter Reed Army Institute of Research/Henry Jackson Foundation MRI/US Army Medical Research Directorate-Africa, Abuja, Nigeria, ⁹U.S. Military HIV Research Program, Walter Reed Army Institute of Research/Henry Jackson Foundation MRI/US Army Medical Research Directorate, Abuja, Nigeria, ¹⁰Janssen Vaccines and Prevention, Leiden, Netherlands, ¹¹U.S. Military HIV Research Program, Walter Reed Army Institute of Research/Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD, United States, ¹²U.S. Military HIV Research Program, Walter Reed Army Institute of Research/Henry M. Jackson Foundation for the Advancement of Military Medicine, Silver Spring, MD, United States, ¹³Joint Project Manager Chemical, Biological, Radiological, and Nuclear (CBRN) Medical, Fort Detrick, MD, United States, ¹⁴Contractor for Joint Project Manager Chemical, Biological, Radiological, and Nuclear (CBRN) Medical, Fort Detrick, MD, United States, ¹⁵Janssen Research and Development, Beerse, Belgium, ¹⁶U.S. Military Research Directorate Africa, Kampala, Uganda, ¹⁷U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, MD, United States

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IMPLICATIONS OF ASYMPTOMATIC MALARIA INFECTIONS ON HEMATOLOGICAL PARAMETERS IN PEOPLE LIVING WITH HIV

Edwin Kamau¹, Risper Maisiba², Michael Iroezindu¹, Emmanuel Bahemana¹, Dennis Juma², Hannah Kibuuka³, Nicole Dear¹, Allahna Esber¹, Ajay Parikh¹, Trevor A. Crowell¹, Julie A. Ake¹, John Owuoth¹, Jonah Maswai¹, Ben Andagalu², Benjamin Opot², Amanda L. Roth², Raphael O. Okoth², Farid Abdi², Marueen Mwalo², Christina S. Polyak¹

¹US Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, MD, United States, ²US Army Medical Research Directorate - Africa, Nairobi, Kenya, ³Makerere University Walter Reed Project, Kampala, Uganda

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IMPACT OF ANTHELMINTIC THERAPY FOR INVASIVE HELMINTH INFECTION ON MICROBIAL TRANSLOCATION, INFLAMMATION, AND IMMUNE RESPONSE AMONG UGANDANS LIVING WITH HIV

Grace Turyasingura¹, Stefanie Sowinski², Miya Yunus³, Rojelio Mejia⁴, David Boulware⁵, Bozena M. Morawski⁵

¹Indiana University, Indianapolis, IN, United States, ²Gladstone Institutes, UCSF, San Francisco, CA, United States, ³The AIDS Support Organization (TASO), Kampala, Uganda, ⁴Baylor College of Medicine, Houston, TX, United States, ⁵University of Minnesota, Minneapolis, MN, United States

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ASSESSING GAPS IN CARE FOR HIV-INFECTED PEOPLE LIVING WITH AIDS IN TWO HOSPITALS IN ETHIOPIA

Anteneh Zewde

University of Minnesota, Minneapolis, MN, United States

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LESSONS LEARNED FROM COMMUNITY SENSITIZATION FOR HUMAN IMONODIFICIENCE VIRUS TESTING AND FOLLOW-UP DURING PREGNANCY IN RURAL AREA OF SOUTHERN MOZAMBIQUE

Felizarda E. Nhacolo, Salesio Macuacua, Anifa Valá, Esperança Sevene, Khátia Munguambe

Manhica Health Research Center, Manhica, Mozambique

Symposium 15

American Committee on Arthropod-Borne Viruses (ACAV) Symposium I: Annual Business Meeting, Awards, Beyond Arboviruses

Meeting Room 16

Monday, November 16

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

The American Committee on Arthropod-Borne Viruses provides a forum for exchange of information among people interested in arbovirus research and research in diseases caused by high consequence viral pathogens. This session will include the ACAV business meeting, award presentations and research presentations by ACAV award recipients. These presenters will describe their research on arbovirology and emerging diseases. The session will end with an informal reception designed to encourage new members of our community to interact with fellow arbovirologists and become involved in the ACAV subgroup.

CHAIR

David Morens

National Institutes of Health, Bethesda, MD, United States

Patricia V. Aguilar

UTMB, Galveston, TX, United States

9 a.m.

ACAV AWARDS AND ANNUAL BUSINESS MEETING, INCLUDING EPIDEMICS GROUP AND REPORTS

Moderator: David Morens

National Institutes of Health, Bethesda, MD, United States

Patricia V. Aguilar

University of Texas Medical Branch, Galveston, TX, United States

Amy R. Krystosik

Chan Zuckerberg Initiative, Redwood City, CA, United States

Rebecca Christofferson

Louisiana State University, Baton Rouge, LA, United States

9:15 a.m.

INTRODUCTION: BEYOND ARBOVIRUSES

David Morens

National Institutes of Health, Bethesda, MD, United States

BEYOND ARBOVIRUSES: FROM MOSQUITOES TO COVID-19: SHIFTING PRIORITIES TO ENHANCE TESTING CAPACITY

Nathan Grubaugh

Yale University, New Haven, CT, United States

BEYOND ARBOVIRUSES: JOURNEYING BEYOND ARBOVIRUSES INTO THE ECOLOGY AND EPIDEMIOLOGY OF BAT-ASSOCIATED VIRUSES

Rebekah Kading

Colorado State University, Fort Collins, CO, United States

BEYOND ARBOVIRUSES: WORLD REFERENCE CENTER FOR EMERGING VIRUSES AND ARBOVIRUSES (WRCEVA): RESPONSE TO COVID-19

Kenneth Plante

University of Texas Medical Branch, Galveston, TX, United States

BEYOND ARBOVIRUSES: WHAT TO DO WHEN EVERYONE IS AN EXPERT: COVID-19

Vineet Menachery

University of Texas Medical Branch, Galveston, TX, United States

Break

Monday, November 16

10:45 a.m. - 11 a.m. U.S. Eastern Time Zone

Plenary Session 16

Plenary Session II: COVID-19: Lessons Learned and Future Challenges Commemorative Lecture

Grand Ballroom

Monday, November 16

11 a.m. - 1 p.m. U.S. Eastern Time Zone

CHAIR

Joel G. Breman

Fogarty International Center, Bethesda, MD, United States

11 a.m.

INTRODUCTION

Daniel G. Bausch

UK Public Health Rapid Support Team, London, United Kingdom

11:05 a.m.

INVITED COVID-19 PRESENTATION

Anthony Fauci

Director, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States

11:30 a.m.

COMMEMORATIVE LECTURE

The Commemorative Lecture is presented annually by an invited senior researcher resident in the tropics.



John N. Nkengasong, MSc, PhD

Director, Africa Centres for Disease Control and Prevention
Addis Ababa, Ethiopia

Dr. Nkengasong is Director of the Africa Centers for Disease Control and Prevention. Prior to his current position, he served as the acting deputy principal director (acting)

of the Center for Global Health, United States Centers for Disease Control and Prevention (U.S. CDC), and Chief of the International Laboratory Branch, Division of Global HIV and TB., U.S. CDC. He received a Masters in Tropical Biomedical Science at the Institute of Tropical Medicine in Antwerp, Belgium and a Doctorate in Medical Sciences (Virology) from the University of Brussels, Belgium. He has received numerous awards for his work including Sheppard Award, the William Watson Medal of Excellence, the highest recognition awarded by CDC. He is also recipient of the Knight of Honour Medal by the Government of Cote d'Ivoire, was knighted in 2017 as the Officer of Loin by the President of Senegal, H.E. Macky Sall, and Knighted in November 2018 by the government of Cameroon for his significant contributions to public health. He is an adjunct professor at the Emory School of Public Health, Emory University, Atlanta, GA. He serves on several international advisory boards including the Coalition for Epidemic Preparedness Initiative – CEPI, the International AIDS Vaccine Initiative (IAVI) among others. He has authored over 250 peer-reviewed articles in international journals and published several book chapters.

11:55 a.m.

INVITED COVID-19 PRESENTATION

Heidi Larson

London School of Hygiene and Tropical Medicine, London, United Kingdom

12:20 p.m.

INVITED COVID-19 PRESENTATION

Richard Hatchett

Coalition For Epidemic Preparedness Innovations (CEPI), London, United Kingdom

12:45 p.m.

MODERATOR, PANEL DISCUSSION

Helen Branswell

STAT News, Boston, MA, United States

Poster Session 17

Poster Session A Presentations

Poster Hall

Monday, November 16

1:30 p.m. - 3 p.m. U.S. Eastern Time Zone

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Global Health: #36 - 70

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Alphaviruses (Includes Chikungunya): #100 - 112

Flaviviridae - Dengue: #113 - 127

Flaviviridae - Other: #128 - 139

Viruses - Other: #140 - 152

Malaria - Biology and Pathogenesis: #153 - 169

Malaria - Chemotherapy and Drug Resistance: #170 - 182

Malaria - Diagnosis: #183 - 197

Malaria - Drug Development - Preclinical Studies: #198 - 211

Malaria - Epidemiology: #212 - 233

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Malaria - Technological Innovations in Prevention and Control: #291

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Bacteriology - Enteric Infections: #318 - 327

Bacteriology - Other Bacterial Infections: #328 - 342

Clinical Tropical Medicine: #343 - 371

Helminths - Nematodes - Filariasis (Immunology): 372 - 375

Helminths - Nematodes - Filariasis (Other): #376 - 384

Kinetoplastida - Cellular and Molecular Biology

(Including Leishmania and Trypanosomes): #385

Kinetoplastida - Diagnosis and Treatment

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Kinetoplastida - Immunology

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Schistosomiasis and Other Trematodes -

Diagnostics and Treatment: #405 - 411

Schistosomiasis and Other Trematodes -

Epidemiology and Control: #412 - 422

Schistosomiasis and Other Trematodes -

Immunology, Pathology, Cellular and Molecular Biology: #423 - 425

Water, Sanitation, Hygiene and Environmental Health: #426 - 437

Global Health

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PREVALENCE OF HBV, HCV, HIV AND SYPHILIS INFECTIONS AMONG SECONDARY SCHOOL STUDENTS IN JUBA, SOUTH SUDAN

Kenneth L. Sube¹, Oromo Seriano¹, Joseph Lako¹, Charles Ochero², Anthony Lasuba¹, Emmanuel Lino³, Philip Abongo¹, Akech Simon¹, Ekal Lolup¹, Richard Lino³

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EXPERIENCES STRENGTHENING MICROBIOLOGICAL LABORATORY CAPACITY IN RURAL RWANDAN HOSPITALS TO CATALYZE ROBUST NATIONAL ANTIMICROBIAL STEWARDSHIP PROGRAMS

Grace Umutesi¹, Lotta Velin², Moses Muwanguzi¹, Gilbert Rukundo¹, Aniceth Rucogoza³, Carol Mugabo¹, Kara Faktor², Christian Mazimpaka¹, Jean de Dieu Gatele¹, Marthe Yankurije¹, Bethany Hedt-Gauthier⁴, Robert Riviello⁵, Tharcisse Mpunga⁶, Emil I. Mwikarago³, Fredrick Kateera¹

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HEALTH SEEKING BEHAVIOUR FOR BURULI ULCER DISEASE IN THE OBOM SUB-DISTRICT OF THE GA SOUTH MUNICIPALITY OF GHANA

Eric Koka, Hannah Benedicta Taylor Abdulai
University of Cape Coast, Cape Coast, Ghana

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ANTIOXIDANT ACTIVITY OF FLAVONOIDS FROM THE LEAVES OF *TAPINANTHUS PENTAGONIA*, LORANTHACEAE

Hermia Nalova Ikome
Institute of Medicinal Plants and Traditional Medicine, Yaounde, Cameroon

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KNOWLEDGE AND PRACTICES OF MEDICAL SHOP WORKERS IN NEPAL IN THE DIAGNOSIS AND TREATMENT OF CORNEAL INFECTIONS

Sadhan Bhandari¹, Ram Prasad Kandel², Bimal Poudyal¹, Gopal Bhandari¹, Raghunandan Byanju¹, John M. Neseemann³, Riju Shrestha⁴, Valerie M. Stevens³, Jason S. Melo³, David A. Ramirez⁵, Travis C. Porco³, Kieran S. O'Brien³, Thomas M. Lietman³, Jeremy D. Keenan³

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PLASMA KYNURENINE TO TRYPTOPHAN RATIO IS NEGATIVELY ASSOCIATED WITH LINEAR GROWTH OF CHILDREN LIVING IN A SLUM OF BANGLADESH: RESULTS FROM A COMMUNITY-BASED INTERVENTION STUDY

Md Amran Gazi, Subhasish Das, Md. Abdullah Siddique, Md. Ashraf Alam, Shah Mohammad Fahim, Md. Mehedi Hasan, Farzana Hossaini, Md. Mamun Kabir, Zannatun Noor, Rashidul Haque, Mustafa Mahfuz, Tahmeed Ahmed
icddr, Dhaka, Bangladesh

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TRANSLATING JAMAICAN PRIMARY AND PREVENTIVE CARE FROM POLICY TO PRACTICE

Dr. Lena S. Samuel, MD
New York University, New City, NY, United States

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CENTERS OF EXCELLENCE IN SOUTHERN AFRICA; THE CASE OF MANHICA HEALTH RESEARCH CENTER, MOZAMBIQUE

Teresa Eduarda Machai
Manhica Health Research Center, Maputo, Mozambique

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THE PRIVATE SECTOR AS A POTENTIAL DATA SOURCE FOR EPIDEMIOLOGICAL SURVEILLANCE AND CONTROL OF ANTIMICROBIAL RESISTANCE IN UGANDA

Anthony Kabanza Mbonye¹, Henry Kajumbula¹, Agnes Kiragga², Grace Banturaki², Patrick Sesaaizi², Kenneth Katimbo², Ibrahim Mugerwa³, Kristian Hansen⁴, Pascal Magnussen⁴, Sian Clarke⁵

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PROMISING APPROACHES FOR IMPROVING PROVIDER ADHERENCE TO MALARIA TESTS: RESULTS FROM A BEHAVIORAL ECONOMICS PILOT IN NIGERIA

Angela Acosta¹, Faraz Haqqi², Sriram Sridharan³, Temitope Ogunbi⁴, Eno'bong Idiong⁴, Idowu Akanmu⁴, Faramade Alalade⁴, Linda Osaji⁴, Lucy Okolo⁴, Ernest Obaseki⁴, Folake Odubore⁴, Justin DeNormandie⁴, Jose Tchofa⁵, Uwem Inyang⁵, Foye Oyedokun-Adebago⁵, Owoya Samuel⁶, Nnenna Ogbulafor⁶, Ian Tweedie⁴, Bolatito Aiyeinigba⁴

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THE BURDEN OF SEXUAL DEVELOPMENTAL DISORDERS AMONG CHILDREN REPORTING TO A TEACHING HOSPITAL IN GHANA

Phans Oduro Sarpong¹, Francis Adjei Osei², Bright Atta Dankwa³, Samuel Frimpong Odoom⁴, Rita Ackah⁵

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BARRIERS AND FACILITATORS OF FAMILY PLANNING USE IN FISHING COMMUNITIES OF LAKE VICTORIA IN UGANDA

Annet Nanvubya¹, Rhoda K. Wanyenze², Jean-Pierre Van geertruyden³
¹UVRI-HAVI HIV Vaccine Program, Entebbe, Uganda, ²School of Public Health College of Health Sciences, Makerere University, Kampala, Uganda, ³Global Health Institute, University of Antwerp, Antwerp, Belgium

SOCIAL AND CULTURAL DETERMINANTS THAT AFFECT KNOWLEDGE, ATTITUDES, AND PRACTICES OF MATERNAL HEALTH CARE UTILIZATION IN RURAL AND URBAN AREAS OF MYSORE, INDIA

Sara Richards¹, Praveen Kulkarni², Nayanabai Shabadi², David Hill¹
¹Frank H. Netter MD School of Medicine at Quinnipiac University, North Haven, CT, United States, ²JSS Academy of Higher Education and Research, Mysuru, India

A CLUSTER-RANDOMIZED TRIAL ON THE COMMUNITY-BASED PREVENTION OF CORNEAL ULCERS: THE VILLAGE-INTEGRATED EYE WORKER TRIAL (VIEW)

Gopal Bhandari¹, Kieran S. O'Brien², Raghunandan Byanju¹, Ram Prasad Kandel³, Bimal Poudyal¹, Mariya Gautam¹, John A. Gonzales², Travis C. Porco², John P. Whitcher², M. Srinivasan⁴, Madan Upadhyay⁵, Thomas M. Lietman², Jeremy D. Keenan²
¹Bharatpur Eye Hospital, Bharatpur, Nepal, ²Francis I. Proctor Foundation, University of California San Francisco, San Francisco, CA, United States, ³Seva Foundation, Bharatpur, Nepal, ⁴Aravind Eye Care System, Madurai, India, ⁵BP Eye Foundation, Children's Hospital for Eye, Ear, and Rehabilitation Services (CHEERS), Kathmandu, Nepal

IMMERSIVE TRAVEL IS OFTEN INTERRUPTED BY ILLNESS WITH MORE THAN HALF OF TRAVELERS VISITING LOCAL CLINICS

James McCarty¹, Mark Schneider², Sarah Odeh³
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TRAINING THE TRAINER: EMPOWERING HEALTHCARE WORKERS TO TEACH ABOUT HEPATITIS B IN THEIR COMMUNITIES

Nasreen Syeda Quadri¹, Shemal Shah², Holly Rodin³, Jose Debes⁴
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GENDER DIFFERENCES IN ALL CAUSES AND CAUSE SPECIFIC OF MORTALITY AMONG OLDER PERSONS IN RURAL UGANDA: IMPLICATION TO THE HEALTH CARE SYSTEM

Silver Kawere¹, Isaac Ddumba², David Kasibante¹
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ENGAGING LOCAL GOVERNMENT AUTHORITIES (LGA) OFFICIALS AND BUILDING CAPACITY OF HEALTH FACILITY DATA OFFICERS IMPROVES DATA QUALITY, REPORTING AND TIMELINESS IN KWARA STATE, NIGERIA

Chinedu Chukwu¹, Linda Lawrence¹, Mariah Boyd-Boffa², Tom Hall³, Isaac Adejo¹, Sonachi Ezeiru⁴, Frank Oronsaye⁴, Diwe Ekweremadu⁴, Perpetua Uhomobhi⁵, Bala Mohammed Adu⁵, Ibrahim Maikore⁵, Cyril Ademu⁵, James Ssekitooleko⁶
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GENDER DIFFERENCES FOR UNINTENTIONAL FALLS AND RELATED INJURIES AMONG OLDER PERSONS IN UGANDA; PREVALENCE AND ASSOCIATED FACTORS

Doreen Nakibuuka¹, Isaac Ddumba¹, David Kasibante², Haruna Batange³
¹Makerere College of Health Science, Kampala, Uganda, ²African Research Centre 4 Ageing & Dementia, Kampala, Uganda, ³Community Health Access Foundation Uganda, Kampala, Uganda

A PRELIMINARY STUDY ON PERCEPTION OF THE COVID 19 PANDEMIC IN NORTHERN NIGERIA

Maryam Abdulrazaq Habib¹, Farouq Muhammad Daiyabu², Garba Iliyasu³, Abdulrazaq Garba Habib³
¹Murtala Muhammad Specialist Hospital, Kano, Nigeria, ²Infectious Disease Hospital, Kano, Nigeria, ³Bayero University, Kano, Kano, Nigeria

FORMATIVE RESEARCH TO UNDERSTAND CULTURALLY APPROPRIATE WAYS TO COLLECT POST-MORTEM TISSUE SAMPLES USING MINIMALLY INVASIVE TISSUE SAMPLING (MITS) FOR CHILDREN UNDER FIVE: AN OVERVIEW FROM ETHIOPIA

Ketema Degefa Begna¹, Berhanu Damise¹, Getahun Wakwaya¹, Adugna Tadesse¹, Nega Assefa¹, Lola Madrid²
¹Haramaya University, Harar, Ethiopia, ²London School of Hygiene & Tropical Medicine, London, United Kingdom

REASONS FOR REFUSAL OF POSTMORTEM MINIMALLY INVASIVE TISSUE SAMPLING IN THE DIAGNOSIS OF CAUSES OF CHILD DEATH IN KERSA, EASTERN ETHIOPIA

Eyoel Taye Bame¹, Ketema Degefa¹, Lola Madrid², Nega Assefa¹
¹Haramaya University, Harar, Ethiopia, ²London School of Hygiene & Tropical Medicine, London, United Kingdom

EXPERIENCES OF ADOLESCENT PREGNANCY AMONG MAASAI IN KENYA: IMPLICATIONS FOR PREVENTION

Miriam A. Stats¹, David R. Hill¹, Josephine Ndirias²
¹Frank H. Netter M.D. School of Medicine, North Haven, CT, United States, ²Mukogodo Girls Empowerment Program, Laikipia County, Kenya

ACCESS TO HEALTH CARE IN RURAL AREAS: CREATING A STRATEGY TO TRANSPORT SEVERELY ILL PEOPLE TO THE HEALTH FACILITIES WITHIN THE COMMUNITY IN SOUTHERN MOZAMBIQUE

Saquina Cossa¹, Maria Maixenchs², Felismina Tamele¹, Zubaida Manhenje¹, John Blevins³, Quique Bassat², Inacio Mandomando¹, Khatia Munguambe¹
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DETERMINANTS OF HEALTHCARE SEEKING AND PROVIDER SELECTION: A CROSS-SECTIONAL STUDY IN RURAL HAITI

Molly Klarman¹, Justin Schon¹, Stace Maples², Youseline Cajusma¹, Valery M. Beau de Rochars¹, Chantale Baril³, Eric J. Nelson¹
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IMPACT OF CLIMATE CHANGE ON COVID-19 PANDEMIC: A SYSTEMATIC REVIEW

Muhammed O. Afolabi¹, Jennyfer R. Ambe²

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POVERTY REDUCTION THROUGH SUSTAINABLE SCHOOLS: EFFECTS OF A SCHOOL-BASED INTERVENTION ON SCHOOL REVENUE, EDUCATION, AND HEALTH OUTCOMES

Stephanie R. Monticelli¹, Scott McIntosh¹, Amina P. Alio¹, Daphne N. Pariser²

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EXPANDING TRAINING CAPACITY AND ACCESSIBILITY FOR MINIMALLY INVASIVE TISSUE SAMPLING

Tia Paganelli¹, Lindsay Parberg², Norman Goco², Roosecelis B. Martinez³, Jana Ritter³, Sherif Zaki³, Edwin Walong⁴, Washington Owino Ochieng⁴, Dennis Inyangala⁴, Walter Barake⁴, Cyrus Wachuri⁴, Natalia Rakislova⁵, Lorena Marimon⁵, Melania Ferrando⁵, Jaume Ordi⁵

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COST STUDY ANALYSIS OF SLEEPING SICKNESS INTERVENTION PROGRAMMES: A SYSTEMATIC REVIEW

Xia Wang-Steverding, Kamran Khan, Jason Madan, Kat S. Rock

University of Warwick, Coventry, United Kingdom

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GROUPMAPPERS: INTEGRATING GEOSPATIAL TECHNOLOGIES AND CROWDSOURCING TO MAP COMMUNITIES FOR HEALTH PLANNING IN SOUTHEAST BANGLADESH

Sazid Ibna Zaman¹, Ipsita Sinha², Mohammad Abdul Quader³, MIM Farhad⁴, Abdul Majed Sajib⁵, Md. Sabbir Hasan⁵, Muhib Kabir⁶, Shakil Ahmed⁷, Humaira Akter⁸, MD. Nurullah⁹, Afrida Asad⁹, Mostafa Amir Faisal⁹, Nazim Uddin Ahmed⁹, Anjan Saha¹⁰, Didar Uddin¹, Richard J. Maude¹

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ORGANIZATIONAL LEARNING AS AN "OPERATING SYSTEM" FOR COMMUNITY AND STAKEHOLDER ENGAGEMENT: INSIGHTS FROM THE LYMPHATIC FILARIASIS ELIMINATION PROGRAM IN PORT-AU-PRINCE

Breanna K. Wodnik, Michelle A. Grek, Lee T. Wilkers, James V. Lavery

Emory University, Atlanta, GA, United States

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KNOWLEDGE AND ATTITUDE TOWARDS SICKLE CELL DISEASE AND PRENATAL SCREENING AMONG WOMEN ATTENDING ANTENATAL CLINIC IN THE GAMBIA

Momodou E. Jallow, Modou Bella Jallow

Edward Francis Small Teaching Hospital, Banjul, Gambia

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HOW MANY LUTZOMYIA UMBRATILIS (DIPTERA: PSYCHODIDAE) SPECIES ARE THERE?

Vera M. Scarpassa¹, Ronildo B. Alencar²

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Janice A. Tagoe¹, Shirley Nimo-Paintsil², Mba Mosore¹, Seth Offei Addo¹, Clara Yeboah¹, Bright Agbodzi¹, Eric Behene¹, Danielle Ladzekpo¹, Charlotte Addae¹, Courage Dafeamekpor³, Victor Asoala⁴, Langbong Bimi⁵, Anne Fox², Chaselynn Watters², LCDR Terrel Sanders², LCDR David Wolfe², Christina Farris⁶, CDR Andrew Letizia⁷, LCDR Joseph W. DiClaro II⁸, Samuel Dadzie¹

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TECH OR TRADITIONAL: A FIELD TESTING OF AERIAL DRONE TO SAMPLE TICKS

Mami Hitachi, Hiroki Hashizume, Suguru Taga, Naoyuki Yamada, Satoshi Kaneko,

Kazuhiko Moji, Tomonori Hoshi

Nagasaki University, Nagasaki, Japan

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POTENTIAL ENTOMOLOGICAL AND HUMAN FACTORS INFLUENCING RESIDUAL MALARIA TRANSMISSION IN SELECTED AREAS OF MYANMAR

Kyaw M. Tun¹, Khin Lin¹, Aung Thi², Khin T. Win¹, Thant Z. Aung³, Saw Lwin¹, Nu Nu Khin⁴, May A. Lin¹, Neeraj Kak⁵, Hala J. AlMossawi⁵

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FIRST REPORT ON THE USE OF NEAR-INFRARED SPECTROSCOPY TO AGE-GRADE PHLEBOTOMUS PAPATASI SAND FLIES

Catherine M. Flanley¹, Taina N. Ferreira², Douglas A. Shoue¹, Floyd E. Dowell³, Mary Ann McDowell¹

¹University of Notre Dame, Notre Dame, IN, United States, ²Fundação Oswaldo Cruz, Rio de Janeiro, Brazil, ³United States Department of Agriculture, Manhattan, KS, United States

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ASSESSING THE SUSCEPTIBILITY OF FLEA VECTORS TO INSECTICIDES AS PART OF PLAGUE RISK MONITORING IN MADAGASCAR, 2019

Mireille Harimalala, Soanandrasana Rahelinirina, Anja Andrianaja, Slash Rakotova, Minoarisoa Rajerison, Romain Girod

Institut Pasteur, Antananarivo, Madagascar

COMPARISON OF YEAST-ENCAPSULATED ESSENTIAL OILS FOR MOSQUITO POPULATION CONTROL

Alexandra V. Yingling, Tzion Castillo, Ivy Hurwitz
University of New Mexico Health Sciences Center, Albuquerque, NM, United States

NO NEED TO WING IT: A NEW METHOD FOR QUICKLY AND ACCURATELY AGE-GRADING MOSQUITOES USING WING MORPHOLOGY

Lyndsey Gray¹, Bryce Asay², Emmanuel D. Sougué³, Blue K. Edwards¹, Anyirekun F. Somé³, Roch K. Dabiré³, Sunil Parikh⁴, Brain D. Foy¹
¹Colorado State University, Fort Collins, CO, United States, ²American Public Health Laboratories and Center for Disease Control and Prevention, Salt Lake City, UT, United States, ³Institut de Recherche en Sciences de la Santé, Bobo-Dioulasso, Burkina Faso, ⁴Yale University, New Haven, CT, United States

A PROTOCOL FOR A CLUSTER RANDOMIZED TRIAL OF ONE-DOSE VERSUS TWO-DOSE IVERMECTIN MASS DRUG ADMINISTRATION FOR SCABIES IN REMOTE ISLAND COMMUNITIES IN SOLOMON ISLANDS

Susanna J. Lake¹, Sophie L. Phelan², Daniel Engelman¹, Oliver Sokana³, Titus Nasi³, Dickson Boara³, Christina Gorae³, Tibor Schuster⁴, Anneke C. Grobler¹, Millicent H. Osti¹, Ross Andrews⁵, Michael Marks⁶, Margot J. Whitfield⁷, Lucia Romani², John M. Kaldor², Andrew C. Steer¹
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PREVALENCE OF SCABIES AND IMPETIGO IN SOLOMON ISLANDS

Susanna J. Lake¹, Daniel Engelman¹, Oliver Sokana², Titus Nasi², Dickson Boara², Anneke C. Grobler¹, Millicent H. Osti¹, Ross Andrews³, Michael Marks⁴, Margot Whitfield⁵, Lucia Romani⁶, John M. Kaldor⁶, Andrew C. Steer¹
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SURVEILLANCE OF TICK-BORNE INFECTIONS IN LIVESTOCK IN THE GUINEA SAVANNA AREA OF NORTHERN GHANA

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AN EPIDEMIOLOGICAL SEARCH FOR THE ASIAN LONGHORNED TICK IN SOUTH CAROLINA

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Alphaviruses (Includes Chikungunya)

IMPACT OF THE SOUTHERN OSCILLATION INDEX, TEMPERATURE, AND PRECIPITATION ON EASTERN EQUINE ENCEPHALITIS VIRUS ACTIVITY IN FLORIDA

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ESTIMATING DENGUE TRANSMISSION INTENSITY FROM SEROLOGICAL DATA: A COMPARATIVE STUDY OF METHODS

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"I COULDN'T STAND THE FEVER ANYMORE, IT FELT LIKE MY HEAD WAS GOING TO EXPLODE": A QUALITATIVE STUDY EXPLORING THE EXPERIENCE OF DENGUE-ASSOCIATED FEBRILE ILLNESS

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SEROPREVALENCE AND DENGUE EPIDEMIOLOGY IN 8 DENGUE ENDEMIC COUNTRIES

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IMPACT OF *KELCH13* MUTATION ON CLEARANCE AND CURE OF *PLASMODIUM FALCIPARUM* IN ASIAN AND AFRICAN PATIENTS TREATED WITH ARTEMETHER/LUMEFANTRINE

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Malaria - Diagnosis

HEME DETOXIFICATION PROTEIN: AN AVENUE FOR MALARIA CONTROL TO ELIMINATION

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EVALUATION OF A NEWLY DEVELOPED AUTOMATED HEMATOLOGY ANALYZER FOR THE DETECTION OF MALARIA PARASITE IN CLINICAL BLOOD SAMPLES

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IMPLICATIONS OF PROVIDERS' CAPACITY AND FACILITIES' READINESS FOR RELIABLE DIAGNOSIS AND TREATMENT OF MALARIA: A CROSS SECTIONAL SURVEY OF PUBLIC HEALTH FACILITIES IN ETHIOPIA

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STRENGTHENING THE SENSITIVITY OF SURVEILLANCE SYSTEM FOR MALARIA ELIMINATION IN MUNAUNG TOWNSHIP, RAKHINE STATE OF MYANMAR

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PILOTING AND EVALUATING A SUITE OF DIGITAL SOLUTIONS FOR MALARIA ELIMINATION

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Malaria - Technological Innovations in Prevention and Control

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Malaria - Vaccines

STUDY FOR PILOTING PROCEDURES FOR RECRUITMENT AND SCREENING AND BUILDING A REGISTRY FOR POTENTIAL RESEARCH PARTICIPANTS FOR FUTURE MALARIA CLINICAL TRIALS: EXPERIENCE FROM BIOKO ISLAND MALARIA ELIMINATION PROGRAM CLINICAL RESEARCH CENTER, EQUATORIAL GUINEA

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BUILDING HUMAN RESOURCES CAPACITY FOR CLINICAL RESEARCH IN EQUATORIAL GUINEA

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PREVALENCE AND CHARACTERIZATION OF COMMON HEALTH CONDITIONS AMONG INDIVIDUALS LIVING IN SELECTED AREAS OF BIOKO ISLAND WITH HIGH MALARIA TRANSMISSION WHO SCREENED FOR FUTURE MALARIA VACCINE CLINICAL TRIAL IN BIOKO ISLAND, EQUATORIAL GUINEA

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THE IMPACT OF COVID-19 PANDEMIC TO THE PLANNED AND ONGOING CLINICAL RESEARCH AND CLINICAL RESEARCH SITE MITIGATION STRATEGIES IN BIOKO ISLAND, EQUATORIAL GUINEA IN YEAR, 2020

Marta Alene Owono Eyang¹, Vicente Urbano Nsue Ndong¹, Maria Silvia Angue Lopez Mikue¹, Wonder Philip Phiri², Juan Carlos Momo¹, Peter Billingsley³, Claudia Daubenberger⁴, Kamaka Kassim⁵, said Jonga⁵

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SAFETY OF PFSPZ-CVAC (PYR) VACCINATION AGAINST *PLASMODIUM FALCIPARUM* IN HEALTHY ADULTS IN BANCOUNMANA, MALI

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MATHEMATICAL MODELING OF ANOPHELES MOSQUITOES' BREEDING SITES TO SUSTAIN EFFICIENT VECTOR CONTROL

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FINE SCALE ELUCIDATION OF THE SPATIAL EFFECTS OF HOUSEHOLDS AND CLIMATIC FACTORS ON MOSQUITO ABUNDANCE, BUILDING A CASE FOR FURTHER PREDICTIVE MODEL ENHANCEMENTS

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John Paliga Masalu, Marceline Finda, Gerry F. Killeen, Halfan S. Ngowo, Polius G. Pinda, Fredros O. Okumu: O. Okumu

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BIOSYNTHESIS OF SILVER NANOPARTICLES FROM *OCIMUM BASILICUM*; A NATURAL LARVICIDE AGAINST ANOPELES GAMBIAE

Agnes Ntumba, Francois Eya'ane Meva, Loick Pradel Kojom, Wolfgang Eyisap Ekoko¹, Jerson Mekoulou Ndongo, Philippe Belle Ebanda Kedi, Leopold Gustave Lehman

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CONTRIBUTION OF NON-HUMAN BLOOD MEAL SOURCES IN THE ECOLOGY OF MALARIA VECTORS IN LAKE VICTORIA, TANZANIA

Doris Mangalu, Lucy Bernard, Alphaxard Manjurano, Eric Lyimo, Charles Kakilla, Karen Nelwin

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QUANTIFYING THE DEMOGRAPHIC AND FITNESS TRAITS OF THE DOMINANT VECTOR OF MALARIA TRANSMISSION, *ANOPHELES FUNESTUS* IN TANZANIA

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INVESTIGATING THE ROLE OF THE *DOUBLESEX* GENE IN TISSUE DIMORPHISM IN *ANOPHELES GAMBIAE* MOSQUITOES

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CONTINUED EFFICACY OF PIRIMIPHOS-METHYL (ACTELIC 300CS) FOR INDOOR RESIDUAL SPRAYING IN AREAS WITH HIGH MALARIA VECTOR RESISTANCE TO PYRETHROIDS IN ZANZIBAR

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VECTOR COMPETENCE IN A SEX-BIASED TRANSGENIC STRAIN OF *ANOPHELES COLUZZII* MOSQUITOES

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EVALUATING THE ENTOMOLOGICAL EFFECTS OF ADJUNCTIVE IVERMECTIN MASS DRUG ADMINISTRATION FOR MALARIA CONTROL IN THE BIJAGOS ARCHIPELAGO, GUINEA-BISSAU: A CLUSTER-RANDOMISED TRIAL (MATAMAL)

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INSECTICIDE RESISTANCE STATUS OF *ANOPHELES GAMBIAE* S.L. AFTER SIX YEARS OF INDOOR RESIDUAL SPRAYING IN ATACORA DEPARTMENT, NORTHERN BENIN

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LONG-LASTING INSECTICIDAL NET (LLINS) PERFORMANCE AND LONGEVITY IN VARIOUS FIELD CONDITIONS IN AFRICA, EXAMPLE OF BENIN

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HUMAN BEHAVIOR AS A DETERMINANT OF MALARIA RISK IN BANDARBAN, BANGLADESH

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LARVAL SOURCE MANAGEMENT IN FISH PONDS IN THE BRAZILIAN AMAZON: IMPACT OF BIOLARVICIDE APPLICATION ON ANOPHELES DARLING LARVAL DENSITY AND ON MALARIA TRANSMISSION**Pablo Secato Fontoura¹**, Amanda Oliveira Sampaio², Simone Ladeia Andrade³, Marcia Caldas de Castro⁴, Marcelo Urbano Ferreira¹¹Institute of Biomedical Sciences /University of São Paulo, Sao Paulo, Brazil, ²Multidisciplinary Center / Federal University of Acre, Cruzeiro do Sul, Brazil, ³Laboratory of Parasitic Diseases / Oswaldo Cruz Foundation, Rio de Janeiro, Brazil, ⁴Department of Global Health and Population / Harvard T.H. Chan School of Public Health, Boston, MA, United States**Bacteriology - Enteric Infections**

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NON-TYPHOIDAL SALMONELLA FROM PAEDIATRIC STOOLS IN NORTHERN IBADAN, NIGERIA**Olubisi Comfort Akinlabi¹**, Stella Ekpo¹, Ayorinde Afolayan¹, Adeola Omotuyi¹, Akinlolu Adepoju², Gordon Dougan³, Iruka N. Okeke¹¹University of Ibadan, Ibadan, Nigeria, ²Department of Paediatrics, College of Medicine, University of Ibadan, Oyo, Nigeria, ³Wellcome Trust Sanger Institute, Hinxton, Cambridgeshire, United Kingdom, Hinxton, United Kingdom

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A COMPARISON OF TRADITIONAL DIARRHOEA SURVEILLANCE METHODS WITH STOOL MICROBIOLOGICAL INDICATORS IN THE FORCIBLY DISPLACED MYANMAR NATIONALS CAMPS IN COX'S BAZAR, BANGLADESH**Ryan T. Rego¹**, Samuel I. Watson¹, Mohammad Atique Ul Alam², Syed Asif Abdullah², Mohammad Yunus², Mohammad Sirajul Islam², A.S.G Faruque², Azharul Islam Khan², John Clemens², Richard J. Lilford³¹University of Warwick, Coventry, United Kingdom, ²International Center for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ³University of Birmingham, Birmingham, United Kingdom

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MULTIPLE ANTIBIOTIC RESISTANCE IN ESCHERICHIA COLI ISOLATED FROM STOOL SAMPLES OF HEALTHY INFANTS IN RURAL BANGLADESH**Fatema-Tuz Johura¹**, Jarin Tasnim¹, Sahitya Ranjan Biswas¹, Riajul Islam¹, Talal Hossain¹, Kazi Sumaita Nahar¹, Rehnuma Binte Kabir¹, Indrajit Barmon¹, Susmita Basak¹, Farzana Hossain¹, Wali Ullah¹, Marzia Sultana¹, Hafizur Rahman², Saijuddin Shaikh², Hasmat Ali², Subhra Chakraborty³, Alain Labrique³, Tahmeed Ahmed¹, Md. Iqbal Hossain¹, Munirul Alam¹, Amanda C. Palmer³¹International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ²The JiViTA Project, Gaibandha, Bangladesh, ³Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

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DETECTION OF ENTERIC PATHOGENS AND CONTINUATION OF DIARRHEA AMONG CHILDREN WITH MODERATE-TO-SEVERE DIARRHEA ENROLLED IN THE VACCINE IMPACT ON DIARRHEA IN AFRICA (VIDA) STUDY: KENYA, 2015-2018**Graeme Prentice-Mott¹**, David M. Berendes¹, Perrine Marcenac¹, Talia Pindyck¹, Sunkyoung Kim¹, Richard Omoro², Ciara E. O'Reilly¹, John B. Ochieng², Jane Juma², Jennifer R. Verani³, Marc-Alain Widdowson⁴, Yuanyuan Liang⁵, Helen Powell⁶, Karen L. Kotloff⁷, Eric D. Mintz¹¹Division of Foodborne, Waterborne, and Environmental Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Kenya Medical Research Institute, Center for Global Health Research, Kisumu, Kenya, ³Division of Global Health Protection, Centers for Disease Control and Prevention, Nairobi, Kenya, ⁴Institute of Tropical Medicine Antwerp, Brussels, Belgium, ⁵Department of Epidemiology and Public Health, University of Maryland School of Medicine, Baltimore, MD, United States, ⁶Department of Pediatrics, Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, MD, United States, ⁷Department of Medicine, Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, MD, United States

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PREDICTORS OF MULTI-DRUG RESISTANCE OF ENTERIC PATHOGENS IN PATIENTS WITH ACUTE DIARRHEA IN BANGLADESH**Stephanie C. Garbern¹**, Sabiha Nasrin², Monique Gainey³, Nur H. Alam², Adam C. Levine¹¹Brown University, Providence, RI, United States, ²icddr, Dhaka, Bangladesh, ³Rhode Island Hospital, Providence, RI, United States

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BACTERIAL ISOLATION AND SUSCEPTIBILITY PATTERN OF DIARRHEAL PATHOGEN IN OLDER CHILDREN AND ADULTS IN DHAKA HOSPITAL, BANGLADESH**Sabiha Nasrin¹**, Stephanie C. Garbern², Monique Gainey³, Nur H. Alam¹, Adam C. Levine²¹icddr, Dhaka, Bangladesh, ²Brown University, Providence, RI, United States, ³Rhode Island Hospital, Providence, RI, United States

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CLINICAL PREDICTORS OF ACUTE DIARRHEAL DISEASE WITH BACTERIAL ETIOLOGY IN ADULTS AND OLDER CHILDREN IN BANGLADESH**Monique Gainey¹**, Stephanie C. Garbern², Adam C. Levine², Sabiha Nasrin³, Nur H. Alam³¹Rhode Island Hospital, Providence, RI, United States, ²Brown University, Providence, RI, United States, ³icddr, Dhaka, Bangladesh

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ACUTE NOROVIRUS GASTROENTERITIS AMONG INTERNATIONAL TRAVELLERS: RESULTS FROM A PROSPECTIVE COHORT STUDY**Robert Steffen¹**, Christine L. Moe², Christoph Hatz³, Martin Alberer⁴, Hans D. Nothdurft⁴, Lisa Lindsay⁵, Amy E. Kirby², Henry M. Wu⁶, Thomas Verstraeten⁵, Herbert L. Dupont⁷¹University of Zurich, Epidemiology, Biostatistics and Prevention Institute, WHO Collaborating Centre for Travellers' Health, Zurich, Switzerland, ²Emory University, Rollins School of Public Health, Atlanta, GA, United States, ³Swiss Tropical and Public Health Institute, Basel, Switzerland, ⁴Division of Infectious Diseases and Tropical Medicine, University Hospital, Ludwig-Maximilians-University (LMU) Munich, Munich, Germany, ⁵P95 Epidemiology and Pharmacovigilance, Leuven, Belgium, ⁶Emory University Travel Well Clinic, Atlanta, GA, United States, ⁷University of Texas McGovern Medical School of Public Health, Houston, TX, United States

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ANTIMICROBIAL RESISTANCE IN KENYA AND EFFORTS TOWARDS ADDRESSING THE CHALLENGE**Samuel M. Kariuki¹**, Cecilia K. Mbae¹, Susan K. Kavai¹, Evelyn Wesangula², Robert Onsare¹¹Kenya Medical Research Institute, 43640-Nairobi, Kenya, ²Ministry of Health, Nairobi, Kenya

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MOLECULAR CHARACTERIZATION OF ESBL PRODUCING ESCHERICHIA COLI AMONG WOMEN IN ANAMBRA STATE, NIGERIA**Uchenna C. Ogwaluonye¹**, Ugochukwu M. Okezie¹, Hopewell Nnaji¹, Chukwuebuka C. Ezeagu², Malachy C. Ugwu¹, Edward Nwanegbo¹¹Nnamdi Azikiwe University, Awka, Nigeria, ²African Health and Sustainability Mission (N.G.O), Enugu, Nigeria

SPECIES IDENTIFICATION OF MEALIE MEAL SPOILAGE ORGANISMS AND PATHOGENIC BACTERIA FROM SELECTED FOOD STORES IN LUSAKA DISTRICT OF ZAMBIA

Dayo Omodele Adeyemo, Bernard Hang'ombe, John Muma, Choolwe Munkombwe, Muso Munyeme, Kaunda Ndashe
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Bacteriology - Other Bacterial Infections

SERO PREVALENCE AND MOLECULAR EPIDEMIOLOGY STUDY OF BRUCellosIS IN EASTERN ETHIOPIA

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BACTERIOPHAGE DISCOVERY AND SPECIFICITY AGAINST CLINICALLY RELEVANT *STAPHYLOCOCCUS AUREUS* ISOLATES FROM WOUND INFECTIONS IN THE PERUVIAN AMAZON RIVER BASIN

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EVALUATION OF THE COMPACTDRY EC CULTURE PLATES FOR THE DIAGNOSIS OF URINARY TRACT INFECTIONS IN HARARE, ZIMBABWE

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MOLECULAR TYPING OF *NEISSERIA GONORRHOEAE* ISOLATES FROM KENYA

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MINIMALLY INVASIVE TISSUE SAMPLING ACCEPTABILITY AT KIGALI UNIVERSITY TEACHING HOSPITAL, RWANDA

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Alexandra Cossio¹, Thomas Shelite², Maxy De Los Santos³, Jimena Jojoa¹, Maria del Mar Castro¹, Nancy Gore Saravia¹, Peter Melby², **Bruno L. Travi²**

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Martin W. Mutuku¹, Martina R. Laidemitt², Johann Spaan³, Ibrahim N. Mwangi¹, Horace Ochanda⁴, Michelle Stinauer³, Eric S. Loker², Gerald Mkoji¹

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Mahamadou Traore¹, Moussa Sangare², Yaya Ibrahim Coulibaly³, Housseini Dolo², Salif Seriba Doumbia², Ilo Dicko², Abdoul Fatao Diabate², Lamine Soumaoro², Michel Emmanuel Coulibaly², Abdallah Amadou Diallo², Boubacar Guindo⁴, Modibo Keita⁴, Seydou Doumbia²

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Elsa Mendes¹, Rilda Cristóvão¹, Maria Cecilia Almeida¹, Nzuzi Katondi², Ricardo Thomson³, Sylvain Mupoyi⁴, Onesime Ndayishimiye⁵, Ferdinand Djerandouba⁵, Mary Chimbill⁵, Julio Ramirez⁵, Sergio Lopes⁵

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Rachel Francoeur¹, Moses Arinaitwe², Alon Atuhaire², Poppy Lamberton¹, Simon Babayan¹, Edridah Muheki²

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Neelima Afroz Molla¹, Kabirul Ahsan Mollah², Ghaffar Ali³, Oleg Shipin⁴, Pongrama Ramasoota⁵

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NON-CHOLERA INVASIVE VIBRIOSIS RATES IN MARYLAND ARE RELATED TO YEARLY WATER TEMPERATURES

Naomi Hauser¹, Amanda Thepote¹, Gregory Schrank², Ronald Rabinowitz²

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EFFECT OF A WATER, SANITATION, AND HYGIENE PROGRAM ON HANDWASHING WITH SOAP AMONG HOUSEHOLD MEMBERS OF DIARRHEA PATIENTS IN HEALTH FACILITIES IN BANGLADESH: A CLUSTER-RANDOMIZED CONTROLLED TRIAL OF THE CHOB17 MOBILE HEALTH PROGRAM

Fatema Zohura¹, Md. Sazzadul Islam Bhuyian¹, Ronald Saxton², Ronald Saxton², Tahmina Parvin¹, Shirajum Monira¹, Shirajum Monira¹, Shwapun Kumar Biswas¹, Jahed Masud¹, Sharika Nuzhat¹, Nowshin Papri¹, M Tasdik Hasan¹, Elizabeth Thomas³, David A. Sack³, Jamie Perin³, Munirul Alam¹, Christine Marie George³

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DIARRHEAL DISEASE KNOWLEDGE AMONG HOUSEHOLD MEMBERS OF DIARRHEA PATIENTS: FINDINGS FROM THE RANDOMIZED CONTROLLED TRIAL OF THE CHOLERA-HOSPITAL-BASED-INTERVENTION-FOR-7 DAYS (CHOB17) MOBILE HEALTH PROGRAM

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HEALTH BEHAVIORS AND THE SPATIAL DISTRIBUTION OF INTESTINAL PARASITE INFECTIONS IN SOUTH AMERICA

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Poster Session A Viewing

Poster Hall

Monday, November 16

3 p.m. - 7 p.m. U.S. Eastern Time Zone

Break

Monday, November 16

1 p.m. - 1:30 p.m. U.S. Eastern Time Zone

Scientific Session 18

Global Health: Planetary Health and Malaria

Meeting Room 1

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Josh M. Colston

University of Virginia School of Medicine, Charlottesville, VA, United States

Andres G. Lescano

Universidad Peruana Cayetano Heredia, Lima, Peru

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ASSOCIATIONS BETWEEN 8 EARTH OBSERVATION-DERIVED CLIMATE VARIABLES AND PATHOGEN-SPECIFIC ENTERIC INFECTIONS IN MULTIPLE LARGE SURVEILLANCE STUDIES

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MICROBIOME OF DOMESTIC WATER FROM RURAL COMMUNITIES IN THE SOUTHERN CARIBBEAN, WATER QUALITY AND HUMAN HEALTH IMPLICATIONS

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INCREASING ACCESS TO MALARIA IN PREGNANCY SERVICES THROUGH COMMUNITY HEALTH UNITS AND ENHANCED SUPPORTIVE SUPERVISION OF COMMUNITY HEALTH VOLUNTEERS

Donald Apat¹, Willis Akhwale¹, Moses Kidi¹, Edwin Onyango², James Andati¹, Hellen Gatakaa¹, Augustine Ngindu¹, Lolade Oseni³, Gladys Tetteh³, Daniel Wacira⁴

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Olusola B. Oresanya¹, Abraham Ahmadu¹, Abimbola Phillips¹, Taiwo Ibinaiye¹, Olatunde Adesoro¹, Jamilu I. Nikau², Chris Isokpunwu³, Rilwan M. Anka⁴, Shiwan H. Dlakwa⁴, Nana A. Ibrahim⁴, Obinna Emeruwa⁴, Ochogbu Paul⁴, Abdulrahman A. Ahmed⁵, Mohammad A. Inname⁵, Charlotte Ward⁶, Kevin Baker⁶, Madeleine Marasciulo⁷, Christian Rassi⁶, Kolawole Maxwell¹, Helen Smith⁶

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DETERMINING SEROPOSITIVITY- A REVIEW OF APPROACHES TO DEFINE SEROPREVALENCE WHEN USING MULTIPLEX BEAD ASSAYS TO ASSESS BURDEN OF TROPICAL DISEASES

YuYen Chan¹, Kimberly Fornace¹, Eric Rogier², Lindsey Wu¹, Ben F. Arnold³, Jeffrey W. Priest², Diana L. Martin², Michelle Chang², Samuel E. Jean⁴, Jackie Cook¹, Gillian Stresman¹, Chris Drakeley¹

¹London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Centers for Disease Control and Prevention, Atlanta, GA, United States, ³University of California, San Francisco, San Francisco, CA, United States, ⁴Population Services International/ Organisation Haïtienne de Marketing Social pour la Santé, Port-au-Prince, Haiti

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CERVICAL CANCER: LATE PRESENTATION AND ASSOCIATED FACTORS AT MBARARA REGIONAL REFERRAL HOSPITAL

Sudi Mohamed

Mbarara University of Science and Technology, Mbarara, Uganda

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ETHICAL CHALLENGES AND MORAL DISTRESS AMONG FIELD EPIDEMIOLOGISTS IN GLOBAL HEALTH

David G. Addiss¹, Emma Cooke², George Lopez³, Angela Hilmers⁴

¹Task Force for Global Health, Atlanta, GA, United States, ²Emory School of Medicine, Atlanta, GA, United States, ³Emory University Rollins School of Public Health, Atlanta, GA, United States, ⁴TEPHINET, Task Force for Global Health, Atlanta, GA, United States

Symposium 19

Mechanistic Dose-Response Modelling of Antimalarial Drugs

Meeting Room 2

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Malaria is one of the most important infectious diseases in the world. Research has shown that many of the current antimalarial drugs were introduced at the wrong doses, particularly in young children and pregnant women. The only way to determine accurately the correct dose regimens for antimalarial treatments is to establish a dose-response relationship through pharmacokinetic-pharmacodynamic (PK/PD) modelling. It is necessary to identify the different demographic, physiological, disease related, and pharmaceutical factors that influence drug concentrations and thereby malaria treatment outcomes, including preventive treatment. Furthermore, better precision can be obtained with a modelling approach, compared to traditional dose-group comparisons, since the individual concentration-time profiles are used to modulate the treatment outcomes. This powerful approach allows dose-optimization in different sub-populations, at particular risk of under- or over-dosing, and it facilitates considerably the interpretation of clinical trials and other pharmacological studies. PK/PD modelling spans from simple empirical description of the PK/PD properties of a drug, to highly complex mechanistic models based on biological processes. This symposium will present four separate but inter-linked talks on state-of-the-art modelling of antimalarial drugs and the translational advantages of such model approaches. The symposium will focus on different modelling-based approaches, including individual participant data (IPD) meta-analyses to characterize the pharmacokinetic properties of antimalarial drugs and the relationship between dose, exposure and pharmacodynamic outcomes, as well as using modelling and simulation as a clinical decision tool for selecting new antimalarial combination therapies. First speaker: Pharmacokinetics and mosquito-killing effects of ivermectin and its metabolites. Second speaker: Primaquine PK/PD modelling: Pharmacokinetic properties, gametocytocidal activity, and mosquito infectivity. Third speaker: WWARN IPD meta-analyses: secondary use of pooled PK data to improve malaria treatment in vulnerable sub-populations. Last speaker: Developing clinical decision tools for selecting new antimalarial combination therapies.

CHAIR

Joel Tarning

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

Julie Simpson

University of Melbourne, Melbourne, Australia

3 p.m.

PHARMACOKINETICS AND MOSQUITO-KILLING EFFECTS OF IVERMECTIN AND ITS METABOLITES

Joel Tarning

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

3:25 p.m.

PRIMAQUINE PK/PD MODELLING: PHARMACOKINETIC PROPERTIES, GAMETOCYTOCIDAL ACTIVITY, AND MOSQUITO INFECTIVITY

Palang Chotsiri

Mahidol University, Bangkok, Thailand

3:50 p.m.

WWARN IPD META-ANALYSES: SECONDARY USE OF POOLED PK DATA TO IMPROVE MALARIA TREATMENT IN VULNERABLE SUB-POPULATIONS

Karen Barnes

University of Cape Town, Cape Town, South Africa

4:15 p.m.

DEVELOPING CLINICAL DECISION TOOLS FOR SELECTING NEW ANTIMALARIAL COMBINATION THERAPIES

Julie A. Simpson

University of Melbourne, Melbourne, Australia

Symposium 20

A Fundamental Way to Prevent Malaria in Pregnancy: Improving Health Outcomes for Pregnant Women and Their Babies One Nurse and Midwife at a Time

Meeting Room 3

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

The World Health Organization (WHO) Executive Committee proclaimed 2020 the "Year of the Nurse and the Midwife" recognizing these health workers are on the frontlines every day bringing innovation and transforming health care. 2020 is also the year Roll Back Malaria renewed the Global Call to Action for Intermittent Preventive Treatment during Pregnancy (IPTp) in its five-year anniversary. Nurses and midwives are the backbone of health care systems in Africa and beyond, and it is their leadership and commitment that enables pregnant women to receive the comprehensive care they need, including prevention and control of malaria, leading to improved maternal and newborn health outcomes. This symposium will highlight the necessity of empowering nurses and midwives further to achieve our aims to prevent malaria in pregnancy. Participants will learn about the renewed Call to Action and efforts to improve the supply of medicines for IPTp at the global and country level, as well as gaining a better understanding of the role that nurses and midwives must play in improving IPTp coverage through innovative approaches to ANC. The symposium will open with a broader WHO perspective, including the Call to Action and the importance of the Year of the Midwife and Nurse for MiP agenda. Updates on new manufacturers and new packaging for quality assured MiP medicines will be reviewed. A presentation from Guinea will focus on short message services (SMSs) to remind women of upcoming ANC visits sent before each appointment. Pregnant women receiving SMSs were 48x more likely to attend all visits and were 12x more likely to receive all IPTp doses during pregnancy. Burkina Faso will share its experience with the utilization of community health workers for community delivery of IPTp in 3 districts to increase coverage of 3 or more IPTp-SP doses without detracting from ANC attendance. Administration of IPTp4 more than doubled

Monday
November 16

between the baseline (22%) and endline (47%) in the intervention group. Delivery of the 4th and additional ANC visits increased by 15-percentage points for the intervention area between the baseline (62%) and endline (77%) surveys, while there was only a 3-percentage point increase in the control group. Nigeria and Kenya observed increases in IPTp coverage among women attending Group ANC, with the mean number of IPTp doses received was higher for intervention versus control arm in Nigeria (3.45 versus 2.14, $p < 0.001$) and Kenya (3.81 versus 2.72, $p < 0.001$). These experiences and global efforts will reinforce that nurses and midwives are saving lives every day to prevent MiP and that they are critical to the continuing journey to ensure that no pregnant woman experiences malaria.

CHAIR

Katherine Wolf
Jhpiego, Baltimore, MD, United States

Maurice Bucagu
World Health Organization, Geneva, Switzerland

3 p.m.

INTRODUCTION TO THE CALL TO ACTION IN THE YEAR OF THE NURSE AND MIDWIFE

Pedro Alonso
World Health Organization, Geneva, Switzerland

3:20 p.m.

QUALITY ASSURED MIP MEDICINES: AN UPDATE ON THE SUPPLY SIDE

Maud Lugand
Medicines for Malaria Venture (MMV), Geneva, Switzerland

3:40 p.m.

USING SHORT MESSAGE SERVICE ALERTS TO INCREASE ANTENATAL CARE AND MALARIA PREVENTION: FINDINGS FROM IMPLEMENTATION RESEARCH PILOT IN GUINEA

Aissata Fofana
RTI International, Conakry, Guinea

4 p.m.

TESTING THE FEASIBILITY OF COMMUNITY IPTP IN BURKINA FASO

Yacouba Ouedraogo
Jhpiego, Ouagadougou, Burkina Faso

4:20 p.m.

EFFECT OF GROUP ANTENATAL CARE (G-ANC) VERSUS INDIVIDUAL ANTENATAL CARE (ANC) ON IPTP AND ANC ATTENDANCE: A CLUSTER-RANDOMIZED CONTROLLED TRIAL IN NIGERIA AND KENYA

Jenipher Ang'aha
Jhpiego, Kisumu, Kenya

Symposium 21

Clinical Group Symposium II (American Committee on Clinical Tropical Medicine and Travelers' Health – ACCTMTH): Tropical Medicine Jeopardy

Meeting Room 4

Monday, November 16

3 p.m. - 4:45 p.m., U.S. Eastern Time Zone

This session will feature, for the very first time, a highly interactive

activity intended to engage the audience in an educative, yet entertaining, fashion. The format is a modified version of the quiz show "Jeopardy", with questions primarily focused on tropical and travel medicine. The goal of the Tropical Medicine Jeopardy tournament is to further clinical tropical and travel medicine education in a fun format. Student trainees from three different institutions will compete for prizes in an exciting competition that stimulates education in a fun format. To keep the session light and entertaining, a small percentage of questions may be of the trivia type, which may include humorous ones. This is a collaborative effort that includes input from many members of the Clinical Group. As the first of its kind offered by the Clinical Group at the ASTMH Annual Meeting, this session is expected to be a front-runner for similar interactive sessions in the future.

CHAIR

Latha Rajan
Tulane University, New Orleans, LA, United States

3 p.m.

ACCTMTH ANNUAL BUSINESS MEETING

Latha Rajan
Tulane University, New Orleans, LA, United States

3:45 p.m.

TROPICAL MEDICINE JEOPARDY

CHAIR:

Latha Rajan
Tulane University, New Orleans, LA, United States

Co-Chair: Brady Page
Massachusetts General Hospital, Boston, MA, United States

Judge: Obinna Nnedu
Ochsner Clinic Foundation, New Orleans, LA, United States

SCOREKEEPER:

Austin T. Jones
Tulane University, New Orleans, LA, United States

PANELISTS:

Sarah Boudova
Indiana University Health, Indianapolis, IN, United States

Guy Crowder
Franciscan Health, School of Public Health and Tropical Medicine, Indianapolis, IN, United States

Khanh Pham
NYP/Weill Cornell Medical Center, New York, NY, United States

Scientific Session 22

Arthropods: Other Arthropods

Meeting Room 5

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Chukwunonso Nzelu
University of Calgary, Calgary, AB, Canada

Soanandrasana Rahelinirina
Institut Pasteur de Madagascar, Antananarivo, Madagascar

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CHARACTERIZATION OF THE ADAPTIVE IMMUNE RESPONSE ELICITED BY REPEATED EXPOSURE TO THE BITES OF AN INSECT VECTOR: IMPLICATIONS FOR VECTOR TRANSMITTED DISEASES

Chukwunonso O. Nzelu, Matheus B. Carneiro, Nathan C. Peters
Snyder Institute for Chronic Diseases, Departments of Microbiology, Immunology and Infectious Diseases, Cumming School of Medicine and Comparative Biology and Experimental Medicine, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada

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DECIPHERING OF MOLECULAR INTERACTIONS BETWEEN THE TRIPARTITE "SIMULIUM DAMNOSUM VECTOR, ENDOSYMBIOTIC BACTERIA AND ONCHOCERCA VOLVULUS": EXPLORATION OF THE POTENTIAL OF BACTERIAL SPECIES AS BIOLOGICAL TOOLS FOR THE DEVELOPMENT OF A NOVEL VECTOR CONTROL STRATEGY TO FIGHT ONCHOCERCIASIS IN AFRICA

Arnould Efon Ekangou
Centre for Research on Filariasis and other Tropical Diseases, Yaounde, Cameroon
 (ACMCIP Abstract)

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DETECTION TIME LIMIT OF BLOOD MEAL HOST DEOXYRIBONUCLEIC ACID IN A TICK, RHIPICEPHALUS (BOOPHILUS) POST FEEDING.

Tanatswa X. Gara¹, Sungai Mazando²
¹*Africa University, Mutare, Zimbabwe*, ²*University of Zimbabwe, Harare, Zimbabwe*
 (ACMCIP Abstract)

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SURVEILLANCE OF PLAGUE INFECTION IN MAMMALS AND FLEAS, MADAGASCAR, 2019 < FOR < AND > FOR >

Soanandrasana Rahelinirina¹, Mireille Harimalala², Jerry Rakotoniaina³, Romain Girod², Minoarisoa Rajerison¹
¹*Plague Unit, Institut Pasteur de Madagascar, Antananarivo, Madagascar*, ²*Medical Entomology Unit, Institut Pasteur de Madagascar, Antananarivo, Madagascar*, ³*Central Laboratory for Plague, Ministry of Public Health, Antananarivo, Madagascar*

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TEMPERATURE MEDIATED EFFECTS ON VESICULAR STOMATITIS VIRUS INFECTION IN CULICOIDES SONORENSIS MIDGES

Paula Rozo-Lopez¹, Berlin Londono¹, Barbara Drolet²
¹*Kansas State University, Manhattan, KS, United States*, ²*United States Department of Agriculture, Manhattan, KS, United States*

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A PROTOCOL FOR A CLUSTER RANDOMIZED TRIAL OF ONE-DOSE VERSUS TWO-DOSE IVERMECTIN MASS DRUG ADMINISTRATION FOR SCABIES IN REMOTE ISLAND COMMUNITIES IN SOLOMON ISLANDS

Susanna J. Lake¹, Sophie L. Phelan², Daniel Engelman¹, Oliver Sokana³, Titus Nasi³, Dickson Boara³, Christina Gorae³, Tibor Schuster⁴, Anneke C. Grobler¹, Millicent H. Osti¹, Ross Andrews⁵, Michael Marks⁶, Margot J. Whitfield⁷, Lucia Romani², John M. Kaldor², Andrew C. Steer¹
¹*Murdoch Children's Research Institute, Parkville, Australia*, ²*Kirby Institute, University of New South Wales, Sydney, Australia*, ³*Ministry of Health and Medical Services, Honiara, Solomon Islands*, ⁴*McGill University, Montreal, QC, Canada*, ⁵*Australian National University, Canberra, Australia*, ⁶*London School of Hygiene and Tropical Medicine, London, United Kingdom*, ⁷*St Vincent's Hospital, University of New South Wales, Sydney, Australia*

Scientific Session 23**Bacteriology: Enteric Infections II**

Meeting Room 6

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Daniel T. Leung
University of Utah, Salt Lake City, UT, United States

Theresa Ryckman
Stanford University School of Medicine, Stanford, CA, United States

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EVALUATION OF A RAPID, POINT-OF-CARE MULTIPLEX IMMUNOCHROMATOGRAPHIC ASSAY FOR THE DIAGNOSIS OF ENTERIC FEVER

Shailendra Kumar¹, Ariana Nodoushani², Farhana Khanam³, Alyssa T. DeCruz¹, Paul Lambotte¹, Robert Scott¹, Isaac I. Bogoch⁴, Krista Vaidya⁵, Stephen B. Calderwood², Taufiq R. Bhuiyan³, Javan Esfandiari¹, Edward T. Ryan², Firdausi Qadri³, Jason Andrews⁶, **Richelle C. Charles**²
¹*Chembio Diagnostic Systems, Inc, Medford, NY, United States*, ²*Massachusetts General Hospital, Boston, MA, United States*, ³*International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh*, ⁴*University of Toronto, Toronto, ON, Canada*, ⁵*Dhulikhel Hospital, Dhulikhel, Nepal*, ⁶*Stanford University School of Medicine, Stanford, CA, United States*

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COMPARISON OF STRATEGIES FOR TYPHOID CONJUGATE VACCINE INTRODUCTION IN INDIA: A GEOSPATIAL COST-EFFECTIVENESS MODELING STUDY

Theresa Ryckman¹, Arun S. Karthikeyan², Dilesh Kumar², Gagandeep Kang², Jeremy D. Goldhaber-Fiebert¹, Jacob John², Nathan C. Lo³, Jason Andrews¹
¹*Stanford University School of Medicine, Stanford, CA, United States*, ²*Christian Medical College Vellore, Vellore, India*, ³*University of California, San Francisco, San Francisco, CA, United States*

455

MACHINE LEARNING IDENTIFIES KEY RISK FACTORS OF LINEAR GROWTH FALTERING IN YOUNG CHILDREN WITH AND WITHOUT DIARRHEA

Sharia M. Ahmed¹, Benjamin Brintz¹, Patricia B. Pavlinac², James A. Platts-Mills³, Karen L. Kotloff⁴, Daniel T. Leung¹
¹*University of Utah, Salt Lake City, UT, United States*, ²*University of Washington, Seattle, WA, United States*, ³*University of Virginia, Charlottesville, VA, United States*, ⁴*University of Maryland, Baltimore, MD, United States*

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IMPACTS OF GIARDIA CARRIAGE AND ENTERIC PATHOGEN CODETECTION ON CHILDREN IN THE VACCINE IMPACT ON DIARRHEA IN AFRICA STUDY: KENYA, THE GAMBIA, AND MALI, 2015-2018

Perrine Marcenac¹, Yiman Li¹, Sunkyoung Kim¹, David M. Berendes¹, Graeme Prentice-Mott¹, Kristen Fagerli¹, Helen Powell², Irene N. Kasumba², Sharon M. Tennant², M. Jahangir Hossain³, Syed M. Zaman³, Henry Badji³, Sarwar Golam³, Richard Omoro⁴, John B. Ochieng⁴, Jane Juma⁴, Jennifer R. Verani¹, Alex Ondeng⁴, Billy Ogwel⁴, Marc-Alain Widdowson¹, Samba Sow², Sanogo Doh⁵, Adama Mamby Keita⁵, Awa Traore⁵, Uma U. Onwuchekwa⁵, Jie Liu⁶, James A. Platts-Mills⁶, Eric R. Houpt⁶, Eric D. Mintz¹, Ciara O'Reilly¹, Karen L. Kotloff²
¹*Centers for Disease Control and Prevention, Atlanta, GA, United States*, ²*University of Maryland, Baltimore, MD, United States*, ³*MRC Unit The Gambia at the London School of Hygiene and Tropical Medicine, Banjul, Gambia*, ⁴*Kenya Medical Research Institute, Kisumu, Kenya*, ⁵*Center for Vaccine Development Mali, Bamako, Mali*, ⁶*University of Virginia, Charlottesville, VA, United States*

USE OF SOAP AND SAFE DISPOSAL OF CHILD'S FECES REDUCE TRANSMISSION AND CHILDREN'S EXPOSURE TO *CAMPYLOBACTER JEJUNI* IN THE KOLKATA, INDIA SITE OF THE GLOBAL ENTERIC MULTICENTER STUDY

Kurt Z. Long¹, Inong Gunanti², Byomesh Manna³, Thandavarayan Ramamurthy³, Suman Kanungo⁴, Johanna Sanchez², James Nataro⁵, Dilruba Nasrin⁶, Myron Levine⁶, Karn Kotloff⁶

¹Swiss Tropical and Public Health Institute, Basel, Switzerland, ²Faculty of Medicine and Biomedical Sciences, University of Queensland, Brisbane, Australia, ³National Institute of Cholera and Enteric Diseases, Kolkata, India, ⁴National Institute of Cholera and Enteric Diseases, Basel, India, ⁵Department of Pediatrics, University of Virginia School of Medicine, Charlottesville, VA, United States, ⁶Department of Medicine and Center for Vaccine Development, Baltimore, MD, United States

EXCLUSIVE/PREDOMINANT BREASTFEEDING IS ASSOCIATED WITH LOWER RISK OF ENTEROPATHOGEN DETECTION: RESULTS FROM THE MAL-ED COHORT STUDY

Stephanie A. Richard¹, Benjamin J. McCormick¹, Laura E. Murray-Kolb², Estomih Mduma³, Margaret Kosek⁴, Eric Houpt⁴, Pascal Bessong⁵, Bruna L. Maciel⁶, Aldo Lima⁶, Ram Krishna Chandoy⁷, Anuradha Bose⁸, Tahmeed Ahmed⁹, Laura E. Caulfield¹⁰

¹Fogarty International Center, NIH, Bethesda, MD, United States, ²The Pennsylvania State University, University Park, PA, United States, ³Haydom Lutheran Hospital, Haydom, United Republic of Tanzania, ⁴University of Virginia, Charlottesville, VA, United States, ⁵University of Venda, Thohoyandou, South Africa, ⁶Federal University of Rio Grande do Norte, Fortaleza, Brazil, ⁷Tribhuvan University, Kathmandu, Nepal, ⁸Christian Medical College, Vellore, India, ⁹icddr, Dhaka, Bangladesh, ¹⁰The Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

Symposium 24

Aedes Surveillance in Africa: (Re-) Building Capacity to Address Growing Arboviral Disease Threats

Meeting Room 7

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Aedes-borne arboviral diseases such as dengue, Zika and chikungunya are being reported with increasing frequency across Africa, and despite being vaccine preventable, yellow fever outbreaks continue to persist. Although Africa was the cradle of modern Aedes surveillance and control methodologies stemming from the yellow fever research activities of the early 20th century, current entomological capacity is primarily focused on malaria vectors. This has resulted in a tremendous knowledge gap whereby most countries lack routine surveillance programs, trained personnel, and control activities that are focused on Aedes and the viruses they transmit. As outbreaks of Aedes-borne arboviruses continue to increase across Africa, establishing a strong public health entomology infrastructure around Aedes mosquitoes is critical to both containing and preventing outbreaks. The pervasive spread of Aedes-borne arboviruses across tropical and subtropical regions of the world, most recently demonstrated by the 2016 Zika pandemic (which also reached Africa), attests to the importance of establishing strong entomological surveillance and control activities if the public health impact of these pathogens is to be mitigated. Given recurrent yellow fever outbreaks and the increasing public health burden due to dengue and chikungunya, West Africa is a priority region for strengthening the public health entomology capacities around Aedes surveillance and control. The West African Aedes Surveillance

Network (WAASuN) was created in 2017 at a meeting held in Sierra Leone, comprised of African scientists working on Aedes mosquitoes. WAASuN aims to strengthen the capacity of West African countries to carry out surveillance and control of Aedes arboviral disease vectors and facilitate collaboration between countries on various aspects of Aedes surveillance and control. Global efforts to eliminate malaria have resulted in unprecedented levels of investment in public health entomology, particularly in high burden countries in Africa. A wealth of opportunity exists to leverage malaria-focused activities to enhance integrated vector management practices and gain information regarding Aedes arbovirus vectors. Engagement with programs such as PMI that are conducting routine entomological monitoring for malaria represent an untapped opportunity for developing routine Aedes surveillance activities. The symposium will provide an overview of the public health burden of Aedes-borne arboviruses in Africa, and highlight recent initiatives that are underway to address the gaps around routine Aedes surveillance and control.

CHAIR

Audrey Lenhart

US Centers for Disease Control and Prevention, Atlanta, GA, United States

Samuel K. Dadzie

Noguchi Memorial Institute for Medical Research, Accra, Ghana

Mamadou B. Coulibaly

University of Sciences Techniques and Technologies of Bamako, Mali, Bamako, Mali

3 p.m.

AEDES-BORNE ARBOVIRUSES AS AN EMERGING PUBLIC HEALTH THREAT IN AFRICA AND MULTI-SECTORAL APPROACHES FOR PREVENTION AND CONTROL

Florence Fouque

WHO-TDR, Geneva, Switzerland

3:25 p.m.

THE WEST AFRICAN AEDES SURVEILLANCE NETWORK (WAASUN)

Samuel K. Dadzie

Noguchi Memorial Institute for Medical Research, Accra, Ghana

3:50 p.m.

LEVERAGING EXISTING ENTOMOLOGY CAPACITIES FOR MALARIA TO ADDRESS AEDES SURVEILLANCE: AN EXAMPLE FROM SIERRA LEONE

Rebecca S. Levine

Centers for Disease Control and Prevention, Atlanta, GA, United States

4:15 p.m.

AN OPERATIONAL EXAMPLE OF AEDES SURVEILLANCE TO IMPROVE VECTOR CONTROL IN SENEGAL

Mawlouth Diallo

Institut Pasteur de Dakar, Dakar, Senegal

Scientific Session 25

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Immunoparasitology and Vaccine Development

Meeting Room 8

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Supported with Funding from the Burroughs Wellcome Fund

CHAIR

Keke C. Fairfax
University of Utah, Salt Lake City, UT, United States
Pedro Gazzinelli-Guimaraes
NIAID, NIH, Bethesda, MD, United States

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LEISHMANIA-INFECTED MACROPHAGES RELEASE EXTRACELLULAR VESICLES THAT ACTIVATE ENDOTHELIAL CELL PROCESSES AND MAY PROMOTE VASCULARIZATION OF LEISHMANIA LESIONS

Anna E. Gioseffi, Kha Van, Keily Ortega, Phil Yates, Peter Kima
University of Florida, Gainesville, FL, United States

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EFFECTOR FUNCTION PRIOR TO ESTABLISHMENT OF THE PHAGOSOMAL PATHOGEN NICHE IS REQUIRED FOR PROTECTIVE CD4+ T CELL-MEDIATED IMMUNITY AGAINST LEISHMANIA

Leah Hohman, Matheus B.H. Carneiro, Rachel Kratofil, Nathan C. Peters
Snyder Institute for Chronic Diseases, Department of Immunology, University of Calgary, Calgary, AB, Canada

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THE ROLE OF THE GPI ANCHOR IN IMMUNITY TO TOXOPLASMA GONDII

Julia Alvarez¹, Scott P Souza¹, Elisabet Gas-Pascual², Jessica N Wilson¹, Safuwra Wizzard¹, Brooke Wilson¹, Christopher M West², Kirk DC Jensen¹
¹University of California Merced, Merced, CA, United States, ²University of Georgia, Athens, GA, United States

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MODULATION OF HUMAN DENDRITIC CELL FUNCTION THROUGH MICROFILARIAE-DERIVED EXTRACELLULAR VESICLES

Alessandra Ricciardi, Dhalia Metenou, Gayatri Sanku, Roshanak Tolouei Semnani, Thomas B. Nutman
Laboratory of Parasitic Diseases, NIAID, NIH, Bethesda, MD, United States

(ACMCIP Abstract)

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ENVIRONMENTAL ALLERGEN SENSITIZATION PROMOTES MARKED DIVERSITY IN HELMINTH-DRIVEN MEMORY CD4+ EFFECTOR TH2 CELLS IN HUMANS

Pedro Gazzinelli-Guimaraes¹, Philip Swanson², Thomas Nutman¹
¹NAID, NIH, Bethesda, MD, United States, ²VRC, NIAID, NIH, Bethesda, MD, United States

(ACMCIP Abstract)

461

FILARIAL COINFECTION IS ASSOCIATED WITH HIGHER BACTERIAL BURDENS AND ALTERED PLASMA CYTOKINE AND CHEMOKINE RESPONSES IN TUBERCULOUS LYMPHADENITIS

Gokul Raj Kathamuthu
NIH-ICER-NIRT, Chennai, India

(ACMCIP Abstract)

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AN ADENOVIRUS-VECTOR EXPRESSING CATHEPSIN B PROTECTS FROM SCHISTOSOMIASIS INFECTION IN A PRE-CLINICAL MODEL

Dilhan J. Perera¹, Adam S. Hassan¹, Mehdy Elahi², Christine Gadoury², Risini

Weeratna³, Renald Gilbert², Momar Ndao¹

¹Research Institute McGill University Health Center, Montreal, QC, Canada, ²National Research Council of Canada, Montreal, QC, Canada, ³National Research Council of Canada, Ottawa, ON, Canada

(ACMCIP Abstract)

Scientific Session 26

Intestinal and Tissue Helminths: Soil-Transmitted Helminths - Control

Meeting Room 10

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Jessica Aw
The Australian National University, Canberra, Australia
Rubina Imtiaz
Children Without Worms, Decatur, GA, United States

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NOVEL STATISTICAL APPROACHES TO IDENTIFY RISK FACTORS FOR SOIL-TRANSMITTED HELMINTH INFECTION

Jessica Aw¹, Naomi Clarke², Helen Mayfield¹, Colleen Lau¹, Alice Richardson¹, Susana Vaz Nery²
¹Australian National University, Canberra, Australia, ²University of New South Wales, Sydney, Australia

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EFFECTS OF ANNUAL VERSUS SEMIANNUAL MASS DRUG ADMINISTRATION FOR LYMPHATIC FILARIASIS ON HOOKWORM INFECTION IN CÔTE D'IVOIRE

Agodio Loukouri¹, Abdoulaye Méité², Benjamin G. Koudou³, Charles W. Goss⁴, Daphne Lew⁴, Gary J. Weil⁴, Eliézer K. N'Goran¹, Peter U. Fischer⁴
¹University Félix Houphouët Boigny, Abidjan, Côte D'Ivoire, ²National Control Program of Neglected Tropical Diseases through Preventive Chemotherapy, Abidjan, Côte D'Ivoire, ³Swiss Centre for Scientific Research, Abidjan, Côte D'Ivoire, ⁴Washington University School of Medicine, Saint-Louis, MO, United States

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PATTERNS OF INDIVIDUAL NON-TREATMENT DURING MULTIPLE ROUNDS OF COMMUNITY-WIDE MASS DRUG ADMINISTRATION FOR CONTROL OF SOIL-TRANSMITTED HELMINTHS IN THE TUMIKIA TRIAL, KENYA

William E. Oswald¹, Stella Kepha¹, Katherine E. Halliday¹, Carlos Mcharo², Th'uvu Safari², Stefan Witek-McManus¹, Elizabeth Allen¹, Simon J. Brooker¹, Sammy M. Njenga², Charles S. Mwandawiro², Roy M. Anderson³, Rachel L. Pullan¹
¹London School of Hygiene & Tropical Medicine, London, United Kingdom, ²Eastern and Southern Africa Centre of International Parasite Control, Kenya Medical Research Institute, Nairobi, Kenya, ³London Centre for Neglected Tropical Disease Research, Faculty of Medicine, Department of Infectious Disease Epidemiology, School of Public Health, St Mary's Campus, Imperial College London, London, United Kingdom

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EVALUATION OF THE COVERAGE OF PREVENTIVE CHEMOTHERAPY AGAINST SOIL-TRANSMITTED HELMINTHIASIS IN RWANDA

Eugene Ruberanziza¹, Jean Bosco Mbonigaba¹, Ladislav Nshimiyimana¹, Aimable Mbituyumuremyi¹, Jamie Tallant²
¹Rwanda Biomedical Center/Ministry of Health, Kigali, Rwanda, ²The END Fund, New York, NY, United States

Monday
November 16

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NEW FOCI FOR INTESTINAL SCHISTOSOMIASIS & SOIL-TRANSMITTED HELMINTHS INFECTION AFTER FIVE CONSECUTIVE YEARS OF MDA IN TWO DISTRICTS IN SOUTHERN ETHIOPIA

Zerihun Zerdo¹, Jean-Pierre Van geertruyden², Bastiaens Hilde², Sibyl Anthierens², Fekadu Massebo¹, Roy M Anderson³, Justine Marshall⁴, Misgun Shewangizaw¹, Yilma Chisha¹

¹Arba Minch University, Arba Minch, Ethiopia, ²University of Antwerp, Antwerp, Belgium, ³London Centre for Neglected Tropical Disease Research (LCNTDR), London, United Kingdom, ⁴London Centre for Neglected Tropical Disease Research, London, United Kingdom

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A TOOL TO INVESTIGATE PERSISTENT HIGH TRANSMISSION OF STH INFECTIONS IN LOW PREVALENCE SETTINGS- CWW EXPERIENCE FROM BANGLADESH

Rubina Imtiaz¹, Ashraful Kabir², Abdullah Kawsar³, Md. Jahirul Karim¹

¹Children Without Worms, Decatur, GA, United States, ²Children Without Worms, Dhaka, Bangladesh, ³Elimination of Lymphatic Filariasis & STH Control Program, Dhaka, Bangladesh

Scientific Session 27

Kinetoplastida: Epidemiology

Meeting Room 11

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Natalie M. Bowman

University of North Carolina, Chapel Hill, NC, United States

Ana de Oliveira

University of California San Francisco, San Francisco, CA, United States

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ANTIBODY LEVELS IN TRYPANOSOMA CRUZI INFECTION CORRELATE WITH PARASITEMIA AND CARDIOMYOPATHY: DATA FROM THE REDS-II COHORT

Lewis Fletcher Buss, Ester C. Sabino

Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil

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RAPID DIAGNOSTIC TESTS COMBINED WITH TREATMENT WITH A SINGLE-DOSE DRUG SPEEDS UP THE ELIMINATION OF GAMBIENSE HUMAN AFRICAN TRYPANOSOMIASIS

Ron Crump¹, Ching-I Huang¹, Erick Mwamba Miaka², Kat S. Rock¹

¹The University of Warwick, Coventry, United Kingdom, ²PNLTHA, Kinshasa, Democratic Republic of the Congo

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SPATIOTEMPORAL DISTRIBUTION OF VISCERAL LEISHMANIASIS WITH CONSIDERATION OF ENVIRONMENTAL RISK FACTORS, MINAS GERAIS, BRAZIL, 2012-2018

Shelby L. Lyons¹, Julie A. Clennon¹, José A. Ferreira², Jessica K. Fairley³, Uriel Kitron⁴

¹Emory Rollins School of Public Health, Atlanta, GA, United States, ²Faculdade de Saúde e Ecologia Humana, Vespasiano, Brazil, ³Emory University School of Medicine, Atlanta, GA, United States, ⁴Emory University, Atlanta, GA, United States

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ESTIMATING THE POTENTIAL IMPACT ON ELIMINATING TRANSMISSION OF SLEEPING SICKNESS DUE TO THE INTERRUPTION OF ACTIVITIES DURING THE COVID-19 PANDEMIC

Ching-I Huang¹, Maryam Aliee¹, Ronald Crump¹, Soledad Castaño², Chris Davis¹, Erick Mwamba Miaka³, Matt Keeling¹, Nakul Chitnis⁴, Kat Rock¹

¹University of Warwick, Coventry, United Kingdom, ²Swiss Tropical and Public Health Institute, Basel, Switzerland, ³Programme National de Lutte contre la Trypanosomiase Humaine Africaine, Kinshasa, Democratic Republic of the Congo, ⁴Swiss Tropical and Public Health Institute, Basel, Swaziland

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ANALYSIS OF THE CURRENT EPIDEMIOLOGICAL SITUATION OF CHAGAS DISEASE IN JAPAN

Inés María Iglesias Rodríguez¹, Sachio Miura², Takuya Maeda³, Clara Vásquez Velásquez⁴, Sumihisa Honda⁵, Satoshi Kaneko⁶, Kazuo Imai⁷, George Ito⁸, Taeko Naruse⁴, Kenji Hirayama⁴

¹Department of Global Health, School of Tropical Medicine and Global Health, Nagasaki University, Nagasaki, Japan, ²NPO organization, MAIKEN, Tokyo, Japan, ³Department of Microbiology, Saitama Medical University, Saitama, Japan, ⁴Department of Immunogenetics, Institute of Tropical Medicine (NEKKEN), School of Tropical Medicine and Global Health, Nagasaki University, Nagasaki, Japan, ⁵Department of Nursing Sciences, Graduate School of Biomedical Science, Nagasaki University, Nagasaki, Japan, ⁶Department of Ecoepidemiology, Institute of Tropical Medicine (NEKKEN), Nagasaki University, Nagasaki, Japan, ⁷Department of Infectious Disease and Infection Control, Saitama Medical University, Saitama, Japan, ⁸Consulate General of Brazil in Japan, Tokyo, Japan

Scientific Session 28

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Malaria - Genomics

Meeting Room 13

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Supported with Funding from the Burroughs Wellcome Fund

CHAIR

Julian C. Rayner

Cambridge Institute for Medical Research, University of Cambridge, Cambridge, United Kingdom

Shannon Takala Harrison

University of Maryland School of Medicine, Baltimore, MD, United States

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ADAPTATION TO MOSQUITO VECTOR SPECIES IMPACTS EVOLUTION OF *PLASMODIUM FALCIPARUM*

Ankit Dwivedi¹, Alvaro Molina-Cruz², Kara A. Moser¹, Drissa Coulibaly³, Mahamadou A. Thera³, Chanthap Lon⁴, Lek Dysoley⁵, Stuart D. Tyner⁴, David L. Saunders⁶, Myaing M. Nyunt⁷, Christopher V. Plowe⁷, Miriam K. Laufer⁸, Mark A. Travassos⁸, Shannon Takala-Harrison⁹, Carolina Barillas Mury², Joana C. Silva¹

¹Institute for Genome Sciences, University of Maryland School of Medicine, Baltimore, MD, United States, ²National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD, United States, ³Malaria Research and Training Center, University of Science, Techniques and Technologies, Bamako, Mali, ⁴Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand, ⁵The National Center for Parasitology, Entomology and Malaria Control, Ministry of Health, Phnom Penh, Cambodia, ⁶US Army Research Institute of Infectious Diseases, Ft. Detrick, MD, United States, ⁷Duke Global Health Institute, Duke University, Durham, NC, United States, ⁸Malaria Research Program, Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, MD, United States

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PERSISTENCE OF GENETICALLY IDENTICAL PARASITES ACROSS MULTIPLE TRANSMISSION SEASONS AND EVIDENCE OF CO-TRANSMISSION IN THIÈS, SÉNÉGAL BETWEEN 2006 AND 2019

Stephen F. Schaffner¹, Rachel F. Daniels², Yaye Die Ndiaye³, Katherine Figueroa¹, Angela M. Early¹, Aida S. Badiane⁴, Awa B. Deme³, Fatou Ba Fall⁵, Medoune Ndiop⁵, Alioune Badara Gueye⁶, Ibrahima Diallo⁵, Moustapha Cisse⁵, Claudia R. Taccheri², Albert Lee⁷, Caitlin Bever⁷, Joshua L. Proctor⁷, Doudou Sene⁵, Daniel L. Hartl⁸, Bronwyn MacInnis¹, Sarah K. Volkman², Daouda Ndiaye⁴, Dyann F. Wirth²
¹Broad Institute, Cambridge, MA, United States, ²Harvard T.H. Chan School of Public Health, Boston, MA, United States, ³Dantec Teaching and Research Hospital, Dakar, Senegal, ⁴Cheikh Anta Diop University, Dakar, Senegal, ⁵Senegal National Malaria Control Program, Dakar, Senegal, ⁶Senegal National Malaria Control Programme, Dakar, Senegal, ⁷Institute for Disease Modelling, Bellevue, WA, United States, ⁸Harvard University, Cambridge, MA, United States

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REDUCED *P. FALCIPARUM* DIVERSITY AND INCREASED GAMETOCYTE CARRIAGE AFTER A MALARIA ELIMINATION INITIATIVE IN SOUTHERN MOZAMBIQUE

Himanshu Gupta¹, Beatriz Galatas¹, Gloria Matambisso², Carlos Ruiz-Arenas¹, Lidia Nhamussua², Wilson Simone², Arlindo Chidimatembe², Pau Cisteró¹, Juan R. González¹, Regina Rabinovich¹, Pedro Alonso¹, Francisco Saute², Pedro Aide², Alfredo Mayor¹
¹Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain, ²Manhiça Health Research Center (CISM), Manhiça, Mozambique

(ACMCIP Abstract)

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SPATIAL PATTERNS OF FALCIPARUM MALARIA GENETIC RELATEDNESS DRIVEN BY HUMAN MOVEMENT IN THE DEMOCRATIC REPUBLIC OF THE CONGO

Nicholas F. Brazeau¹, William Weir¹, Amy Wesolowski², Oliver J. Watson³, Andrew P. Morgan⁴, Azra C. Ghani⁵, Jonathan Juliano¹, Steven Meshnick⁶, Robert Verity⁵
¹University of North Carolina School of Medicine, Chapel Hill, NC, United States, ²Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³Brown University, Providence, RI, United States, ⁴Duke University, Durham, NC, United States, ⁵Medical Research Council Centre for Outbreak Analysis and Modelling, London, United Kingdom, ⁶Gillings School of Global Public Health, Chapel Hill, NC, United States

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THE IMPACT OF ANTIMALARIAL DRUG RESISTANCE ON ESTIMATION OF MALARIA PARASITE MIGRATION AND EFFECTIVE POPULATION SIZE

Bing Guo¹, Zalak Shah¹, Yao Li², Joana C. Silva¹, Zackary Park³, Huy Rekol⁴, Soklyda Chann⁵, Michele D. Spring⁵, Mariusz Wojnarski⁵, David L. Saunders⁶, Philip L. Smith⁵, Chanthap Lon⁵, Brian A. Vesely⁵, Jessica T. Lin³, Norman C. Waters⁵, Kathleen E. Stewart², Timothy D. O'Connor¹, Shannon Takala-Harrison¹
¹University of Maryland School of Medicine, Baltimore, MD, United States, ²University of Maryland, College Park, MD, United States, ³University of North Carolina at Chapel Hill, Chapel Hill, NC, United States, ⁴National Center for Parasitology Entomology and Malaria Control, Phnom Penh, Cambodia, ⁵Armed Forces Research Institute of Medicine Sciences, Bangkok, Thailand, ⁶US Army Research Institute of Infectious Diseases, Ft. Detrick, MD, United States

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TEMPORAL AND SPATIAL ANALYSIS OF PLASMODIUM FALCIPARUM GENOMICS REVEALS PATTERNS OF CONNECTIVITY IN A LOW-TRANSMISSION SETTING IN SOUTHERN PROVINCE, ZAMBIA

Kara A. Moser¹, Ozkan Aydemir², Jeffrey A. Bailey², Chris M. Hennelly¹, Patrick W. Marsh², Amy Wesolowski³, Tamaki Kobayashi³, Tim Shields³, Harry Hamapumbu⁴, Michael Musonda⁴, Ben Katowa⁴, Japhet Matoba⁴, Jennifer C. Stevenson⁴, Douglas E. Norris⁵, Philip E. Thuma⁴, Steven R. Meshnick⁶, William Moss³, Jonathan J. Juliano¹
¹Institute for Global Health and Infectious Diseases, University of North Carolina Chapel Hill, Chapel Hill, NC, United States, ²Department of Pathology and Laboratory Medicine, Brown University, Providence, RI, United States, ³Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ⁴Macha

Research Trust, Choma District, Zambia, ⁵Department of Molecular Microbiology and Immunology, Johns Hopkins Malaria Research Institute, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ⁶Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina Chapel Hill, Chapel Hill, NC, United States

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PLASMODIUM FALCIPARUM HISTIDINE-RICH PROTEIN 2 AND 3 GENE DELETIONS IN ETHIOPIA: CONFIRMATION AND MAPPING USING A NOVEL DEEP SEQUENCING APPROACH

Sindew Mekasha Feleke¹, Emily N. Reichert², Ozkan Aydemir³, Hussein Mohammed¹, Bokretion G. Bhane¹, Hassen Mamo⁴, Beyene Petros⁴, Hiwot Solomon⁵, Ebba Abate¹, Chris Hennelly², Madeline Denton⁶, Steven R. Meshnick², Jonathan J. Juliano², Jeffrey A. Bailey³, Jane Cunningham⁷, Jonathan B. Parr²
¹Ethiopian Public Health Institute, Addis Ababa, Ethiopia, ²University of North Carolina, Chapel Hill, NC, United States, ³Brown University, Providence, RI, United States, ⁴Addis Ababa University, Addis Ababa, Ethiopia, ⁵Federal Ministry of Health, Addis Ababa, Ethiopia, ⁶University of Florida, Gainesville, FL, United States, ⁷World Health Organization, Geneva, Switzerland

(ACMCIP Abstract)

Symposium 29

ASTMH Committee on Global Health (ACGH) Symposium II: Parity and Equity in Global Health: Improving Collaborations between LMIC and HIC Researchers

Meeting Room 14

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

The goal of this symposium is to facilitate a discussion between LMIC and HIC researchers and clinicians on issues of parity and equity in global health surrounding 3 areas specifically: 1- authorship 2- Agenda setting in global health research 3- Funding. The world is interconnected. Low and middle income (LMIC) researchers and clinicians offer a different value strategically from their high income country (HIC) counterparts. The cultural context, familiarity as well as local contacts, experience and respect LMIC researchers command in their countries facilitate the research that HIC researchers frequently propose and follow with their greater access to grant funding and resources. We want to explore the dynamics of this partnership to tease out its nuances and the value placed on the respective contributions of collaborators in this context. Can the agenda and vision of global health research be more fairly distributed to allow LMIC researchers a greater say in agenda setting and provide more opportunities for meaningful authorship? Have proposed mechanisms to drive equity and parity helped to better achieve these goals in the short and long term?

CHAIR

Abiola Fasina
Emergency Healthcare Consultants, Lagos, Nigeria

Sara Schwanke Khilji
Oregon Health and Sciences University, Portland, OR, United States

Monday
November 16

3 p.m.

ROUNDTABLE DISCUSSION

Moderator: Johanna P. Daily
Albert Einstein College of Medicine, Bronx, NY, United States

Lyda Osorio
Universidad del Valle Cali, Cali, Colombia

Rockefeller Oteng
University of Michigan SOM, Flint, MI, United States

Anita Ghansah
Noguchi Medical Research Institute, Legon, Ghana

3:40 p.m.

EQUITY IN NORTH-SOUTH RESEARCH INTERACTIONS: EXPERIENCES FROM LATIN AMERICA

Andres Lescano
Universidad Peruana Cayetano Heredia, Lima, Peru

4 p.m. - 4:20 p.m.

EQUITY AND PARITY IN GLOBAL HEALTH RESEARCH: AN AFRICAN PERSPECTIVE

Faith Osier
KEMRI-CGMRC, Kilifi, Kenya

Symposium 30

American Committee on Arthropod-Borne Viruses (ACAV) Symposium II: This Week in Virology at ASTMH

Meeting Room 15

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

This symposium is a virtual recording of the podcast "This Week in Virology."

CHAIR

Gregory Ebel
CSU, Fort Collins, CO, United States

Patricia Aguilar
UTMB, Galveston, TX, United States

THIS WEEK IN VIROLOGY

Vincent Racaniello
Columbia University, New York, NY, United States

PANELISTS

A. Desiree LaBeaud
Stanford University, Stanford, CA, United States

Jonathan Auguste
Virginia Tech, Blacksburg, VA, United States

Aravinda de Silva
University of North Carolina, Chapel Hill, NC, United States

Carol Blair
Colorado State University, Fort Collins, CO, United States

Mauricio Nogueira
Faculdade de Medicina de Sao Jose do Rio Preto, Sao Jose do Rio Preto, Brazil

Louis Lambrechts
Institut Pasteur, Paris, France

Symposium 31

Using Laboratory Methods to Increase Data Available for Public Health Decisions: The Nigeria Multi-Disease Serologic Surveillance using Stored Specimens (NMS4) Experience

Meeting Room 17

Monday, November 16

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Many low- and middle-income countries lack the data necessary to fully describe public health threats in their countries and monitor the impact of efforts to prevent and control disease. Currently, serosurveillance to monitor disease threats is often focused on single diseases. Multidisease surveillance is a more cost-effective approach and could dramatically scale up the availability of data for public health action, including for diseases that are currently unmonitored. The 2018 Nigeria AIDS Indicator and Impact Survey (NAIIS) was one of the largest HIV household surveys ever conducted, including over 200,000 respondents who gave their consent for storage and further testing of their blood specimens. The NAIIS specimens stored in the biorepository at the Nigeria Center for Disease Control (NCDC) National Reference Laboratory (NRL) are a potential sample source for generating disease seroprevalence data to inform public health programs in Nigeria. Nigeria Multidisease Serologic Surveillance using Stored Specimens (NMS4) will use the sample repository, laboratory, and epidemiologic infrastructure in Nigeria to establish multidisease serosurveillance capacity to provide high-quality supplemental information to augment the existing surveillance network, the overall public health response, and the health of Nigerians. These serosurveillance data are critical to Nigeria, which has some of the highest infectious and vaccine-preventable disease burdens worldwide. NMS4 uses multiple laboratory methods to provide data for 15 infectious diseases and 6 vaccine-preventable diseases. Most tests are completed using the multiplex bead assay (MBA), which assesses antibody responses to multiple diseases simultaneously. The MBA can also assess presence of malaria antigens as an indicator of current malaria status. For tests not available on the MBA format, other methods will be used: ELISA for hepatitis B surface antigen; neutralization assay for polio; and PCR for follow up malaria tests to identify parasite species. Deletions of the gene encoding for histidine-rich protein 2 (HRP2), the protein target for most malaria rapid diagnostic tests, will also be assessed. To provide data to inform immunization program decisions by the end of January 2020, testing of specimens was prioritized to focus on all children 1-14 years (approximately 32,000) and a subset of samples from women of reproductive age (10,000). The additional data will be used to identify factors associated with disease exposure by age and sex and to map disease risk. The speakers will present the development of NMS4, considerations for establishing laboratory capacity in Nigeria, some key initial results, and how the data can be used for decision making to improve the lives of Nigerians.

CHAIR

Diana Martin
CDC, Atlanta, GA, United States

Osagie Ehanire
Nigeria Minister of State for Health, Abuja, Nigeria

3 p.m.

THE IMPORTANCE OF MULTIDISEASE SEROLOGIC SURVEILLANCE, THE PROCESS FOR STANDING UP ACTIVITIES IN NIGERIA, AND INITIAL VACCINE PREVENTABLE DISEASE (VPD), MALARIA, AND NEGLECTED TROPICAL DISEASE RESULTS FROM THE PRIORITY SAMPLE OF SPECIMENS

Chikwe Ihekweazu
Nigeria CDC, Abuja, Nigeria

3:20 p.m.

METHODOLOGICAL AND LABORATORY CONSIDERATIONS FOR MULTIDISEASE SEROLOGIC SURVEILLANCE

Diana Martin
CDC, Atlanta, GA, United States

3:40 p.m.

USE OF NMS4 PRIORITY SAMPLE RESULTS TO GUIDE IMMUNIZATION PROGRAM PLANNING AND DECISION MAKING FOR CONTROL OF VPDS

Faisal Shuaib
National Primary Healthcare Development Agency (NPHCDA), Abuja, Nigeria

4 p.m.

USE OF NMS4 RESULTS TO AUGMENT USE OF MALARIA SURVEILLANCE DATA AND PROVIDE NEGLECTED TROPICAL DISEASE BASELINE SURVEILLANCE DATA FOR PROGRAM PLANNING

Osagie Ehanire
Ministry of Health, Nigeria, Abuja, Nigeria

Break

Monday, November 16

4:45 p.m. - 5 p.m. U.S. Eastern Time Zone

Tuesday, November 17

Press Room

Tuesday, November 17

The ASTMH media team is available for assistance at the following:

- Preeti Singh psingh@burness.com, tel: +1 703-862-2515
- Bridget DeSimone, bdesimone@burness.com, tel: +1 202-468-0766
- Anna Chen, achen@burness.com, tel: +1 215-262-7670

Review research highlights and more: <https://astmhpressroom.wordpress.com/annual-meeting-2020/>

ASTMH Information Desk

Lobby

Tuesday, November 17

5:45 a.m. - 5:30 p.m. U.S. Eastern Time Zone

Poster Session B Viewing

Poster Hall

Tuesday, November 17

Midnight - 11:45 a.m. U.S. Eastern Time Zone

Exhibit Hall

Visit the Exhibit Hall to view the schedule for each exhibit booth and connect with our exhibitors and learn about their products and services.

Sponsor Hall

Visit the Sponsor Hall to connect with our sponsors and learn about their work.

TropMed Central

Visit TropMed Central to connect with colleagues and attendees.

Sponsored Symposium

Re-starting Malaria R&D in the Face of COVID-19

Meeting Room 2

Tuesday, November 17

6:45 a.m. - 8:30 a.m. U.S. Eastern Time Zone

Sponsored by The RBM Partnership to End Malaria, the European Developing Countries Clinical Trials Partnership and Medicines for Malaria Ventures

See page 44 for information.

Sponsored Symposium

Observational Study to Evaluate the Value Added for High Sensitive RDT (HS-RDTs) and Ease of Use for Smartphone Reporting in Uganda

Meeting Room 3

Tuesday, November 17

6:45 a.m. - 8:30 a.m. U.S. Eastern Time Zone

Sponsored by Abbott

See page 44 for information.

Break

Tuesday, November 17

8:30 a.m. - 9 a.m. U.S. Eastern Time Zone

Symposium 32

Alan J. Magill Malaria Eradication Symposium: Basic Research in Africa for Sustained Malaria Elimination and Eradication

Meeting Room 1

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Supported with funding from the Bill & Melinda Gates Foundation



This annual symposium honors the life and work of ASTMH Past President Alan Magill, who at the time of his untimely death in 2015 was promoting the bold goal of global malaria eradication in his role as the Malaria Director at the Bill & Melinda Gates Foundation. Despite important progress malaria still claims too many lives. In sub-Saharan Africa (SSA),

the decreasing trend of malaria morbidity and mortality has stalled in the last several years. Although all current tools are effectively deployed, in some areas of the SSA malaria cases are either not decreasing or the disease is returning after a few years of decline. This demonstrates a clear need for the development of novel tools to effectively eliminate malaria in SSA. The discovery of these novel tools requires vibrant basic research not only in Northern labs but also in labs that are closest to the patients in sub-Saharan Africa. This Symposium will showcase some of the best basic research by young African scientists working in research Institutions in Africa. Understanding how Dantu blood group protects against severe malaria, deciphering the function of a Laveranian conserved protein in *Plasmodium falciparum*, editing drug resistance genes in clinical isolates or searching for new therapies for non-falciparum malaria species are some of the research that will be presented by emerging science leaders in

Africa. Retaining and nurturing the next generation of African scientists in Africa and the added value of cutting edge basic research in accelerating malaria elimination in Africa will be discussed.

CHAIR

Abdoulaye Djimde

MRTC-USTTB, Bamako, Mali

Janice Culpepper

Bill & Melinda Gates Foundation, Seattle, WA, United States

9 a.m.

INTRODUCTORY REMARKS: HONORING ALAN MAGILL

Joel G. Breman

Fogarty International Center, Bethesda, MD, United States

Janice Culpepper

Bill & Melinda Gates Foundation, Seattle, WA, United States

9:05 a.m.

RED BLOOD CELL TENSION PROTECTS AGAINST SEVERE MALARIA IN THE DANTU BLOOD GROUP

Silvia N. Kariuki

KEMRI-Wellcome, Kilifi, Kenya

9:25 a.m.

FUNCTIONAL INSIGHT ON THE ROLE OF PFMAAP; A LAVERANIAN CONSERVED PROTEIN

Yaw Aniweh

WACCBIP, University of Ghana, Accra, Ghana

9:45 a.m.

EMERGING PFCRT POINT MUTATIONS GENETICALLY EDITED INTO AFRICAN *PLASMODIUM FALCIPARUM* PARASITES MODIFY ANTIMALARIAL DRUG SUSCEPTIBILITY

Kathryn J. Wicht

H3D, University of Cape Town, Cape Town, South Africa

10:05 a.m.

DISCOVERING NEW THERAPIES FOR NON-FALCIPARUM *PLASMODIUM* SPECIES FROM THE FIELD

Laurent Dembele

MRTC-USTTB, Bamako, Mali

10:25 a.m.

PANEL DISCUSSION

Symposium 33

Human Challenge Infections: Learning from Nature in Controlled Settings

Meeting Room 2

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Starting with experimental infections with yellow fever and dengue viruses in the early 20th century, controlled human infections (CHI) have been utilized to study infectious diseases ranging from typhoid fever to malaria for many decades. Evolving standards of ethics and protection of research participants in clinical trials diminished enthusiasm for use of CHI for research in succeeding decades. However, the recognition of the extraordinary value of CHI models for studies of infection dynamics, pathogenesis and treatment of infectious diseases has led to a revival of interest in application of CHI in research. CHI for investigating models of infections prevalent in lower-middle income countries (LMIC) are experiencing a resurgence of interest or are being carefully developed. The highly regulated environment in which clinical trials are conducted today has resulted in notable standardization of CHI studies, allowing their use in a variety of settings and for a range of infectious diseases. The goal of the symposium is to highlight the utility of CHI in offering unprecedented opportunities to examine pathophysiological and immunological aspects of these infections in humans and in evaluating efficacy of vaccines and drugs early in development. This symposium will focus on novel aspects of CHI and special considerations for conducting these studies in LMICs. This discussion is timely because of their potential to accelerate development of the pipeline of new vaccine candidates and drugs aimed specifically at tropical and neglected diseases. The symposium will provide a unique opportunity for Society members to hear from established and emerging leaders about promising applications and recent progress as well as ongoing conversations about potential contributions of CHI studies to the evolving SARS-CoV-2 pandemic and to neglected tropical diseases.

CHAIR

Siddhartha Mahanty

The Peter Doherty Inst for Inf and Imm, Melbourne VIC, Australia

Meta Roestenburg

Leiden University Medical Center, Leiden, Netherlands

9 a.m.

CONTROLLED HUMAN INFECTION STUDIES WITH PARASITES: TO CAPTURE AND CONTROL HETEROGENEITY

Meta Roestenburg

Leiden University Medical Centre, Leiden, Netherlands

9:25 a.m.

WHAT CHI CAN REVEAL ABOUT MALARIA

James S. McCarthy

University of Melbourne, Melbourne, Australia

9:50 a.m.

LEVERAGING HUMAN INFECTION STUDIES TO UNDERSTAND IMMUNITY IN ENDEMIC POPULATIONS

Melissa C. Kapulu

KEMRI-Wellcome Trust Research Programme, Nairobi, Kenya

10:15 a.m.

SARS-COV-2 HUMAN CHALLENGE INFECTIONS IN HEALTHY VOLUNTEERS

Anna Durbin

Johns Hopkins University School of Public Health, Baltimore, MD, United States

Symposium 34

Sepsis in Low- and Middle-Income Countries (LMICs): Current Challenges and Triumphs Illustrated Through Clinical Cases

Meeting Room 3

Tuesday, November 17, 9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

At the seventieth World Health Assembly in 2017, the WHO announced a resolution to improve the prevention, diagnosis, and clinical management of sepsis with particular emphasis on its importance as a global health problem. The past several years have seen intensifying focus on the capacity of low- and middle-income countries (LMICs) to manage critically ill patients, with particular recognition of sepsis as a global health problem that disproportionately affects those living in LMICs. Sepsis is life-threatening organ dysfunction due to a dangerous host immune response to overwhelming infection and represents a final common pathway to death for patients afflicted by HIV, tuberculosis, malaria, viral hemorrhagic fevers, diarrheal disease, respiratory viruses, and other tropical diseases. Additionally, patients with chronic non-communicable diseases such as cancer, cirrhosis, and COPD are known to be at increased risk for developing sepsis. With the epidemiological transition underway globally, co-morbid NCDs complicate and worsen outcomes in sepsis. As a result of the heightened visibility of sepsis as a global health problem there is increased research on various aspects of sepsis in LMICs; however, there remains an urgent need to further build capacity and refine algorithms for decision-making in clinical care. This symposium will feature four expert discussants, each of which will discuss a specific topic within the area of sepsis in LMICs. The topics covered will include the distinctive etiologies of sepsis in LMICs, the evolving landscape of antimicrobial resistance in LMICs, current evidence-based management of sepsis in LMICs, and critical care capacity in LMICs. Globally, sepsis has become a hugely important topic, with broad engagement of clinicians and scientists from various fields. We propose an interdisciplinary symposium which maximizes updates on the clinical aspects of the important topic of sepsis and imparts significant takeaways for the audience. It should be noted that global critical care and sepsis are maturing fields with many crucial questions that beg answering. The significant controversies that exists amongst critical care and emergency providers in high-income countries with respect to management best-practices for septic patients are also present in the LMIC and are compounded by limited resources.

CHAIR

Brady Page

Massachusetts General Hospital, Boston, MA, United States

Latha Rajan

Tulane University, New Orleans, LA, United States

9 a.m. THE ETIOLOGIES OF SEPSIS IN LMICS

Christopher Moore
University of Virginia, Charlottesville, VA, United States

9:25 a.m. ANTIMICROBIAL RESISTANCE IN LMICS

Abdulrazaq Habib
Bayero University, Kano, Nigeria

9:50 a.m. EVIDENCE-BASED MANAGEMENT OF SEPSIS IN LMICS

Shevin Jacob
Liverpool School of Tropical Medicine, Liverpool, United Kingdom

10:15 a.m. THE CAPACITY CHALLENGE: BUILDING CRITICAL HEALTHCARE CAPACITY IN LMICS

Lisa Bebell
Massachusetts General Hospital, Boston, MA, United States

Scientific Session 35

Bacteriology: Systemic Infections

Meeting Room 4

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Christine Moe
Emory University-Rollins School of Public Health, Atlanta, GA, United States

Ashley Styczynski
Stanford University, Palo Alto, CA, United States

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METABOLOMICS BIOMARKER DISCOVERY IN SEPSIS PATIENTS FROM AUSTERE ENVIRONMENTS

Joost Brandsma¹, Deborah Striegel¹, Will Thompson², Paul Blair¹, Josh Chenoweth¹, Subramaniam Krishnan¹, Kevin Schully³, Lisa St. John-Williams², George Oduro⁴, Daniel Ansong⁴, Andrew Letizia⁵, Anne Fox⁵, Marvin Sklar⁶, Charmagne Beckett⁷, Benjamin Espinosa³, Ephraim Tsalik², Christopher Woods², Danielle Clark¹
¹Henry M. Jackson Foundation, Austere Environments Consortium for Enhanced Sepsis Outcomes, Bethesda, MD, United States, ²Duke University, School of Medicine, Durham, NC, United States, ³Biological Defence Research Directorate, Naval Medical Research Center-Frederick, Ft. Detrick, MD, United States, ⁴Komfo Anokye Teaching Hospital, Kumasi, Ghana, ⁵Naval Medical Research Unit-3 Ghana Detachment, Accra, Ghana, ⁶Naval Medical Research Center - Asia, Singapore, Singapore, ⁷Infectious Diseases Directorate, Naval Medical Research Center, Silver Spring, MD, United States

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PERINATAL TRANSMISSION OF ANTIMICROBIAL RESISTANT ORGANISMS - BANGLADESH

Ashley Styczynski¹, Md. Badrul Amin², Shahana Parveen³, Md. Abu Pervez⁴, Dilruba Zeba⁴, Emily Gurley⁵, Stephen Luby¹
¹Stanford University, Palo Alto, CA, United States, ²icddr, Dhaka, Bangladesh, ³icddr, Dhaka, Bangladesh, ⁴Faridpur Medical College Hospital, Faridpur, Bangladesh, ⁵Johns Hopkins University, Baltimore, MD, United States

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ALARMING INCIDENCE OF NEONATAL SEPSIS AND ANTIMICROBIAL RESISTANCE AT TWO LARGE HOSPITALS IN ETHIOPIA

John Cranmer¹, Abebe Gobezeayehu¹, Lamesgin Alamineh², Gizachew Yismaw³, Joseph Hopkins⁴, Mulusew Belew², Habib Yakubu⁵, Lindsay Denny⁵, Christine L. Moe⁵
¹Emory University-Nell Hodgson Woodruff School of Nursing, Atlanta, GA, United States

States, ²Emory Ethiopia, Amhara Regional Office, Bahir Dar, Ethiopia, ³Amhara Public Health Institute, Bahir Dar, Ethiopia, ⁴Emory University, Atlanta, GA, United States, ⁵Emory University-Rollins School of Public Health, Atlanta, GA, United States

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ASSESSMENT OF BACTERIAL AETIOLOGY, ANTIMICROBIAL RESISTANCE AND RISK FACTORS FOR NEONATAL SEPSIS IN A NEONATAL INTENSIVE CARE UNIT (NICU) OF A TERTIARY CARE HOSPITAL IN NEPAL: A PROSPECTIVE COHORT STUDY

Sulochana Manandhar¹, Puja Amatya², Imran Ansari², Neeva Joshi¹, Nhukesh Maharjan¹, Sabina Dongol¹, Buddha Basnyat¹, Sameer Dixit³, Stephen Baker⁴, Abhilasha Karkey¹

¹Oxford university clinical research unit, Patan Academy of Health Sciences, Kathmandu, Nepal, ²Department of paediatrics, Patan Academy of Health Sciences, Kathmandu, Nepal, ³Center for molecular dynamics Nepal, Kathmandu, Nepal, ⁴Cambridge Infectious Diseases, University of Cambridge, Cambridge, United Kingdom

(ACMCIP Abstract)

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HYPERVIRULENT MULTIDRUG-RESISTANT *KLEBSIELLA* SPP. CAUSING SEVERE AND FATAL DISEASE IN CHILDREN IN RURAL MOZAMBIQUE

Arsenia Joana Massinga¹, Augusto Messa Júnior¹, Nélcio Nobela¹, Marcelino Garrine¹, Sergio Massora¹, Anélisio Cossa¹, Delfino Vubil¹, Hélio Mucavel¹, Tacilta Nhampossa¹, Clara Menendez¹, Clara Menendez², Robert Breiman³, Dianna Blau⁴, Quique Bassat², Inácio Mandomando¹

¹Centro de Investigação em Saúde de Manhiça, Manhiça, Mozambique, ²ISGlobal, Hospital Clínic - Universitat de Barcelona, Barcelona, Spain, ³Emory Global Health Institute, Emory University, Atlanta, GA, United States, ⁴Center for Global Health, Centers for Disease Control and Prevention, Atlanta, GA, United States

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RARE ORGANISMS IDENTIFIED THROUGH MITS IN BANGLADESH: POTENTIAL CONTRIBUTION IN CHILD DEATH?

Mustafizur Rahman¹, Dilruba Ahmed¹, Muntasir Alam¹, M Ishrat Jahan¹, Afruna Rahman¹, Farzana Islam¹, Kyu Han Lee², Shafina Jahan¹, Sanwarul Bari¹, Emily S. Gurley², Shams El Arifeen¹

¹icddr, Dhaka, Bangladesh, ²Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

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CHANGE IN *SALMONELLA* TYPHI INCIDENCE AND ANTIMICROBIAL RESISTANCE PATTERNS FOLLOWING MASS VACCINATION WITH THE NEW TYPHOID CONJUGATE VACCINE

Ioana Diana Olaru¹, Nicholas Feasey², Rashida A. Ferrand¹, Janice A. Martin³, David Mabey¹, Heidi Hopkins¹, Sekesai Mtapuri-Zinyowera⁴, Prosper Chonzi⁵, Katharina Kranzer¹

¹London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Liverpool School of Tropical medicine, Liverpool, United Kingdom, ³Biomedical Research and Training Institute, Harare, Zimbabwe, ⁴National Microbiology Reference Laboratory, Harare, Zimbabwe, ⁵Department of Health - Harare City, Harare, Zimbabwe

Scientific Session 36

Clinical Tropical Medicine: VHF-Related, Viruses

Meeting Room 5

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Nguyet M. Nguyen
Oxford University Clinical Research Unit, Ho Chi Minh, Vietnam

Robert Samuels
Kenema Government Hospital, Kenema, Sierra Leone

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EBOLA ASSOCIATED HEARING LOSS**Samuel C. Ficenec¹**, Donald Grant², Michael Gbakie², Ibrahim Sumah², Susan D. Emmett³, John S. Schieffelin¹¹Tulane School of Medicine, New Orleans, LA, United States, ²Tulane Viral Hemorrhagic Fever Organization, Kenema, Sierra Leone, ³Duke University School of Medicine, Durham, NC, United States

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POST-EBOLA SYNDROME PRESENTS WITH MULTIPLE OVERLAPPING SYMPTOM CLUSTERS: EVIDENCE FROM AN ONGOING COHORT STUDY IN EASTERN SIERRA LEONE**Nell G. Bond¹**, Emily Engel¹, Lansana Kanneh², Robert Samuels³, Adaora Okoli¹, Sarah T. Himmelfarb¹, Jeffrey Shaffer¹, Donald Grant², John Schieffelin¹¹Tulane University SOM, New Orleans, LA, United States, ²Kenema Government Hospital, Kenema, Sierra Leone, ³Vanderbilt University, Nashville, TN, United States

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IMPACT OF ORAL ANTIMALARIAL TREATMENT ON MORTALITY IN PATIENTS WITH EBOLA VIRUS DISEASE: A MULTISITE COHORT STUDY**Logan Abel¹**, Stephanie Chow Garbern², Tao Liu³, Derrick Yam³, Shiromi Perera⁴, Stephen Kennedy⁵, Moses Massaquoi⁶, Foday Sahr⁶, Adam C. Levine², Adam R. Aluisio²¹Warren Alpert Medical School of Brown University, Providence, RI, United States, ²Department of Emergency Medicine, Brown University Alpert Medical School, Providence, RI, United States, ³Brown University, School of Public Health, Center for Statistical Sciences, Department of Biostatistics, Providence, USA, Providence, RI, United States, ⁴International Medical Corps, Los Angeles, CA, United States, ⁵Ministry of Health, Monrovia, Liberia, ⁶College of Medicine and Allied Health Sciences, University of Sierra Leone, Freetown, Sierra Leone

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LASSA FEVER AMONG CHILDREN IN EASTERN PROVINCE, SIERRA LEONE: A 7-YEAR RETROSPECTIVE ANALYSIS (2012-2018)**Robert J. Samuels¹**, Donald S. Grant¹, Joseph R. Starnes², Emily Engel³, Jeffrey G. Shaffer³, John S. Schieffelin³, Troy D. Moon²¹Kenema Government Hospital, Kenema, Sierra Leone, ²Vanderbilt Institute for Global Health, Nashville, TN, United States, ³Tulane University, New Orleans, LA, United States

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A MATCHED COHORT STUDY TO CHARACTERISE THE CLINICAL MANIFESTATIONS OF DENGUE IN PREGNANCY AND INVESTIGATE THE SPECTRUM OF ADVERSE MATERNAL AND FETAL OUTCOMES**Nguyet M. Nguyen**

Oxford University Clinical Research Unit, Ho Chi Minh, Viet Nam

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LEVERAGING BIOMARKERS OF EXPOSURE IDENTIFIED IN PAGODAS (PEDIATRIC ASSESSMENT GROUP OF DENGUE AND AEDES SALIVA) IN CAMBODIA**Fabiano Luiz Oliveira¹**, James Orian¹, Dara Kong², Daniel M. Parker³, Paola Valenzuela Leon¹, Brook Jeang³, Somnang Man⁴, Sokunthea Sreng⁴, Seila Suon⁴, Rekol Huy⁴, Rithea Leang⁴, Jennifer A. Bohl², Eric Calvo¹, Jesus G. Valenzuela¹, Jessica E. Manning⁵¹Laboratory of Malaria and Vector Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD, United States, ²Laboratory of Malaria and Vector Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Phnom Penh, Cambodia, ³Department of Population Health and Disease Prevention, University of California, Irvine, CA, United States, ⁴National Center of Parasitology, Entomology, and Malaria Control, Phnom Penh, Cambodia, ⁵National Institute of Allergy and Infectious Diseases, Phnom Penh, Cambodia

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CHALLENGES AND OPPORTUNITIES UTILIZING AN EXISTING RESEARCH NETWORK FOR NEW PROTOCOLS DURING THE COVID-19 PANDEMIC: THE SPECIAL PATHOGENS RESEARCH NETWORK EXPERIENCE**Mark Kortepeter¹**, LuAnn Larson¹, Lindsay J. Hicks¹, Bruce Gordon¹, Abbey Lowe¹, Christa Arguinchona², Henry Arguinchona², Nahid Bhadelia³, Theodore J. Cieslak¹, Richard Davey⁴, Kerry Dierberg⁵, Jared D. Evans⁶, Maria G. Frank⁷, Jonathan Grein⁸, Andre C. Kalil¹, Susan Kline⁹, Colleen S. Kraft¹⁰, Christopher J. Kratochvil¹, Susan McLellan¹¹, Aneesh K. Mehta¹⁰, Brooke Noren⁹, Vanessa Raabe⁵, Shelly Schwedhelm¹, Erica S. Shenoy¹², Timothy Uyeki¹³, Sami Vasistha¹, Lauren Sauer¹⁴¹University of Nebraska Medical Center, Omaha, NE, United States, ²Providence Medical Center, Spokane, WA, United States, ³Boston University Medical Center, Boston, MA, United States, ⁴National Institute of Allergy and Infectious Diseases, Bethesda, MD, United States, ⁵Bellevue Hospital, New York City, NY, United States, ⁶Applied Physics Lab, Johns Hopkins University, Laurel, MD, United States, ⁷Denver Health Medical Center, Denver, CO, United States, ⁸Cedars Sinai Hospital, Los Angeles, CA, United States, ⁹University of Minnesota Medical Center, Minneapolis, MN, United States, ¹⁰Emory University Hospital, Atlanta, GA, United States, ¹¹University of Texas Medical Branch, Galveston, TX, United States, ¹²Massachusetts General Hospital, Boston, MA, United States, ¹³Centers for Disease Control and Prevention, Atlanta, GA, United States, ¹⁴Johns Hopkins University Hospital, Baltimore, MD, United States**Symposium 37****Overcoming the Deworming Cliff: Challenges in Maintaining Mass Treatment for Soil Transmitted Helminths When Lymphatic Filariasis Program Stops**

Meeting Room 6

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Lymphatic Filariasis (LF) and Soil transmitted helminths (STH) are two of the most widespread neglected tropical diseases (NTDs) amenable to preventive chemotherapy. In most countries, the LF program is the largest platform for drug distribution using Albendazole (ALB) and Ivermectin (IVM) or ALB in combination with Diethylcarbamazine (DEC)- in some countries, DEC is co-administrated with ALB and IVM. Soil transmitted helminths have rarely been mapped alone at baseline prior to the starting of preventive chemotherapy. In general, STH has been treated as part of the mass drug administration (MDA) for LF - because Albendazole is also the main drug for STH control. Alternatively, STH treatments are co-implemented during Schistosomiasis (SCH) MDA in areas where the two diseases are co-endemic. Only a few countries have standalone STH control programs. In addition, impact assessments for STH programs have been very limited in most of the donors supported countries. Under the USAID funded Act to End NTD program, 468 districts from a total of 11 countries have stopped MDA for LF in 2019. Among these districts 126 are still in need for STH MDA upon evaluation (prevalence >1%). Globally, within the USAID supported countries, several programs including Togo, Mali, Cameroon and Haiti have either stopped or on track for stopping LF MDA in all their endemic districts following successful transmission assessment surveys. These countries are now facing challenges in terms of developing and implementing long-term strategies to transition their STH control programs, especially in districts where STH prevalence remains moderate to high. In fact, in areas where STH remain endemic, School health platforms, immunization outreach projects, bed nets distribution, nutrition interventions, maternal and child health campaigns have been explored or used to continue deworming programs. The

session will discuss the programmatic and operational challenges in maintaining the gains of STH control especially around and after post LF MDA. The presenters will explore country specific perspectives in terms of cross sector coordination with non-health sectors (education, water, sanitation etc.) and the integration of deworming into other public health platforms and routine health care services for people at risk for STH.

CHAIR

Achille Kabore
FHI360, Washington, DC, DC, United States

Pauline N. Mwinzi
WHO/ESPEN, Brazzaville, Republic of the Congo

9 a.m.

STATUS OF STH IN DISTRICTS WHERE LF MDA HAS STOPPED IN MALI – RESULTS OF TAS/STH SURVEYS

Traore Mahamadou
Ministry of Health Mali - Direction Générale de la Santé et l'Hygiène Publique, Bamako, Mali

9:15 a.m.

CONTROLLING SOIL TRANSMITTED HELMINTHS IN COMPLEX LYMPHATIC FILARIASIS AND LOASIS ENDEMIC SETTINGS IN CAMEROON

George Nko Ayissi
Ministère de la Santé Publique, Yaounde, Cameroon

9:30 a.m.

LF ELIMINATION AND STH CONTROL IN HAITI – SUCCESS AND CHALLENGES

Abdel Direny
IMA World Health, Washington, DC, United States

9:45 a.m.

TOGO'S PLANS FOR CONTROLLING SOIL TRANSMITTED HELMINTHS POST ELIMINATION OF LYMPHATIC FILARIASIS

Monique Dorkenoo
University of Lome - Togo, Lome, Togo

Symposium 38

American Committee of Medical Entomology (ACME) Symposium I: Annual Business Meeting, Awards and Hoogstraal Medal Presentation

Meeting Room 7

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

This symposium provides a forum for exchange of information among people interested in research on arthropod vectors of disease. This session features a short ACME business meeting followed by presentation of the 2020 travel awardees and SC Johnson (SCJ) sponsored award. This serves in part to highlight the next generation of medical entomologists. The session then moves to the presentation of the Hoogstraal medal and a plenary lecture by the recipient.

CHAIR

Ellen M. Dotson
Centers for Disease Control and Prevention, Atlanta, GA, United States

Gabriel L. Hamer
Texas A&M University, College Station, TX, United States

9 a.m.

ACME ANNUAL BUSINESS MEETING AND AWARDS

Ellen M. Dotson
Centers for Disease Control and Prevention, Atlanta, GA, United States

9:20 a.m.

SC JOHNSON (SCJ) INTERNATIONAL RESEARCH LEADERS

Cusi Ferradas
Universidad Peruana Cayetano Heredia, Lima, Peru

9:35 a.m.

INTRODUCTION OF HOOGSTRAAL MEDAL AWARDEE

Stephanie James
Foundation for the National Institutes of Health, North Bethesda, MD, United States

9:50 a.m.

HARRY HOOGSTRAAL MEDAL PRESENTATION AND PLENARY LECTURE

Stephen Higgs
Kansas State University, Manhattan, KS, United States

10:35 a.m.

CONCLUSION AND PASSING OF THE GAVEL

Ellen Dotson
National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States

Scientific Session 39

Dengue: Vaccines and Immunity

Meeting Room 8

Tuesday, November 17,

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Gregory D. Ebel
Colorado State University, Fort Collins, CO, United States

Heather Friberg
WRAIR, Silver Spring, MD, United States

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TAKEDA'S TETRAVALENT DENGUE VACCINE - TWO YEARS EFFICACY SURVEILLANCE

Shibadas Biswal¹, Inge Lefevre², Vianney Tricou², Martina Rauscher², Astrid Borkowski², TIDES Study Group

¹Takeda Vaccines, Inc, Cambridge, MA, United States, ²Takeda Pharmaceuticals International AG, Zurich, Switzerland

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CELL-MEDIATED IMMUNITY GENERATED BY TAKEDA'S TETRAVALENT DENGUE VACCINE CANDIDATE

Heather Friberg¹, Kristin Hatch¹, Faiza Mubashar¹, Hayden Siegfried¹, Kaitlin Victor¹, Damon Ellison¹, Richard G. Jarman¹, Shibadas Biswal², Derek Wallace², Hansi Dean², Vianney Tricou², Jeffrey R. Currier¹

¹Walter Reed Army Institute of Research, Silver Spring, MD, United States, ²Takeda Vaccines, Boston, MA, United States

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THE OLIGOMERIC STATE OF FLAVIVIRUS E- SUBUNITS DEFINES VACCINE EFFICACY IN CHALLENGE MODELS

Stefan W. Metz, Ashlie Thomas, Devina J. Thiono, Stephan Kudlacek, John Forsberg, Cesar A. Lopez, Helen M. Lazear, Shaomin Tian, Brian Kuhlman, Aravinda M. de Silva
University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

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SIGNALS OF ANTIGENIC DISTANCES EMBEDDED IN DENV PROTEINS, BEYOND THE SURFACE

Angkana T. Huang¹, Henrik Salje², Ana Coello Escoto³, Nayeem Chowdhury³, Christian Chávez³, Bernardo Garcia-Carreras³, Wiriya Rutvisuttinunt⁴, Irina Maljkovic Berry⁴, Chonticha Klungthong¹, Butsaya Thaisomboonsuk¹, Ananda Nisalak¹, Isabel Rodriguez-Barraquer⁵, Damon W. Ellison⁴, Anthony R. Jones¹, Stefan Fernandez¹, Timothy Endy⁶, Derek J. Smith², Richard Jarman⁴, Stephen S. Whitehead⁷, Derek A. Cummings³, Leah Katzelnick⁸

¹Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand, ²University of Cambridge, Cambridge, United Kingdom, ³University of Florida, Gainesville, FL, United States, ⁴Walter Reed Army Institute of Research, Silver Spring, MD, United States, ⁵University of California, San Francisco, CA, United States, ⁶State University of New York Upstate Medical University, Syracuse, NY, United States, ⁷National Institutes of Health, Bethesda, MD, United States, ⁸University of California, Berkeley, Berkeley, CA, United States

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ZIKA VIRUS INFECTION ENHANCES FUTURE RISK OF SEVERE DENGUE DISEASE

Leah Katzelnick¹, César Narvaez², Sonia Arguello², Brenda Lopez Mercado², Damaris Collado², Oscarlett Ampie², Douglas Elizondo², Tatiana Miranda², Fausto Bustos¹, Juan Carlos Mercado³, Krista Latta⁴, Amy Schiller⁴, Bruno Segovia-Chumbez⁵, Sergio Ojeda², Nery Sanchez², Miguel Plazaola², Josefina Coloma¹, M. Elizabeth Halloran⁶, Lakshmanane Premkumar⁵, Aubree Gordon⁴, Federico Narvaez², Aravinda de Silva⁵, Guillermina Kuan⁷, Angel Balmaseda³, Eva Harris¹

¹Division of Infectious Diseases and Vaccinology, School of Public Health, University of California, Berkeley, Berkeley, CA, United States, ²Sustainable Sciences Institute, Managua, Nicaragua, ³Laboratorio Nacional de Virología, Centro Nacional de Diagnóstico y Referencia, Ministry of Health, Managua, Nicaragua, ⁴Department of Epidemiology, School of Public Health, University of Michigan, Ann Arbor, MI, United States, ⁵Department of Microbiology and Immunology, University of North Carolina School of Medicine, Chapel Hill, NC, United States, ⁶Department of Biostatistics, University of Washington, Seattle, WA, United States, ⁷Centro de Salud Sócrates Flores Vivas, Ministry of Health, Managua, Nicaragua

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ANTIBODY FC EFFECTOR FUNCTIONS AS IMMUNE CORRELATES OF PROTECTION AGAINST SYMPTOMATIC DENGUE VIRUS INFECTION

Antonio Gregorio Dias Junior¹, Carolin Loos², Vicky Roy², Caroline Atyeo², Sandra Bos¹, Magelda Montoya¹, Parnal Narvekar¹, Leah Katzelnick¹, Colin Warnes¹, Josefina Coloma¹, Premkumar Lakshmanane³, Laura White³, Angel Balmaseda⁴, Aravinda de Silva³, Galit Alter², Eva Harris¹

¹Division of Infectious Diseases & Vaccinology, School of Public Health, University of California, Berkeley, Berkeley, CA, United States, ²Ragon Institute of MGH, MIT and Harvard, Cambridge, MA, United States, ³Department of Microbiology and Immunology, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States, ⁴Laboratorio Nacional de Virología, Centro Nacional de Diagnóstico y Referencia, Ministry of Health, Managua, Nicaragua

Scientific Session 40**Cestodes and Nematodes: Molecular Biology, Pathology and Epidemiology**

Meeting Room 9

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Aissatou Bah

National Institute of Allergies and Infectious Diseases, Bethesda, MD, United States

Marie-Astrid Hoogerwerf

Leiden University Medical Center, Leiden, Netherlands

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SKIN-BASED PROTECTIVE IMMUNITY THROUGH REPEATED HOOKWORM INFECTION

Marie-Astrid Hoogerwerf, Vincent P. Kuiper, Jacqueline J. Janse, Roos van Schuijlenburg, Marijke C. Langenberg, Beckley A. Nosoh, Yvonne C. Kruize, Jeroen C. Sijtsma, Eric A. Brien, Leo G. Visser, Lisette van Lieshout, Maria Yazdanbakhsh, Meta Roestenberg

Leiden University Medical Center, Leiden, Netherlands

(ACMCIP Abstract)

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PROTEOMIC ANALYSIS OF ASCARIS LARVAE EXCRETORY-SECRETORY PRODUCTS

Grace Adeniyi-Ipadeola, Antrix Jain, Sung Yun Jung, Jill Weatherhead
Baylor College of Medicine, Houston, TX, United States

(ACMCIP Abstract)

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STRONGYLOIDES STERCORALIS CO-INFECTION MODULATES THE CEREBROSPINAL FLUID IMMUNE PROFILE IN TUBERCULOUS MENINGITIS

Joseph Donovan, Trinh Thi Bich Tram, Nguyen Hoan Phu, Nguyen Thi Thu Hiep, Le Van Tan, Nguyen Thuy Thuong Thuong, Guy E. Thwaites
Oxford University Clinical Research Unit, Ho Chi Minh City, Viet Nam

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TAENIA SOLIUM-INDUCED AUTOANTIBODIES IN THE CEREBRAL SPINAL FLUID OF PATIENTS WITH SUBARACHNOID NEUROCYSTICERCOSIS

Aissatou Bah, Joshua Sciarba, Theodore E. Nash, Thomas Nutman
The National Institute of Health, Bethesda, MD, United States

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ALBENDAZOLE-INDUCED DAMAGE TOT. CRASSICEPSCYSTS REQUIRES EOSINOPHILS FOR MAXIMAL EFFECT IN A MOUSE INTRAPERITONEAL MODEL

Joshua C. Sciarba, Pedro H. Gazzinelli-Guimarães, Theodore E. Nash, Thomas B. Nutman, Elise M. O'Connell
National Institutes of Health, Bethesda, MD, United States

(ACMCIP Abstract)

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HISTOLOGICAL FINDINGS IN THE CALCIFIED LESIONS IN NEUROCYSTICERCOSIS DISEASE IN A STUDY LONGITUDINAL IN PIGS

Laura E. Baquedano Santana, Javier Bustos, Noemi Miranda, Jaime Caceres, Hector Garcia
Universidad Peruana Cayetano Heredia, Lima, Peru

(ACMCIP Abstract)

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ESTABLISHING THE PRESENCE AND IMPACT OF PORCINE CYSTICERCOSIS IN HISPANIOLA

Yussaira Castillo Fortuna, Arve Lee Willingham
Ross University School of Veterinary Medicine, Basseterre, Saint Kitts and Nevis

Scientific Session 41

Kinetoplastida: Immunopathology and Vaccine Development

Meeting Room 10

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Naomi E. Aronson

USUHS, Bethesda, MD, United States

Fabiano Oliveira

NIH, Rockville, MD, United States

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DIFFERENTIAL GENE EXPRESSION OF HUMAN NEUTROPHILS FROM SUBCLINICAL AND CLINICAL *LEISHMANIA BRAZILIENSIS* INFECTION

Jacilara Alexandrino Conceicao¹, Ednaldo Lago², Pedro Carneiro², Andreza Dorea², Walker Nonato², Aline Muniz², Eric Aguiar³, Diogo Valadares¹, Edgar Carvalho⁴, Maria Olivia Bacellar², Mary Wilson¹

¹University of Iowa, Iowa City, IA, United States, ²Federal University of Bahia, Salvador, Brazil, ³State University of Santa Cruz, Ilheus, Brazil, ⁴Goncalo Moniz Research Center, Salvador, Brazil

(ACMCIP Abstract)

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MTOR MEDIATED IMMUNE CELL MIGRATION LEADS TO IMMUNOPATHOLOGY DURING *LEISHMANIA MAJOR* INFECTION

Gopinath Venugopal¹, Jordan Bird², Hayden Roys¹, Charity Washam², Anne Bowlin¹, Manjunath Bettadapura³, Stephanie Byrum², Tiffany Weinkopff¹

¹Dept. of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR, United States, ²Dept. of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR, United States, ³Dept. of Biology, University of Arkansas at Little Rock, Little Rock, AR, United States

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BLOOD FEEDING AND SALIVA OF DISEASE VECTORS TRIGGER HEME OXYGENASE-1 PRODUCTION IN HOST SKIN

Thiago Soares de Souza Vieira¹, Eva Iniguez¹, Tiago Donatelli Serafim¹, Waldione de Castro¹, Subir Karmakar², Maria Disotuar¹, Pedro Amado Cecilio¹, Joshua Lacsina¹, Claudio Meneses¹, Bianca Nagata¹, Silvia Cardoso³, Daniel Sonenshine¹, Ian Moore¹, Valeria Borges⁴, Ranadhir Dey², Miguel Soares³, Hira Nakhasi², Fabiano Oliveira¹, Jesus Valenzuela¹, Shaden Kamhawi¹

¹NIH NIAID, Rockville, MD, United States, ²Food and Drug Administration, Silver Spring, MD, United States, ³Instituto Gulbenkian de Ciência, Oeiras, Portugal, ⁴Instituto Goncalo Moniz - Fiocruz Bahia, Salvador, Brazil

(ACMCIP Abstract)

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PERTURBATION OF CD4 T CELL RESPONSE AFTER COMORBID TICK-BORNE INFECTION AND PROGRESSION OF CANINE LEISHMANIASIS

Breanna M. Scorza, Kurayi Mahachi, Erin Cox, Tyler Baccam, Shelbe Vollmer, Danielle Pessoa, Eric Kontowicz, Ogechukwu Chigbo, Christine A. Petersen

University of Iowa, Iowa City, IA, United States

(ACMCIP Abstract)

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IMMUNIZATION WITH SECOND GENERATION *LEISHMANIA VACCINE*, *L. MAJOR* CENTRIN GENE DELETED PARASITES, INDUCES SKIN RESIDENT MEMORY T CELLS THAT PLAY A ROLE IN PROTECTION AGAINST INFECTION

Nevien Ismail, Subir Karmakar, Parna Bhattacharya, Kazuyo Takeda, Ranadhir Dey, Hira L. Nakhasi

US FDA, Silver Spring, MD, United States

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GLP GRADE *LEISHMANIA MAJOR* (*LMCEN*-/-) INDUCES A ROBUST HOST PROTECTIVE IMMUNE RESPONSE AGAINST VECTOR BITE TRANSMITTED VISCERAL LEISHMANIASIS IN PRECLINICAL ANIMAL MODEL AS WELL AS IMMUNE RESPONSE IN HUMAN PBMCs FROM ENDEMIC AREA

Subir Karmakar¹, Nevien Ismail¹, Fabiano Oliveira², James Oritian², Wen Wei Zhang³, Kamalleshwar Singh⁴, Swarnendu Kaviraj⁴, Sushmita Das⁵, Tiago Serafim², Monica Satoskar¹, Sanika Satoskar¹, Raj Sastry¹, Shinjiro Hamano⁶, Abhay Satoskar⁷, Greg Matlashewski⁸, Shaden amhawi², Pradeep Das⁵, Sanjay Singh⁹, Ranadhir Dey¹, Jesus G. Valenzuela², Hira L. Nakhasi¹

¹US FDA, Silver Spring, MD, United States, ²NIAID/NIH, Rockville, MD, United States, ³McGill University, Montreal, QC, Canada, ⁴Gennova Biopharmaceuticals, Hinjawadi Phase II, India, ⁵RMRIMS, Patna, India, ⁶Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan, ⁷Department of Pathology and Microbiology, Ohio State University, Columbus, OH, United States, ⁸Department of Microbiology and Immunology, McGill University, Montreal, QC, Canada, ⁹Gennova Biopharmaceuticals, Hinjawadi Phase II, Pune, India

(ACMCIP Abstract)

Late-Breaker Abstract Session 42

Late-Breakers in Basic Sciences

Meeting Room 11

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Katherine R. Dobbs

Case Western Reserve University, Cleveland, OH, United States

Wei-Kung Wang

Tropical Medicine, JABSOM, University of Hawaii at Manoa, Honolulu, HI, United States

This session is specifically designed for brief presentations of new data obtained after the closing date for abstract submission. See Late-Breaker Abstract Presentation Schedule booklet (available online) for the presentation schedule.

Scientific Session 43

One Health: Interface of Human Health/ Animal Diseases

Meeting Room 12

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Claire Cornelius

US Army, Chicago, IL, United States

Kristy Murray

Baylor College of Medicine, Houston, TX, United States

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COMMUNITY-BASED GUINEA WORM SURVEILLANCE IN CHAD: EVALUATING A SYSTEM AT THE INTERSECTION OF HUMAN AND ANIMAL DISEASE

Beth L. Rubenstein¹, Sharon Roy¹, Karmen Unterwegner², Sarah Yeran², Adam Weiss², Hubert Zirimwabagabo³, Elisabeth Chop³, Mario Romero³, Philip Tchindebet⁴, Tchoufienet Moundai⁴, Sarah Guagliardo¹

¹Centers for Disease Control and Prevention (CDC), Atlanta, GA, United States, ²The Carter Center, Atlanta, GA, United States, ³The Carter Center, N'Djamena, Chad, ⁴Ministry of Public Health, N'Djamena, Chad

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PREVALENCE OF CRIMEAN-CONGO HEMORRHAGIC FEVER AMONG LIVESTOCK AND TICKS IN ZHAMBYL, KAZAKHSTAN

Lilit Kazazian¹, Yekaterina Bumburidi², Jonathan Bryant-Genevier¹, Victoria Seffren¹, Jennifer R. Head¹, Dmitriy Berezovskiy², Bakhytkul Zhakipbayeva², Stephanie J. Salyer¹, Barbara Knust¹, Cheng-Feng Chiang¹, Gulfaira Mirzabekova³, Kumisbek Rakhimov⁴, Jandar Koekeev⁵, Kanatbek Kartabayev⁶, Seydigapbar Mamadaliyev⁷, Curtis Blanton¹, Trevor Shoemaker¹, Daniel Singer², Daphne B. Moffett²

¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Centers for Disease Control and Prevention – Central Asia Office, Almaty, Kazakhstan, ³Zhambyl Oblast Department of Health, MoH, Taraz, Kazakhstan, ⁴Zhambyl Oblast Department for Quality Control and Safety of Goods and Services, MoH, Taraz, Kazakhstan, ⁵Zhambyl Oblast Veterinary Inspection, MoA, Taraz, Kazakhstan, ⁶Zhambyl Oblast Veterinary Department of Oblast Administration, Taraz, Kazakhstan, ⁷Central Reference Laboratory, Branch of NRCV, MoES, Almaty, Kazakhstan

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ANIMAL OWNERSHIP AND INFANT FEEDING PRACTICES AS PREDICTORS OF CAMPYLOBACTER INFECTIONS IN INFANTS IN SHURUGWI DISTRICT, ZIMBABWE

C. Batsirai Mutasa¹, Robert Ntozini¹, Kuda Mutasa¹, Thompson Runodamoto¹, Marya P. Carmolli², Dzivaizdo Chidhanguro¹, Naume Tavengwa¹, Dorothy M. Dickson², Beth D. Kirkpatrick², Andrew Prendergast¹, E. Ross Colgate²

¹Zvitambo Institute for Maternal and Child Health Research, Harare, Zimbabwe, ²University of Vermont Larner College of Medicine, Burlington, VT, United States

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MULTI-HOST, MULTI-PARASITE SCHISTOSOMIASIS IN AFRICA: A ONE HEALTH PERSPECTIVE IN OUR CHANGING WORLD

Elsa Leger¹, Anna Borlase², Cheikh B. Fall³, Nicolas D. Diouf⁴, Stefano Catalano¹, Aidan M. Emery⁵, Momar Ndao⁶, Babacar Faye³, David Rollinson⁵, James W. Rudge⁷, Mariama Sene⁴, Joanne P. Webster¹

¹Royal Veterinary College, London, United Kingdom, ²University of Oxford, Oxford, United Kingdom, ³Universite Cheikh Anta Diop, Dakar, Senegal, ⁴Universite Gaston Berger, Saint-Louis, Senegal, ⁵Natural History Museum, London, United Kingdom, ⁶McGill University, Montreal, QC, Canada, ⁷London School of Hygiene and Tropical Medicine, London, United Kingdom

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CHICKFLOWS: A FOOD SYSTEMS APPROACH UTILIZING MICROBIAL MEASURES TO ASSESS KEY HAZARDS AND RISKS TO CHILD HEALTH ASSOCIATED WITH CHICKEN-RELATED ENTEROPATHOGENS IN MAPUTO, MOZAMBIQUE

Frederica Lamar¹, Amélia Mondlane-Milisse², Courtney Victor¹, Kelsey Jesser¹, Hermógenes Mucache², Matthew C. Freeman¹, Karen Levy¹

¹Emory University, Atlanta, GA, United States, ²Eduardo Mondlane University, Maputo, Mozambique

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LIVESTOCK AND THE EPIDEMIOLOGY OF SLEEPING SICKNESS: MECHANISMS AND IMPLICATIONS

Julianne Meisner, Jonathan Wakefield, David M. Pigott, Ali Rowhani-Rahbar, Jonathan D. Mayer, Peter M. Rabinowitz

University of Washington, Seattle, WA, United States

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POULTRY OWNERSHIP AND GENETIC ANTIBIOTIC RESISTANCE DETERMINANTS IN THE GUT OF PRESCHOOL CHILDREN IN BURKINA FASO

Jessica M. Brogdon¹, Ali Sié², Clarisse Dah², Lucienne Ouermi², Boubacar Coulibaly², Elodie Lebas¹, Lina Zhong¹, Cindi Chen¹, Benjamin F. Arnold¹, Thomas Lietman¹, Jeremy Keenan¹, Thuy Doan¹, Catherine Oldenburg¹

¹University of California, San Francisco, San Francisco, CA, United States, ²Centre de Recherche en Sante de Nouna, Nouna, Burkina Faso

Symposium 44**Epidemiologic characteristics and forecasting of COVID-19**

Meeting Room 13

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

COVID-19 is a disease caused by a novel coronavirus SARS-CoV-2. Originated from Wuhan, the disease has spread globally. WHO has declared it a Public Health Emergency of International Concern on January 30, 2020. In this symposium, a panel of 4 speakers who are actively involved in COVID-19 epidemiologic research will present their findings. Kamalich Muniz-Rodriguez, MPH, will present the doubling time estimates in the early phase of the COVID-19 pandemic in China by province and the COVID-19 basic reproduction number estimates in Iran by region. Dr Kenji Mizumoto will present his estimate of the asymptomatic ratio onboard the cruise ship off Japan. Dr Gerardo Chowell will present his forecasts of the COVID-19 pandemic in the USA. Dr Hiroshi Nishiura will present his team's work on forecasting hospital caseload and severe cases.

CHAIR

Isaac Chun-Hai Fung

Georgia Southern University, Statesboro, GA, United States

9:25 a.m.**TRANSMISSION DYNAMICS OF THE EARLY PHASES OF COVID-19 EPIDEMICS IN CHINA AND IRAN**

Kamalich Muniz-Rodriguez

Georgia Southern University, Statesboro, GA, United States

9:50 a.m.**ESTIMATING THE ASYMPTOMATIC RATIO OF 2019 NOVEL CORONAVIRUS ONBOARD THE PRINCESS CRUISES SHIP, 2020**

Kenji Mizumoto

Kyoto University, Kyoto, Japan

9 a.m.**FORECASTING THE COVID-19 PANDEMIC IN THE USA**

Gerardo Chowell

Georgia State University, Atlanta, GA, United States

10:15 a.m.**FORECASTING AND PROJECTION OF SEVERE FRACTION OF CASES AND HOSPITAL CASELOAD**

Hiroshi Nishiura

Hokkaido University, Sapporo, Japan

Symposium 45

Cytomegalovirus and Epstein-Barr Virus in Sub-Saharan Africa

Meeting Room 14

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

In their ubiquity, herpesviruses are pervasive causes of disease worldwide, both in tropical and non-tropical environments. Established and emerging evidence, however, elucidates how many of these viruses behave differently based on the context of infection. This symposium will focus on two herpesviruses, cytomegalovirus (CMV) and Epstein-Barr virus (EBV), in various Sub-Saharan African settings. The first two speakers will discuss their investigations in congenital and postnatal CMV infections. Most children born with congenital CMV are living in low- and middle-income countries, where pregnant women are infected despite pre-existing immunity, termed non-primary infection. Despite likely significant morbidity in these settings, little is known about the maternal and fetal determinants of non-primary infection. We will present original data from Sierra Leone, Kenya and Uganda, and examine epidemiology in highly seroprevalent settings, mechanisms and determinants of transmission, and genomic distinctions in vertically versus horizontally acquired infections. The second two speakers will transition to studies of EBV which also infects African children early in life. Primary EBV infections in young children are asymptomatic but when combined with chronic *Plasmodium falciparum* malaria, this herpes virus triggers the most renowned EBV-associated cancer, endemic Burkitt lymphoma. This session will present original data from Kenya and examine EBV genome variation, the role of viral microRNAs, and the changing immune landscape in children that influences control over this persistent herpes virus infection.

CHAIR

Monika L. Dietrich

Tulane University, New Orleans, LA, United States

Troy Moon

Vanderbilt Institute for Global Health, Nashville, TN, United States

9 a.m.

CONGENITAL CMV AND NON-PRIMARY INFECTION IN PREGNANCY IN HIGHLY SEROPREVALENT POPULATIONS

Monika L. Dietrich

Tulane University, New Orleans, LA, United States

9:25 a.m.

VIRAL DETERMINANTS OF CMV INFECTION AND REINFECTION: IMPLICATIONS FOR VACCINE DEVELOPMENT

Soren Gantt

Centre de recherche du CHU Sainte-Justine, Montréal, QC, Canada

9:50 a.m.

THE CHANGING IMMUNE LANDSCAPE IN CHILDREN AND ITS INFLUENCE ON EBV CONTROL

Ann M. Moormann

University of Massachusetts Medical School, Worcester, MA, United States

10:15 a.m.

EBV GENETIC VARIATION AND ITS IMPACT ON CANCER

Cliff Oduor

Brown University, Providence, RI, United States

Scientific Session 46

Malaria: Chemotherapy and Drug Resistance

Meeting Room 16

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIRS

Mahamadou Diakite

University of Bamako, Bamako, Mali

Melissa D. Conrad

UCSF, San Francisco, CA, United States

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NOVEL HAPLOTYPES OF PFCRT IN *PLASMODIUM FALCIPARUM* FROM THE YUNNAN PROVINCE, CHINA CONFER RESISTANCE TO THE FIRST LINE ANTIMALARIAL PIPERAQUINE

Jennifer L. Small-Saunders¹, Laura M. Hagenah¹, Satish K. Dhingra¹, Kathryn J. Wicht¹, Jonathan Kim¹, Eva Gil Iturbe¹, Matthias Quick¹, Filippo Mancia¹, Paul D. Roepe², Margaret J. Eppstein³, David A. Fidock¹

¹Columbia University, New York, NY, United States, ²Georgetown University, Washington, DC, United States, ³University of Vermont, Burlington, VT, United States

(ACMCIP Abstract)

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DISSECTING THE ROLE OF *PLASMEPSIN II AND III* IN PIPERAQUINE RESISTANT *P. FALCIPARUM* LINES

Breanna Walsh, Robert L. Summers, Sarah K. Volkman, Dyann F. Wirth, Selina Bopp
Harvard T.H. Chan School of Public Health, Boston, MA, United States

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DEFORMABILITY OF INFECTED RBC AS THE KEY FEATURE OF PERSISTENCE AND RECRUDESCENCE IN ARTEMISININ-RESISTANT MALARIA?

Mallorie Dépond¹, Chanaki Amaratunga², Charlotte Chambrion¹, Lucia Angella¹, Sokunthea Sreng³, Manel Ouji⁴, Lucie Paloque⁴, Aurélie Fricot-Monsinjon¹, Ilhame Tantaoui⁵, Sivanna Mao⁶, Chantha Sopha⁷, Baramay Sam⁸, Kasia Stepniewska⁹, Seila Suon³, Sylvestre Biligui⁵, Philippe Guerin⁹, Jérôme Cros¹⁰, Béatrice Aussilhou¹⁰, Safi Dokmak¹⁰, Jean-Michel Augereau⁴, Françoise Benoit-Vical⁴, Rick Fairhurst², Pierre Buffet¹, Papa Alioune Ndour¹

¹INSERM U1134 INTS. Labex GRex, Paris, France, ²Laboratory of malaria and vector research NIH, Rockville, MD, United States, ³National Center for Parasitology, Phnom Penh, Cambodia, ⁴LCC-CNRS, Toulouse, France, ⁵INSERM-Cimi U1135, Paris, France, ⁶Sampov Meas Referral Hospital, Pursat, Cambodia, ⁷Makara 16 Referral Hospital, Preah Vihear, Cambodia, ⁸Ratanakiri Referral Hospital, Banlung, Cambodia, ⁹Infectious diseases data observatory WWARN, Bangkok, Thailand, ¹⁰APHP Beaujon, Paris, France

(ACMCIP Abstract)

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MUTATIONS IN A PUTATIVE LYSOPHOSPHOLIPASE ARE ASSOCIATED WITH ALTERED EX VIVO SUSCEPTIBILITY TO MULTIPLE ACT PARTNER DRUGS

Melissa D. Conrad¹, Ozkan Aydemir², Patrick K. Tumwebaze³, Oswald Byaruhanga³, Martin Okitwi³, Stephen Orena³, Roland A. Cooper⁴, Jeffrey A. Bailey², Philip J. Rosenthal¹

¹University of California, San Francisco, CA, United States, ²Brown University, Providence, RI, United States, ³Infectious Diseases Research Collaboration, Tororo, Uganda, ⁴Dominican University of California, San Rafael, CA, United States

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ANTIMALARIAL EFFICACY DATA ARE ROUTINELY MISREPORTED IN SUB-SAHARAN AFRICAMateusz Plucinski¹, Ian Hastings², Leah Moriarty¹, Meera Venkatesan³, Ingrid Felger⁴, Eric S. Halsey¹¹CDC, Atlanta, GA, United States, ²Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ³USAID, Washington, DC, United States, ⁴Swiss Tropical and Public Health Institute, Basel, Switzerland**Symposium 47****Flames, Floods, Fevers and Fetuses - Can Humans Survive?**

Meeting Room 17

Tuesday, November 17

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

The climate emergency is at a critical point; our entire survival as a species is under threat within decades. The health impacts of this crisis have the potential to be catastrophic. Extreme heat events, floods, drought and storms are all increasing in frequency, and will continue to do so. The direct mortality related to these events is likely to rise with increasing exposure, but the impact of the indirect health effects will be much larger. Food insecurity, malnutrition, mass migration, collapse of ecosystems and outbreaks of infectious disease are the growing consequences, occurring on a global scale. Vulnerable populations, and those living in low and middle income countries are at highest risk of climate related morbidity and mortality. Although there is no scientific doubt regarding climate change, there exists a disconnect between the scientific evidence and government policies. The symposium will begin with an overview of the impact of the environmental and climate crisis on health, to give delegates a clear understanding of the gravity of the situation. In the summer of 2019, Australia burned during over its hottest summer ever recorded – resulting in over 20 million hectares being destroyed – and with that, an estimated one billion animals and 34 humans perished. The 300 million tonnes of CO₂ emitted was accompanied with smoke that travelled at least 11,000km and could be seen from space. Already over 90% of people live in “unhealthy” air quality – and increasing bushfires will have a global impact on the mortality associated with this, which already is estimated to be in excess of 4 million deaths annually. The third talk will present the results from a clinical study on the impact of extreme heat in pregnancy and on fetal wellbeing in the Gambia. This talk will focus on the physiological changes that occur during extreme heat events, how the heat load can impact fetal status, and what this may mean in future climate scenarios. The fourth talk will examine the growing threat from arboviruses; specifically, the expansion in vector distribution attributable to climate change, increased risk of outbreaks after major flooding events, and impending threats to vector biocontrol strategies with even modest temperature rises.

CHAIRSophie Yacoub
Oxford University Clinical Research Unit, Ho Chi Minh City, Viet NamAna Bonell
London School of Hygiene and Tropical Medicine, Banjul, Gambia

9 a.m.

FLAMES, FAMINES AND FLOODS: A PLANETARY CRISISHugh Montgomery
University College London, London, United Kingdom

9:25 a.m.

THE BURNING BUSH IN AUSTRALIA'S SUMMER OF SADNESS INDUCED BY SHORT-SIGHTED FINANCIAL MADNESSJohn Fraser
University of Queensland, Brisbane, Australia

9:50 a.m.

HOTTER AND HOTTER: EFFECTS OF EXTREME HEAT ON MATERNAL AND FETAL HEALTH IN THE GAMBIAAna Bonell
Medical Research Council Gambia @ London School of Hygiene and Tropical Medicine, Banjul, Gambia

10:15 a.m.

BURNING QUESTIONS: COULD CLIMATE CHANGE CAUSE NEW CHILLING CONTAGIONS?Kris Murray
Medical Research Council Gambia @ London School of Hygiene and Tropical Medicine, Banjul, Gambia**Break**

Tuesday, November 17

10:45 a.m. - 11 a.m. U.S. Eastern Time Zone

Plenary Session 48**Plenary Session III: Charles Franklin Craig Lecture**

Grand Ballroom

Tuesday, November 17

11 a.m. - 11:45 a.m. U.S. Eastern Time Zone



The Charles Franklin Craig Lecture is an honor bestowed on a distinguished worker in the field of tropical medicine. Charles Franklin Craig (1872-1950) received his MD from Yale University and entered the Army Medical Corps in 1898, as a pathologist and bacteriologist. After holding a variety of far-flung assignments early in his career, in

1909 he began a long association with the Army Medical School in Washington DC, rising to become Professor and Commandant of the School. He wrote ten books on malaria, parasitology and infectious diseases, and he discovered and described Plasmodium ovale. In 1931 he retired from the Army to become Professor of Tropical Medicine and head of the Department at Tulane School of Medicine. He was President of the American Society of Tropical Medicine (1915), Editor-in-Chief of the *American Journal of Tropical Medicine* (1927-1946) and Editor of the *Journal of the National Malaria Society* (1942-1944).

INTRODUCTIONWilliam A. Petri
University of Virginia, Charlottesville, VA, United States

**CHARLES FRANKLIN CRAIG LECTURE: THE MALARIA DRUG
ACCELERATOR—BUILDING A FOUNDATION FOR NEW
ANTIMALARIAL MEDICINES**



Elizabeth Winzeler, PhD

Professor of Pharmacology and Drug
Discovery
Department of Pediatrics
University of California San Diego
La Jolla, CA, United States

Elizabeth Ann Winzeler is a Professor in the Department of Pediatrics at University of California, San Diego, School of Medicine. She received her Ph.D. in 1996 from the Department of Developmental Biology at Stanford University, training under the microbiologist, Lucy Shapiro. She performed postdoctoral studies at Stanford working with the geneticist, Ronald Davis, before moving to a joint position at the Scripps Research Institute and the Genomics Institute of the Novartis Research Foundation (GNF). At the GNF, she led a malaria drug discovery program that has yielded several novel antimalarial chemotypes that are currently in clinical trials (KAE609, also known as cipargamin, and KAF156). In 2012 she moved to the University of California, San Diego. She has authored more than 200 scholarly publications and has received the Bailey-Ashford Medal for distinguished achievements in tropical medicine, the ASBMB Alice and CC Wang Award in Molecular Parasitology, the ASTMH Trager Award, the Medicines for Malaria Venture Project of the Year Award. She is a fellow of the American Academy of Microbiology and is currently the director of the Malaria Drug Accelerator, an international consortium that aims to discover new treatment modalities for malaria.

Poster Session 49

Poster Session B Presentations

Poster Hall

Tuesday, November 17

11:45 a.m. - 1:15 p.m. U.S. Eastern Time Zone

Poster Session B Directory

Global Health: #533 - 570

Ectoparasite-Borne Disease - Babesiosis and Lyme Disease: #571 – 574

Ectoparasite-Borne Disease - Other: #575 - 580

Mosquitoes - Biochemistry and Molecular Biology: #581 – 585

Mosquitoes - Insecticide Resistance and Control: #586

Mosquitoes - Vector Biology-Epidemiology: #587 - 599

Flaviviridae - Dengue: #600 – 614

Flaviviridae - Other: #615 - 626

Flaviviridae - West Nile: #627 – 630

Viruses – Other: #631 – 643

Malaria - Chemotherapy and Drug Resistance: #644 – 656

Malaria - Diagnosis: #657 – 672

Malaria - Drug Development - Clinical Trials: #673 – 686

Malaria - Epidemiology: #687 – 708

Malaria - Genetics/Genomics: #709 – 721

Malaria - Immunology: #722 – 734

Malaria - Modeling: #735 – 745

Malaria - Other: #746 – 761

Malaria - Prevention: #762 – 772

Malaria - Strategies for Elimination: #773 – 791

Malaria - Vaccines: #792 – 805

Malaria - Vector Control: #806 - 819

Bacteriology - Enteric Infections: 820 - 829

Cestodes - Echinococcosis/Hydatid disease: #830

Cestodes - Taeniasis and Cysticercosis: #831

Bacteriology - Enteric Infections: #832

Cestodes - Taeniasis and Cysticercosis: #833 - 837

Clinical Tropical Medicine: #838 - 867

Helminths - Nematodes - Intestinal Nematodes: #868 - 886

HIV and Tropical Co-Infections: #887 - 897

**Integrated Control Measures for Neglected Tropical Diseases (NTDs):
#898 - 904**

One Health: Interface Of Human Health/Animal Diseases: #905 - 920

Pneumonia, Respiratory Infections and Tuberculosis: #921 - 938

Protozoa - Ameba/Giardia: #939

Protozoa - Other Protozoa: #940 - 945

Global Health

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UNDERSTANDING RELIGIOUS PERSPECTIVES ABOUT DEATH AND SAMPLE COLLECTION FROM DEAD BODIES USING MINIMALLY INVASIVE TISSUE SAMPLING IN THE CONTEXT OF THE CHAMPS STUDY IN HARAR AND KERSA: EASTERN ETHIOPIA.

Ketema Degefa Begna¹, Mohammad Aliyi¹, Berhanu Damise¹, Azeb Kidane¹, Nega Assefa¹, Lola Madrid²

¹Haramaya University, Ethiopia, Harar, Ethiopia, ²London School of Hygiene & Tropical Medicine, London, United Kingdom

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DESCRIPTIVE ANALYSIS OF VACCINE TRENDS IN THE DOMINICAN REPUBLIC: IS THE D.R. UNAFFECTED BY THE VACCINE HESITANCY MOVEMENT?

Miguel Delgadillo¹, Alejandro Villanueva², Priscila Abate², Jose Duran², Paola Peña², Yarimar Pérez Del Leguas¹, Santos García Vázquez¹, Laura Manosalvas², Leandro Tapia², Robert Paulino-Ramirez²

¹School of Medicine, Universidad Iberoamericana (UNIBE), Santo Domingo, Dominican Republic, ²Institute for Tropical Medicine & Global Health, UNIBE, Santo Domingo, Dominican Republic

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"BATAKA TWETAMBIRE" (NATIVES, WE HEAL OURSELVES): REMOVING BARRIERS TO HEALTHCARE ACCESS FOR THE SEVERELY DISADVANTAGED IN UGANDA

Benjamin B. Norton¹, Scott Kellermann², Michael C. Borecky³, Thomas E. Borecky³, Birungi Mutahunga⁴, Nahabwe Haven⁴, Latha Rajan¹

¹Tulane University School of Public Health and Tropical Medicine, New Orleans, LA, United States, ²Fulbright Scholarship Program, Kanungu, Uganda, ³Loma Linda University School of Medicine, Loma Linda, CA, United States, ⁴Church of Uganda Bwindi Community Hospital, Kinkizi Diocese, Kanungu, Uganda

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SHARING THE SAME GEOGRAPHY - USE OF A COMMON-GEOREGISTRY AS A CENTRAL AUTHORITY FOR GEOGRAPHIC INFORMATION CORE TO DISEASE SURVEILLANCE AND RESPONSE

Anne Liu¹, Abigail Ward¹, Pedro Pagalday Olivares¹, Julia Dunn¹, Sameen Babur¹, Lakshmi Balachandran¹, Steeve Ebener², Izay Pantanilla², Nathan McEachen³, Justin Lewis³, Derek Treatman⁴, Scott Teesdale⁴, Arnaud Le Menach¹

¹Clinton Health Access Initiative, New York, NY, United States, ²Health Geolab, Manila, Philippines, ³Terraframe, Denver, CO, United States, ⁴Vital Wave, Palo Alto, CA, United States

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MEASURING PERCEIVED QUALITY OF CARE TO INCREASE UTILIZATION FOR BETTER PERFORMANCE OF A MALARIA SURVEILLANCE SYSTEM IN SENEGAL

Ashley Garley¹, Roger Tine², Moustapha Cisse³, Medoune Ndiop³, Mame Birame Diouf⁴, Katharine Sturm-Ramirez⁵, Yazoumé Yé¹

¹ICF International, Rockville, MD, United States, ²Université Cheikh Anta Diop de Dakar, Dakar, Senegal, ³Programme National de Lutte contre le Paludisme, Dakar, Senegal, ⁴United States Agency for International Development, Senegal and U.S. President's Malaria Initiative, Dakar, Senegal, ⁵Centers for Disease Control and Prevention, Atlanta, USA and U.S. President's Malaria Initiative, Dakar, Senegal

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COMMUNITY PERCEPTIONS, BELIEFS AND PRACTICES AROUND STILLBIRTH AND <5 CHILD DEATHS: AN EXPLORATORY STUDY IN A RURAL SETTING, BANGLADESH

Sazzad Hossain Khan¹, Tonmoy Sarkar¹, Md. Saiful Islam¹, Hossain MS Sazzad², Syeda Nurunnahar¹, Md. Musa Baker¹, Mohammad Ariful Islam¹, Kamal Ibne Amin Chowdhury¹, Dalia Yeasmin¹, Faruque Hussain¹, Shams El Arifeen¹, Khatia

Munguambe³, John Blevins⁴, Emily S. Gurley⁵, Shahana Parveen¹

¹icddr, Dhaka, Bangladesh, ²Kirby Institute, New South Wales, Australia, ³Centro de Investigación em Saúde de Manhiça, Manhiça, Mozambique, ⁴Emory Global Health Institute, Atlanta, GA, United States, ⁵John Hopkins University, Baltimore, MD, United States

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EVALUATING THE INFLUENCE OF ASYMPTOMATIC SLEEPING SICKNESS INFECTIONS ON INTERVENTION PROGRAMS AND ELIMINATION GOALS USING MATHEMATICAL MODELLING

Maryam Aliee¹, Ron E Crump¹, Erick Mwamba Miaka², Matt J Keeling¹, Kat S Rock¹

¹University of Warwick, Coventry, United Kingdom, ²Programme National de Lutte contre la Trypanosomiase Humaine Africaine, Kinshasa, Democratic Republic of the Congo

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THE APPLICATION OF PARTICIPATORY, EPIDEMIOLOGICAL-ECONOMIC MODELLING FOR POLICY GUIDANCE: THE CASE OF PERTUSSIS VACCINATION IN SOUTH AFRICA

Rachel A. Hounsell, Rudzani Muloiwa, Benjamin Kagina, Sheetal P. Silal

University of Cape Town, Cape Town, South Africa

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ENGAGING YOUNG PEOPLE AS AGENTS OF CHANGE: A PRIMARY SCHOOL EDUCATIONAL INTERVENTION TO DECREASE ARBOVIRAL AND PROTOZOAL DISEASE RISK IN GRENADA

Trevor Noel¹, Jeffon Telesford¹, Victor Ashby¹, Jonathan Altamirano², Nandy Noel¹, Nikita Cudjoe¹, Sherice Phillip¹, Connie Dottin³, Francis Hector³, Kennie James³, Paul Fields¹, Calum Macpherson¹, A. Desiree LaBeaud²

¹Winward Islands Research and Education Foundation, St. George's University, St George, Grenada, ²Stanford University, Stanford, CA, United States, ³Ministry of Health, St George, Grenada

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CAN ELIMINATION OF SLEEPING SICKNESS BE COST-EFFECTIVE? AN ECONOMIC EVALUATION OF GHAT ELIMINATION CAMPAIGNS IN THE DRC

Marina Antillon

Swiss Tropical and Public Health Institute, Basel, Switzerland

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INTERSECTIONALITY AND HEALTH-RELATED STIGMA: A QUALITATIVE STUDY IN INDONESIA

Ruth Peters

Vrije University Amsterdam, Amsterdam, Netherlands

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ETHICAL ISSUES & CHALLENGES FACED BY GLOBAL HEALTH PROGRAM DIRECTORS

Michelle Aniko Grek¹, David Addiss², Ashley Graham², Susan Landskroener¹, James V. Lavery¹

¹Rollins School of Public Health, Emory University, Atlanta, GA, United States, ²The Task Force for Global Health, Decatur, GA, United States

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HOW REAL-TIME DEATH NOTIFICATIONS FROM THE COMMUNITY HAVE BEEN USED TO IMPLEMENT MINIMALLY INVASIVE TISSUE SAMPLING IN BALIAKANDI, BANGLADESH

Abdullah Al Masud¹, Emily S. Gurley², Muhammad Faruque Hussain¹, Sanwarul Bari¹, Farzana Islam¹, John Blevins³, Ahoua Kone³, Kyu Han Lee², Qazi Sadeq-ur Rahman¹, Atique Iqbal Chowdhury¹, Palash Mutsuddi¹, Shakhor Blaise Gomes¹, Abdus Suban Mulla¹, Afroz Zahan¹, Probin Kumer Dey¹, Shams El Arifeen¹, Shahana Parveen¹

¹International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ²John Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³Rollins School of Public Health, Emory University, Atlanta, GA, United States

RAPID RESPONSE PLATFORM TO MANUFACTURE HUMAN IMMUNOGLOBULIN PRODUCT

Evelyn Van der Hart, Aynslee Wall, Patrick Wiebe, Grayson Poyser, Russell Pronyk
Emergent BioSolutions, Winnipeg, MB, Canada

KNOWLEDGE, ATTITUDES, PRACTICES, AND BELIEFS REGARDING PRENATAL ALCOHOL CONSUMPTION AMONG WOMEN IN LEYTE, THE PHILIPPINES

Alice Huang¹, Matthew Neale¹, Marianne Joy Sagliba², Amabelle Joy Moreno², Maria Paz Urbina², Mario Jiz², Jennifer Friedman¹

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FIELD EVALUATION OF MICROCHIP-BASED POINT-OF-CARE DEVICE 'GAZELLE' FOR DIAGNOSIS OF HAEMOGLOBIN DISORDERS IN INDIA

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RETHINKING DENGUE VIRUS IMMUNITY: DELAYED OR NO DETECTABLE SEROCONVERSION AFTER DENV INFECTION IN CHILDREN IN KENYA

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INDIVIDUAL, HOUSEHOLD, AND ENVIRONMENTAL PREDICTORS OF SYMPTOMATIC DENGUE INFECTION IN A PERI-URBAN AREA OF CAMBODIA: A GEOSTATISTICAL ANALYSIS

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IMPACT OF DENGUE VIRUS GENETIC DIVERSITY ON BREADTH OF NEUTRALIZATION BY A TETRAVALENT DENGUE VACCINE

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CORRELATION BETWEEN DENGUE AND WEATHER IN YANGON, MYANMAR FROM 2012 TO 2017

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Flaviviridae - Other

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SURVEY ON NEUTRALIZING ANTIBODIES AGAINST ZIKA VIRUS 2-YEAR POST-OUTBREAK IN TWO SOUTHERN THAILAND COMMUNITIES

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SEROEPIDEMIOLOGICAL STUDY OF JAPANESE ENCEPHALITIS VIRUS IN CHIANG MAI, A HIGH ENDEMIC AREA OF THAILAND

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DETECTION OF ZIKA INFECTION IN A COHORT OF PREGNANT WOMEN IN KENYA, 2017-2019

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IGG ANTIBODY DEPLETION PRIOR TO NEUTRALIZATION RESULTS IN DECREASED ANTIBODY CROSS-REACTIVITY IN SECONDARY ZIKV INFECTIONS

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PREVENTION OF SEXUAL AND VERTICAL TRANSMISSION OF ZIKA VIRUS (ZIKV) FOLLOWING IMMUNIZATION WITH A LIVE-ATTENUATED ZIKV VACCINE CANDIDATE

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NEUROLOGICAL SEQUELAE OF ACQUIRED ZIKA VIRUS INFECTION AMONG CHILDREN IN MANAGUA, NICARAGUA

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CO-CIRCULATION OF ZIKA VIRUS AND DENGUE VIRUS SEROTYPES 2 AND 3 IN GUERRERO STATE, MEXICO, 2019

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CYNOMOLGUS MACAQUES ARE RESISTANT TO SPONDWENI VIRUS INFECTION

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ZIKA VIRUS RECRUDESCENCE IN THE MURINE MALE REPRODUCTIVE TRACT FOLLOWING IMMUNOSUPPRESSION

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MODELLING A ZIKA VIRUS OUTBREAK IN BRAZIL UNDER CURRENT AND FUTURE CLIMATE

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THE ERA OF PLANETARY CHANGE: EXTREME WEATHER EVENTS IN GEORGIA, USA, AND IMPACT ON ARBOVIRAL DISEASE EPIDEMIOLOGY

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DETECTION OF EBOLA VIRUS FROM OPEN SORES AFTER CLEARANCE OF VIREMIA

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COLLATERAL SENSITIVITY AS A STRATEGY TO SUPPRESS RESISTANCE: THE CHALLENGE OF DIVERSE EVOLUTIONARY PATHWAYS

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PRIMAQUINE METABOLISM: PQ-5,6-O-QUINONE AND 6-METHOXYQUINOLINE-5,8-P-QUINONE GENERATED IN HUMAN ERYTHROCYTES

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FREQUENCY OF PLASMODIUM FALCIPARUM AND SCHISTOSOMA MANSONI CO-INFECTION IN YORO-VILLAGE, CAMEROON: IMPLICATION ON RAPID DIAGNOSIS OF MALARIA

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GAZELLE: A PORTABLE POINT-OF-CARE DIAGNOSTIC WITH HIGH ACCURACY AND FAST TURNAROUND TIME FOR DETECTING P. VIVAX MALARIA

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DEVELOPMENT OF THE 1ST WHO REFERENCE REAGENT FOR ANTIMALARIA (*PLASMODIUM VIVAX*) HUMAN PLASMA

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UTILITY OF REPORTING PRESUMED MALARIA FOR IMPROVING MALARIA CASE MANAGEMENT IN MALI

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EVALUATION OF THE Q-PLEX™ HUMAN MALARIA ARRAY FOR THE DETECTION OF *PLASMODIUM KNOWLESII*

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MALARIA ANTIGEN PROFILING TO ASSESS RAPID DIAGNOSTIC TEST PERFORMANCE AND STAGE OF INFECTION IN KINSHASA PROVINCE, DEMOCRATIC REPUBLIC OF THE CONGO

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USING GAZELLE HEMOZOIN BASED MALARIA DIAGNOSTIC TO DIFFERENTIATE BETWEEN *PLASMODIUM* SPECIES

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OUTCOME OF MALARIA RAPID DIAGNOSTIC TEST SCALE UP ON REDUCING PRESUMPTIVE DIAGNOSIS OF MALARIA IN CHALLENGING HEALTH SETTINGS: EVIDENCE FROM 8 NIGERIAN STATES

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DIFFERENCES IN RDT PERFORMANCE IN ACTIVE VERSUS PASSIVE MALARIA SURVEILLANCE IN KINSHASA PROVINCE, DEMOCRATIC REPUBLIC OF CONGO

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ANTIBIOTICS OVERUSE AND VARYING RATES OF MALARIA TESTING IN CAMBODIA BASED ON ROUTINE PATIENT REGISTERS IN PRIMARY HEALTH CENTERS

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PREVALENCE OF *PLASMODIUM FALCIPARUM* ISOLATES LACKING HISTIDINE RICH PROTEIN 2 AMONG SYMPTOMATIC PATIENTS IN KWILU PROVINCE (DR. CONGO)

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CONTRIBUTION OF *P. FALCIPARUM* PARASITES WITH *PFHRP2* GENE DELETIONS TO FALSE NEGATIVE HRP2-BASED MALARIA RDT RESULTS IN GHANA: A NATIONWIDE STUDY

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DISCOVERY OF CANDIDATE SALIVA BIOMARKERS OF *PLASMODIUM VIVAX* INFECTIONS

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COMPARISON OF TWO MALARIA MULTIPLEX REFERENCE IMMUNOASSAYS IN THE MEASUREMENT OF MALARIA ANTIGENS

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MOLECULAR DETECTION OF *PLASMODIUM* IN AUTOCHTHONOUS MALARIA AREAS LOCATED IN SAO PAULO STATE ATLANTIC FOREST BIOME

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ACCESS TO MALARIA RAPID DIAGNOSTIC TESTS AND HEALTHCARE PROVIDERS' KNOWLEDGE OF, AND STORAGE PRACTICES IN PUBLIC HEALTH FACILITIES IN NIGERIA

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MICROSATELLITE GENOTYPING OF *PLASMODIUM VIVAX* MALARIA CASES IN NEPAL

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IVERMECTIN - A DOSE-ASCENDING, RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE-BLIND CLINICAL TRIAL ON THE EFFICACY AND SAFETY OF IVERMECTIN FOR THE TREATMENT OF *PLASMODIUM FALCIPARUM* INFECTIONS IN ASYMPTOMATIC GABONESE ADULTS: PRELIMINARY RESULTS

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FIRST-IN-HUMAN EVALUATION OF A *P. FALCIPARUM* TRANSMISSION-BLOCKING MONOCLONAL ANTIBODY

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MALARIA DURING PREGNANCY: EFFECTS OF IPTP WITH DP, DPAZ AND SP ON MATERNAL IMMUNE ACTIVATION AND *PLASMODIUM FALCIPARUM* CLEARANCE

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DIGITIZING PAPER-BASED HEALTH FACILITY REGISTERS USING SCANFORM: A NOVEL APPROACH FOR IMPROVING THE QUALITY, TIMELINESS, AND USE OF ROUTINE SURVEILLANCE DATA

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DEVELOPMENT OF A NEW CRYOVIAL WITH SEPTUM FOR USE WITH CRYOPRESERVED HUMAN EUKARYOTIC CELL VACCINES AND PRODUCTS COMPATIBLE WITH STORAGE BELOW -150°C

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PHASE 2 DOUBLE-BLIND, FAMILY COMPOUND RANDOMIZED, COMPARATOR-CONTROLLED TRIAL OF PFS230D1M-EPA/AS01: VACCINE COMMUNITY TRIAL PROGRESS AND PILOT RESULTS

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SPATIO-TEMPORAL TRENDS IN HOTSPOTS OF MALARIA DURING A MASS TEST AND TREAT TRIAL IN AN AREA OF HIGH TRANSMISSION IN WESTERN KENYA, 2013–2015

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FIRST MALARIA REPORT OF ASYMPTOMATIC CASES IN NATIVE COMMUNITIES OF CONDORCANQUI, PERU

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PLASMODIUM FALCIPARUM AND PLASMODIUM MALARIAE INFECTION AMONG SYMPTOMATIC PATIENTS PRESENTING TO AN URBAN EMERGENCY DEPARTMENT IN DOUALA, CAMEROON

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HIDDEN RESERVOIR: ASYMPTOMATIC PLASMODIUM FALCIPARUM PREVALENCE IN MALAWIAN ADOLESCENTS AND ADULTS, 2015-2016

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HIGHER ODDS OF SYMPTOMATIC PLASMODIUM FALCIPARUM INFECTION WHEN EXPOSED TO NOVEL COMPARED TO RECURRENT MALARIA INFECTIONS OVER TIME

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RECENT MOLECULAR ASSESSMENT OF PLASMODIUM VIVAX AND PLASMODIUM FALCIPARUM ASYMPTOMATIC AND SYMPTOMATIC INFECTIONS IN BOTSWANA

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ASSESSMENT OF PVMSP8 AS SEROLOGICAL MARKER OF RECENT P. VIVAX EXPOSURE IN THE PERUVIAN AMAZON

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TRENDS IN MALARIA INDICATORS FROM DEMOGRAPHIC AND HEALTH SURVEYS IN SENEGAL FROM 2005 TO 2017

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TRENDS IN MALARIA MORBIDITY AND MORTALITY RATES IN UGANDA: A FOUR-YEAR RETROSPECTIVE STUDY

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COMMUNITY PERCEPTIONS OF MALARIA RDT RESULTS IN A REGION OF HIGH MALARIA TRANSMISSION; WHAT INFLUENCES THEIR CONFIDENCE IN THE TEST RESULTS?

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MULTI-STAKEHOLDER ENGAGEMENT FOR ACTIVE SURVEILLANCE OF MALARIA IN TWO TOWNSHIPS IN MYANMAR'S MANDALAY REGION

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INCREASED GAMETOCYTE PRODUCTION AND MOSQUITO INFECTIVITY IN CHRONIC VERSUS INCIDENT *PLASMODIUM FALCIPARUM* INFECTIONS

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***P. FALCIPARUM* MALARIA PREVALENCE AND HEALTH SEEKING BEHAVIORS IN RURAL SUSSUNDENGA DISTRICT, MOZAMBIQUE**

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***P. FALCIPARUM* MALARIA PREVALENCE AND HOUSEHOLD LEVEL RISK FACTORS IN RURAL MOZAMBIQUE ALONG THE ZIMBABWE BORDER**

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EXPLORING DISCREPANCIES BETWEEN MALARIA TEST POSITIVITY RATES FROM AUTOMATED READERS AND ROUTINE SURVEILLANCE DATA IN THE DEMOCRATIC REPUBLIC OF CONGO

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UNDERSTANDING MALARIA DISTRIBUTION AND LANDSCAPE USE IN TANZANIA: A MOLECULAR EPIDEMIOLOGY STUDY OF SCHOOL-AGED CHILDREN

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THE ABILITY OF SEX-SPECIFIC GAMETOCYTE DENSITIES TO PREDICT HUMAN-TO-MOSQUITO TRANSMISSION OF MALARIA PARASITES FROM THE ASYMPTOMATIC RESERVOIR

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MALARIA IS NOT ASSOCIATED WITH DIFFERENCES IN MEASURES OF CHILD GROWTH OR MALNUTRITION IN A COHORT OF ONE-YEAR OLD KENYAN CHILDREN

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ASYMPTOMATIC MALARIA IN LIMPOPO PROVINCE, SOUTH AFRICA: BURDEN OF INFECTION

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HUMAN MOBILITY AND URBAN MALARIA RISK IN THE MAIN TRANSMISSION HOTSPOT OF AMAZONIAN BRAZIL

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ASSESSMENT AND QUANTIFICATION OF TEMPORAL AND SPATIAL CHANGES TO *PLASMODIUM FALCIPARUM* ALLELIC STRUCTURE USING DEEP SEQUENCING

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POOLED DEEP SEQUENCING OF *P. FALCIPARUM* DRUG RESISTANCE GENES *CRT*, *MDR1*, *K13*, *DHPS*, *DHFR*, & *CYT-B* USING 450 THERAPEUTIC EFFICACY STUDIES SAMPLES FROM DIOURBEL AND KEDOUGOU SITES IN SENEGAL

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PREVALENCE OF *PLASMODIUM FALCIPARUM* DIHYDROFOLATE REDUCTASE (*PFDHFR*) MUTANT HAPLOTYPES IN KIFFA, SOUTH-CENTRAL MAURITANIA

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EVALUATION OF *PLASMODIUM FALCIPARUM* HISTIDINE-RICH PROTEIN 2 AND 3 (*PFHRP2* AND *PFHRP3*) GENE POLYMORPHISMS IN KENYA

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QUANTIFYING *PLASMODIUM FALCIPARUM* PARASITE DIVERSITY AND POPULATION CONNECTIVITY USING GENOMIC DATA ACROSS A TRANSMISSION GRADIENT IN ZAMBIA

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MOLECULAR SURVEILLANCE OF THE POPULATION DIVERSITY AND ARTEMISININ DRUG RESISTANCE GENE (*KELCH-13*) OF *PLASMODIUM FALCIPARUM* IN NIGERIA

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A CAPTURE PROBE-BASED APPROACH REVEALS SEVERE MALARIA-ASSOCIATED PFEMP1 DOMAINS EXPRESSED IN UNCOMPLICATED MALARIA AMONG MALIAN CHILDREN

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A HIGH-THROUGHPUT PHENOTYPIC SCREEN UNRAVELS *PLASMODIUM FALCIPARUM* GENES ESSENTIAL FOR MALARIA TRANSMISSION (GAMETOCYTE DEVELOPMENT)

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CHARACTERIZATION OF GENES IN *PLASMODIUM FALCIPARUM* MUTANTS ASSOCIATED WITH ALTERED SENSITIVITY TO ARTEMISININ

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POPULATION GENOMICS IDENTIFIES A DISTINCT *PLASMODIUM VIVAX* POPULATION ON THE CHINA-MYANMAR BORDER

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MECHANISTIC MALARIA MODEL PREDICTIONS OF GENETIC FEATURE VARIATION ACROSS TRANSMISSION SCALES QUALITATIVELY MATCH OBSERVED DATA FROM 27 SITES THROUGHOUT SENEGAL IN 2019

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MATERNAL TRANSFER AND ACQUISITION OF MALARIA SPECIFIC ANTIBODIES TO PFEMP1 IN THE FIRST YEAR OF LIFE

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CHARACTERIZATION OF NOVEL *PLASMODIUM* SEXUAL STAGE ANTIGENS AS TARGETS OF TRANSMISSION-REDUCING IMMUNITY

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REGULATION OF CGAS-MEDIATED DNA SENSING PATHWAY BY 2'-5'-OLIGOADENYLATE SYNTHASE LIKE PROTEIN DURING *PLASMODIUM FALCIPARUM* INFECTIONS

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THE ROLE OF THERMONEUTRALITY ON THE INNATE IMMUNE SYSTEM OF A MALARIAL MURINE MODEL

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DYNAMIC MODULATION OF GERMINAL CENTERS BY GUT BACTERIA IMPACT *PLASMODIUM* PARASITE BURDEN

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A CONFORMATIONALLY-CONSTRAINED PEPTIDE FROM PVDBP ELICITS ANTIBODIES THAT CROSS-REACT WITH *P. FALCIPARUM* VAR2CSA

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CELLULAR IMMUNE PERTURBATION AND ABERRANT EXPRESSION OF PP38MAPK ON MONOCYTES AND DENDRITIC CELLS IN PEDIATRIC MALARIA

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GUT MICROBIOTA COMPOSITION MODULATES THE MAGNITUDE AND QUALITY OF GERMINAL CENTERS DURING *PLASMODIUM* INFECTIONS

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MODELING THE DROP-OFF IN THE PROTECTIVE EFFICACY OF SEASONAL MALARIA CHEMOPREVENTION FROM CLINICAL TRIALS TO PROGRAMMATIC IMPLEMENTATION IN BURKINA FASO

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ESTIMATING THE POTENTIAL EFFECTIVENESS OF WIDE-SCALE IMPLEMENTATION OF INTERMITTENT PREVENTIVE THERAPY IN INFANTS IN SOUTHERN NIGERIA

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SUPPORTING STRATEGIC PLANNING WITH MALARIA MODELLING IN MOZAMBIQUE

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ESTIMATING MULTIPLICITY OF INFECTION AND ALLELE FREQUENCIES AND PREVALENCES ACCOUNTING FOR MISSING DATA

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MALARIA TEMPORAL VARIATION AND MODELING USING TIME-SERIES IN SUSSUNDENGA DISTRICT, MOZAMBIQUE

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PREDICTING THE PUBLIC HEALTH IMPACT OF A MALARIA TRANSMISSION-BLOCKING VACCINE

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MACHINE LEARNING-BASED APPROACHES TO PARAMETERIZING INDIVIDUAL-BASED MODELS OF MALARIA DYNAMICS

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UTILIZING SPATIAL MAPS OF ANTIMALARIAL PARTNER DRUG RESISTANCE TO IDENTIFY PRIORITY REGIONS FOR SURVEILLANCE

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Malaria - Other

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TREATMENT-SEEKING BEHAVIOR FOR FEVER IN KINSHASA PROVINCE, DRC: IMPLICATIONS FOR MALARIA CASE MANAGEMENT

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MALARIA PREVALENCE AND CARE SEEKING BEHAVIORS PRIOR TO A PILOT EXPANDING MALARIA COMMUNITY CASE MANAGEMENT TO OLDER AGES IN FARAFANGANA, MADAGASCAR, 2019

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COMMUNITY ENGAGEMENT TO STRENGTHEN MALARIA ELIMINATION IN 4 PROVINCES IN VIETNAM

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IMPACT OF PRIVATE HEALTH SECTOR ENGAGEMENT INTERVENTIONS ON PROVIDER QUALITY OF MALARIA CASE MANAGEMENT IN CAMBODIA, LAO PDR, MYANMAR AND VIETNAM

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INSIGHTS ON FOREST-GOER HEALTH SEEKING JOURNEYS FOR FEBRILE ILLNESS IN CAMBODIA AND VIETNAM USING RESPONDENT-DRIVEN SAMPLING

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STAKEHOLDER ENGAGEMENT FOR PREDICTIVE MODELING OF MALARIA ELIMINATION IN GREATER MEKONG SUBREGION

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HEALTH WORKERS' MALARIA CASE MANAGEMENT PRACTICES IN SOUTH CENTRAL UGANDA, 2017-2019

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IMPROVING MALARIA DATA QUALITY FOR PROGRAMMATIC DECISION-MAKING: FINDINGS FROM DATA QUALITY AUDITS IN MAINLAND TANZANIA, 2019

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POOR ADHERENCE TO MALARIA TREATMENT GUIDELINES WITH ARTEMETHER-LUMEFANTRINE IN KINSHASA, DRC

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UNDERSTANDING MALARIA PREVENTIVE BEHAVIORS AMONG THE CROSS BORDER POPULATION ALONG THE THAI-MYANMAR BORDER IN TAK PROVINCE, THAILAND

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ASSESSING THE RELIABILITY OF SURVEILLANCE DATA COLLECTED BY DISTRICT MALARIA SURVEILLANCE OFFICERS (DMSOS) IN UNGUJA, ZANZIBAR - 2019

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ACCEPTABILITY OF MALARIA VACCINE IN CONTEXT OF PILOT INTRODUCTION IN WESTERN KENYA: RESULTS FROM THE BASELINE HOUSEHOLD SURVEYNelli Westercamp¹, Dorcas Akach², Brian Seda², Irene Okanda², Elizabeth Marube², Isabella Nyangau², Titus Kwambai¹, Simon Kariuki², Aaron Samuels¹¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Kenyan Medical Research Institute, Kisumu, Kenya

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Helminths - Nematodes - Intestinal Nematodes

HUMAN INTESTINAL PARASITES ASSOCIATED WITH EGGPLANT (*SOLANUM AETHIOPICUM*) SOLD IN OGBARU LOCAL GOVERNMENT AREA ANAMBRA STATE NIGERIA

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IMPACT OF DIFFERENT INTERVENTION STRATEGIES ON HELMINTH AND INTESTINAL PROTOZOA, IN CENTRAL CÔTE D'IVOIRE

Gaoussou Coulibaly

University Félix Houphouët-Boigny, Abidjan, Côte d'Ivoire, Abidjan, Côte D'Ivoire

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Francis Adjei Osei¹, Ellis Owusu-Dabo¹, Sam K. Newton¹, Nicholas Karikari Mensah², Evans Xorse Amuzu², Samuel Frimpong Odoom², Isaac Nyanor², Suraj Yawnumah Abubakar², Bright Atta Dankwah², Ebenezer Opoku¹, Alfred K. Owusu¹, Phans Odoro Sarpong³, Stephanie Boadi², Ernest Amanor², Peter Furu⁴, Dan Wolf Meyrowitsch⁴

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NEED OF HEALTH POLICY AND SYSTEM RESEARCH FOR INTEGRATED CONTROL OF NEGLECTED TROPICAL DISEASE

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Arielle Dolegui, Stephen O. Omunyidde
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One Health: Interface Of Human Health/ Animal Diseases

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Benson Chuks Iweriebor, Larry Chikwelu Obi

Sefako Makgatho Health Sciences University, Ga-Rankuwa, Pretoria, South Africa

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ENVIRONMENTAL CHANGES AND POTENTIAL BAT-BORNE JAPANESE ENCEPHALITIS VIRUS TRANSMISSION IN BALI, INDONESIA

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Tamara Danielle Solorzano¹, Fernando Aguilar², Ana Jiménez³, Elías Barquero⁴, Martha Piche⁵, Gaby Dolz⁶, Carlos Jiménez⁵, Mario Baldi⁷, Bernal León⁸, Mario Santoro⁹, Alejandro Alfaro¹¹Departamento de Patología, Escuela de Medicina Veterinaria, Universidad Nacional, Costa Rica, Heredia, Costa Rica, ²Programa de Vida Silvestre, Servicio Nacional de Salud Animal, Ministerio de Agricultura y Ganadería, Costa Rica, Heredia, Costa Rica, ³Departamento de Parasitología, Escuela de Medicina Veterinaria, Universidad Nacional, Costa Rica., Heredia, Costa Rica, ⁴Departamento de Bacteriología, Escuela de Medicina Veterinaria, Universidad Nacional, Costa Rica., Heredia, Costa Rica, ⁵Departamento de Virología, Escuela de Medicina Veterinaria, Universidad Nacional, Costa Rica., Heredia, Costa Rica, ⁶Departamento de Zoonosis, Escuela de Medicina Veterinaria, Universidad Nacional, Costa Rica., Heredia, Costa Rica, ⁷Programa de Investigación en Enfermedades Tropicales, Escuela de Medicina Veterinaria, Universidad Nacional, Costa Rica., Heredia, Costa Rica, ⁸Laboratorio de Bioseguridad, Laboratorio Nacional de Servicio Veterinario, Servicio Nacional de Salud Animal, Ministerio de Agricultura y Ganadería, Costa Rica., Heredia, Costa Rica, ⁹Integrative Ecology Marine Department, Anton Dohrn Zoological Station, Italy, Heredia, Costa Rica

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Cusi Ferradas¹, David E. Payahuanca¹, Diana León¹, Edith Malaga², Gabriela Salmón-Mulanovich³, Andrés G. Lescano¹, Janet E. Foley⁴¹Emerging Diseases and Climate Change Research Unit, School of Public Health, Universidad Peruana Cayetano Heredia, Lima, Peru, ²Infectious Diseases Laboratory, School of Science, Universidad Peruana Cayetano Heredia, Lima, Peru, ³Biomedical Engineering Program PUCP-UPCH, Universidad Peruana Cayetano Heredia (UPCH), Pontificia Universidad Católica del Perú (PUCP), Lima, Peru, ⁴Department of Medicine and Epidemiology, School of Veterinary Medicine, University of California, Davis, Lima, Peru

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Kaushi ST Kanankege¹, Kaylee M. Errecaborde¹, Anuwat Wiratsudakul², Ong-orn Prasarnphanich³, Phrutsamon Wongnak⁴, Chakchalat Yoopatthanawong², Julio Alvarez⁵, Andres M. Perez¹

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Pneumonia, Respiratory Infections and Tuberculosis

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Aislinn K. McMillan¹, Swapna Naik², Rebecca E. Colman¹, Marva Seifert¹, Mubin Kazi², Anjali Shetty², Timothy C. Rodwell¹, Camilla Rodrigues²
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USE OF AN ACUTE FEBRILE ILLNESS ENHANCED SURVEILLANCE SYSTEM TO MONITOR CONCURRENT RESPIRATORY AND ARBOVIRAL DISEASE TRENDS IN PUERTO RICO DURING THE NOVEL CORONAVIRUS PANDEMIC, 2020

Hannah R. Volkman
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Coralei E. Neighbors¹, Sky Vanderburg¹, Gaya B. Wijayarathne², Champica K. Bodinayake², Ajith Nagahawatte², Vasantha Devasiri², Ruvini Kurukulasooriya², Bhagya Piyasiri³, Muhunthan Sellathurai³, Thilini Wickremasinghe², Thishara Nanayakkara², Tianchen Sheng¹, Jack Anderson¹, Bradley P. Nicholson⁴, L. Gayani Tillekeratne¹, Christopher W. Woods¹
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Nina Gouba¹, Moussa Sakana², Assana Cissé³, Kader Ilboudo³, Nadège W. Somda³, Zékiba Tarnagda³
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RAPID POINT OF CARE TESTS TO SIMULTANEOUSLY QUANTIFY ANTI-TB DRUGS IN BLOOD

Yan Zhou, Jason Zhou

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IMPLEMENTATION OF COVID-19 TESTING IN AN ARBOVIRAL DISEASE COMMUNITY COHORT IN PONCE, PUERTO RICO

Liliana Sanchez-Gonzalez¹, Chelsea Major¹, Olga D. Lorenzi¹, Laura Adams¹, Janice Perez-Padilla¹, Dania Rodriguez¹, Kyle Ryff¹, Jorge Munoz-Jordan¹, Gilberto Santiago¹, Freddy Medina¹, Mariely Linares², Gladys Gonzalez-Zeno², Vanessa Rivera-Amill², Gabriela Paz-Bailey¹

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RESPIRATORY VIRUSES ARE THE MOST COMMON CAUSE OF LOWER RESPIRATORY TRACT INFECTION IN SOUTHERN PROVINCE, SRI LANKA

Tianchen Sheng¹, Sky Vanderburg¹, Champika Bodinayake², Gaya Wijayarathne², Ajith Nagahawatte², Vasantha Devasiri², Ruvini Kurukulasooriya², Muhunthan Sellathurai³, Nayomi Danthanarayana³, Chathurangi Halloluwa², Kanchana Sewwandi², Jack G. Anderson¹, Bradly P. Nicholson⁴, Christopher W. Woods¹, L. Gayani Tillekeratne¹

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OXYGEN MANAGEMENT FOR CHILDREN DYING FROM PNEUMONIA IN KENYA: FINDINGS FROM THE CHILD HEALTH AND MORTALITY PREVENTION SURVEILLANCE (CHAMPS)

Jennifer R. Verani¹, Victor Akelo², Dianna M. Blau³, Aggrey Iganza⁴, Magdalene Kuria⁵, Florence Murila⁶, Emily A. Rogena⁷, Gunturu Revathi⁸, Paul Mitei⁹, Benard Ogony⁴, Elizabeth Oele¹⁰, Samuel Omondi¹¹, Emily Zielinski-Gutierrez¹², Pratima Raghunathan¹, Marc-Alain Widdons¹², Cynthia G. Whitney¹³, Dickens Onyango¹⁰, Beth Barr², Robert F. Breiman¹³

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ADHERENCE TO TUBERCULOSIS PREVENTIVE THERAPY IN A NOVEL COMMUNITY-BASED DIFFERENTIATED CONTACT MANAGEMENT PROGRAM IN ESWATINI

Micaela Sandoval¹, Alexander W. Kay², Martha Matsenjwa³, Godwin Mtetwa³, Tara Devezin², Gloria Sisi Dube³, Joyce Sibanda³, Welile Sikhondze⁴, Bhekumusa Lukhele³, Anna Maria Mandalakas²

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Protozoa - Ameba/Giardia

HIGH POLYPARASITISM BURDEN IN EL SALVADORIAN CHILDREN: *TRYPANOSOMA CRUZI* AND GASTROINTESTINAL PARASITES

Melissa S. Nolan¹, Mary K. Lynn¹, Stanley Rodriguez², William E. Murcia³, Maria J. Villar-Mondragon⁴, Rojelio Mejia⁴

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Protozoa - Other Protozoa

PREVALENCE AND PHYLOGENETIC ANALYSIS OF TOXOPLASMA GONDII OF DOMESTIC AND STRAY DOGS AND CATS IN KOREA FROM 2016-2017

Yun Sang Cho, Yeojin Park, Jinhyeong Noh, Hyun-Ji Seo, Keun-Ho Kim, Subin Min, Mi-Sun Yoo, Bo-Ram Yun, Jong-Ho Kim, Eun-Jin Choi, Doo-Sung Cheon, Sung-Jong Hong, Soon-Seek Yoon

Animal and Plant Quarantine Agency, Gimcheon, Republic of Korea

DEVELOPMENT OF A LOOP-MEDIATED ISOTHERMAL AMPLIFICATION ASSAY (LAMP) TO SPECIFICALLY DETECT *TRICHOMONAS TENAX*

Maurice A. Matthew, Chaoqun Yao

Ross University School of Veterinary Medicine, Basseterre, Saint Kitts and Nevis

EXPLORATION OF MOLECULAR DETECTION TECHNIQUES USED TO DIAGNOSE *CYCLOSPORA CAYETANENSIS*

Alexandria Albano, Ana Sanchez

Brock University, St. Catharines, ON, Canada

PREVALENCE AND GENOTYPING OF *TOXOPLASMA GONDII* IN PREGNANT WOMEN ATTENDING THE ARISTIDE LE DANTEC UNIVERSITY HOSPITAL IN DAKAR, SENEGAL

Ibrahima Mbaye Ndiaye

Cheikh Anta Diop University of Dakar, Dakar, Senegal

TRANSCRIPTOMIC CHARACTERIZATION OF THE EARLY HOST RESPONSE TO *BABESIA ROSSI* INFECTION

Rachel L. Smith¹, Amelia Goddard², Johan Schoeman², Arun Boddapati³, Steven Brooks¹, Justin Lack³, Andrew Leisewitz², Hans Ackerman¹

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Poster Session B Viewing

Poster Hall

Tuesday, November 17

1:15 p.m. - 7 p.m. U.S. Eastern Time Zone

Break

Tuesday, November 17

1:15 p.m. - 1:45 p.m. U.S. Eastern Time Zone

Symposium 50

From Detection to Therapy: The Continuum of Cancer Care in a Global Context

Meeting Room 1

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Cancer is a leading cause of global mortality resulting in more than 8.2 million deaths annually. Over the past 50 years, cancer diagnostics and treatment has greatly improved, leading to increased patient survival, particularly among those living in high-income countries (HICs). However, the majority of those with cancer live in low-and-middle-income countries (LMICs) where case fatality rates can approach 65-75%. Consequently, understanding the issues faced by clinicians practicing in LMIC is vital to improving global cancer outcomes. Clinicians caring for cancer patients in LMIC face unique challenges including delayed patient presentation, lack of robust healthcare infrastructure, limited access to trained oncology staff, and decreased availability of cancer therapies including anti-neoplastic drugs and advanced treatments such as hematopoietic stem cell transplantation (HSCT). These challenges are particularly pronounced in settings with high HIV-endemicity, since chronic HIV-related inflammation and immunosuppression are linked to increased malignancy risk. In HICs, robust screening programs and creation of healthcare systems to improve cancer-care retention have been key to decreasing mortality. However, the ability to adapt these interventions to a lower resource setting remains a challenge. Even in middle-income countries like Thailand where there is access to advanced cancer therapy such as HSCT, the high cost of post-transplant monitoring and the presence of tropical infectious diseases must be considered. For patients who relocate from LMICs to HICs, cultural and language differences as well as the challenges of navigating complex healthcare systems create barriers that lead to disparities in uptake of cancer-screening services. This symposium will provide practical information regarding the diagnosis and treatment of cancer within a global context. To reflect the breadth of this subject, we will highlight key issues across diverse practice sites and patient demographics. These include: (1) the management of cancer in patients with HIV living in sub-Saharan Africa, (2) the challenges of performing HSCT in Southeast Asia, particularly focusing on the management of infectious complications such as tuberculosis and tropical infectious diseases, (3) the use of quality-improvement strategies and electronic medical resources to identify barriers to treatment, improve access to care, and increase patient retention in cancer programs located in low-resource settings, and (4) the unique

considerations of cancer screening among immigrants and refugees living in high-resource settings. This symposium will equip clinicians to care for cancer patients across multiple settings and highlight this growing area of clinical concern.

CHAIR

Elizabeth A. Gulleen

Fred Hutchinson Cancer Research Center, Seattle, WA, United States

Beth Kristine Thielen

University of Minnesota, Minneapolis, MN, United States

1:45 p.m.

BONE MARROW TRANSPLANTATION IN SOUTHEAST ASIA

Kitsada Wudhikarn

Chulalongkorn University, Bangkok, Thailand

2:15 p.m.

USE OF INFORMATION SYSTEMS TO RELENTLESSLY IMPROVE THE QUALITY OF HEALTHCARE

Scott Howard

University of Tennessee, Memphis, TN, United States

2:45 p.m.

CANCER SCREENING IN IMMIGRANTS AND REFUGEES IN THE UNITED STATES

Ann Settgaest

University of Minnesota, Minneapolis, MN, United States

Symposium 51

Severe Tropical Diseases in the ICU: An Anatomical Tour

Meeting Room 2

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

The aim of this symposium is to provide the most up-to-date science and clinical protocols for patients requiring ICU-level care of their acute tropical infectious disease. Given the increasing intersection of tropical disease epidemiology with capacity improvements in areas endemic for tropical diseases, the care of such patients is becoming increasingly germane. This symposium will illuminate the current challenges and opportunities around specific tropical infectious diseases with severe manifestations.

CHAIR

Andrea K. Boggild

University of Toronto, Toronto, ON, Canada

Robert Fowler

University of Toronto, Toronto, ON, Canada

1:45 p.m.

MALARIA

Mahalia S. Desruisseaux

Yale University School of Medicine, New Haven, CT, United States

2 p.m.

RABIES

Corey Forde

Queen Elizabeth Hospital, Bridgetown, Barbados

2:20 p.m.
SCRUB TYPHUS

Priscilla Rupali
Christian Medical College Vellore, Vellore, India

2:45 p.m.
YELLOW FEVER

Braulio M. Valencia
University of New South Wales, Kensington, Australia

Symposium 52

Washington, DC: The Intersection of Science Advocacy, Policy and Social Media

Meeting Room 3

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

In both style and impact, the U.S. federal scientific enterprise has never before experienced such waves of decisions from the White House and its administration that affect research, programs, funding and policy. In these politically charged and fiscally challenging times where science is under attack, scientists must take steps to help those outside their research circles better understand what they do and why. This includes the public, the media and policy makers. The overwhelming majority of decision makers are not scientists or health professionals and as a result, they look at the issues through lenses very different from someone with years, perhaps decades of science training and experience. As a whole, the research community is late (and reluctant) in thinking and acting like constituents. What are the Top 10 things you need to know about U.S. government funding for the issues that ASTMH cares so deeply about? Who are the key actors? How best to use social media platforms like Twitter to inform others about the value of tropical medicine and global health overall, including your own efforts? How do you convey the value of your work to those who play a role in increasing or cutting support for the work you do every day? Talking longer or offering more data points is a surefire way to hasten the end of any meeting or conversation. What are the do's and don'ts? Learn how to connect with policymakers, and your family and friends who likely don't really know what you do (whose fault is that?). Listen to the experienced perspectives from the ASTMH President, the CEO, ASTMH's PR firm and its Washington, DC-based lobbyist.

CHAIR

Karen A. Goralesski
American Society of Tropical Medicine and Hygiene, Arlington, VA, United States

1:45 p.m.
ADVOCATING FOR R&D FUNDING - THE WHO, WHAT, WHERE, WHY AND HOW

Jodie Curtis
The District Policy Group, Washington, DC, United States

2:05 p.m.
ADVOCATING FOR GLOBAL HEALTH R&D RULE #1: AVOID SCIENCE SPEAK

Karen A. Goralesski
American Society of Tropical Medicine and Hygiene, Arlington, VA, United States

2:25 p.m.
USING SOCIAL MEDIA STRATEGICALLY AND EFFECTIVELY

Gideon Hertz
Burness, Bethesda, MD, United States

2:45 p.m.
SCIENTISTS MUST SPEAK UP FOR SCIENCE

Joel G. Breman
Fogarty International Center, Bethesda, MD, United States

Symposium 53

The Front Lines of an Epidemic: Taking on the First Cases of COVID-19 in the United States

Meeting Room 4

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

In December of 2019, the appearance of a novel pneumonia disease (since named COVID-2019) was announced by authorities in Wuhan, China. Within 2 months, over 80,000 cases and almost 3000 deaths had been confirmed worldwide. The United States initially had only a limited number of cases identified through travel screening and embarked upon a policy of identification and quarantine (voluntary or required) of at risk individuals with close monitoring. Individuals found to be positive for the virus were isolated and when necessary transferred to a health care institution for care. Although recommendations of the WHO and CDC allowed for care in any hospital facility with the capacity for negative pressure isolation and the use of contact, aerosol, and eye protection personal protective equipment, many of these patients were routed to Regional Ebola and Special Pathogens Treatment Centers (RESPTCs). In this symposium we will present the challenges and quandaries faced by RESPTCs in caring for these patients, the public health issues surrounding quarantine, isolation, and patient placement, barriers to rapid implementation of research, and the role of the NETEC network in supporting these units and the national response.

CHAIR

Susan L. McLellan
University of Texas Medical Branch, Galveston, TX, United States

1:45 p.m.
INTRODUCTION: WHERE WE WERE THEN IN OUR UNDERSTANDING, AND WHAT WERE THE PUBLIC HEALTH DILEMMAS?

Susan McLellan
University of Texas Medical Branch, Galveston, TX, United States

2 p.m.
CARING FOR THE FIRST SICK PATIENT

Jonathan Grein
Cedars Sinai Medical Center, Los Angeles, CA, United States

2:20 p.m.**ACCEPTING A BOLUS OF PATIENTS**

Angela Hewlett

*University of Nebraska Medical Center, Omaha, NE, United States***2:40 p.m.****OPERATIONALIZING A RAPID RESEARCH RESPONSE**

Lauren M. Sauer

*Johns Hopkins University, Baltimore, MD, United States***3 p.m.****THE ROLE OF NETEC IN PREPAREDNESS AND RESPONSE**

Bruce S. Ribner

*Emory University, Atlanta, GA, United States***Scientific Session 54****Bacteriology: Trachoma and Other Bacterial Infections***Meeting Room 5***Tuesday, November 17****1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone****CHAIR**

Diana Martin

CDC, Atlanta, GA, United States

Harry Pickering

*London School of Hygiene & Tropical Medicine, London, United Kingdom***946****MAPPING AND GEOGRAPHIC DISTRIBUTION OF *BURKHOLDERIA PSEUDOMALLEI* IN MYANMAR****Myo Maung Maung Swe**¹, Mo Mo Win², Joshua Cohen¹, Aung Pyae Phy¹, Daniel Parker³, David Dance⁴, Elizabeth Ashley⁴, Frank Smithuis¹¹Myanmar Oxford Clinical Research Unit, Yangon, Myanmar, ²Department of Medical Research, Ministry of Health and Sports, Yangon, Myanmar, ³Department of Population Health and Disease Prevention Program in Public Health, University of California, Irvine, CA, United States, ⁴Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit, Vientiane, Lao People's Democratic Republic**947****DEVELOPMENT AND OPTIMIZATION OF A RAPID TEST FOR TRACHOMA ELIMINATION PROGRAMS****Sarah Gwyn**¹, Scott Nash², E. Kelly Callahan², Andrew W. Nute², Tigist Astale², Ambahun Chernet², Eshetu Sata², Mulat Zerihun², Zerihun Tadesse², Danaya Betha¹, Christian Laurent¹, Diana Martin¹¹CDC, Atlanta, GA, United States, ²The Carter Center, Atlanta, GA, United States**948****GENOMICS OF OCULAR *CHLAMYDIA TRACHOMATIS* AFTER 5 YEARS OF SAFE INTERVENTIONS FOR TRACHOMA IN AMHARA, ETHIOPIA****Harry Pickering**¹, Ambahun Chernet², Eshetu Sata², Mulat Zerihun², Charlotte A. Williams³, Judith Breuer³, Andrew W. Nute⁴, Mahiteme Haile⁵, Taye Zeru⁵, Zerihun Tadesse², Robin L. Bailey¹, E. Kelly Callahan⁴, Scott D. Nash⁴, Martin J. Holland¹¹Department of Clinical Research, London School of Hygiene & Tropical Medicine, London, United Kingdom, ²The Carter Center, Addis Ababa, Ethiopia, ³Division of Infection and Immunity, University College London, London, United Kingdom, ⁴The Carter Center, Atlanta, GA, United States, ⁵Amhara Public Health Institute, Bahir Dar, Ethiopia**950****TRACHOMA ELIMINATION CHALLENGES: INVESTIGATING REASONS FOR RECRUDESCENCE OF TRACHOMA IN FOUR DISTRICTS OF MOZAMBIQUE****Marilia Massangaie**¹, Mariamo Abdala¹, Mawo Fall², Tamimo Momade², Zulficar Bay², Hannah Frawley³, Sabrina Eyob³, Scott McPherson⁴, Jeremiah M. Ngondi³¹Ministry of Health, Maputo, Mozambique, ²RTI International, Maputo, Mozambique, ³RTI International, Washington, DC, United States, ⁴RTI International, RTP, NC, United States**951****THE PREVALENCE OF TRACHOMA IN TREATMENT-NAÏVE NORTH DARFUR REGION: RESULTS FROM POPULATION-BASED BASELINE SURVEYS, NORTH DARFUR, SUDAN****Zeinab Abdalla**¹, Angelia M. Sanders², Balgesa E. Elshafie³, Atif E. Mohammedsalih¹, Andrew W. Nute², Nabil Aziz¹, E. Kelly Callahan², Scott D. Nash²¹The Carter Center, Khartoum, Sudan, ²The Carter Center, Atlanta, GA, United States, ³Sudan Ministry of Health, Khartoum, Sudan**952****TRACHOMA, OCULAR *CHLAMYDIA TRACHOMATIS* INFECTION, AND ANTI-PGP3 SEROLOGY AMONGST CHILDREN IN THE REPUBLIC OF NAURU****Kathleen D. Lynch**¹, Sue Chen Apadinuwe², Tessa Hillgrove³, Stephen B. Lambert⁴, Anasaini T. Cama³, Sara Webster³, Mitchell Starr⁵, Beth Catlett⁵, Emma Harding-Esch⁶, Ana Bakhtiar⁷, Robert Butcher⁸, Chandaleen Garabwan², Anthony W. Solomon⁹, John M. Kaldor¹⁰, **Susana Vaz Nery**¹¹¹Child Health Research Centre, The University of Queensland, Brisbane, Australia, ²Ministry of Health and Medical Services, Denig, Nauru, ³The Fred Hollows Foundation, Melbourne, Australia, ⁴The University of Queensland, Brisbane, Australia, ⁵NSW State Reference Laboratory for HIV, St Vincent's Hospital Sydney, Sydney, Australia, ⁶London School of Hygiene & Tropical Medicine, London, United Kingdom, ⁷The Task Force for Global Health, Decatur, GA, United States, ⁸London School of Hygiene & Tropical Medicine, London, United Kingdom, ⁹Department of Control of Neglected Tropical Diseases, World Health Organization, Geneva, Switzerland, ¹⁰The Kirby Institute, UNSW, Sydney, Australia, ¹¹The Kirby Institute, UNSW, Kensington, Australia**Symposium 55****Sero-Epidemiology: The Future of Enteric Disease Surveillance?***Meeting Room 6***Tuesday, November 17****1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone**

Enteric infections are a significant cause of preventable morbidity and mortality in communities lacking access to clean water and sanitation infrastructure. For many bacterial pathogens, detection in some low- and middle-income settings is still reliant on culture methods that are slow, less sensitive than newer tools, and require robust laboratory capabilities. Passive, clinic-based case detection underestimates disease incidence, both due to sub-optimal diagnostic standards and barriers to health care utilization, making it difficult to accurately estimate the potential impact of disease control efforts. Advances in disease control strategies, such as the recent availability of typhoid conjugate vaccine (TCV), offer great promise in reducing disease burden. However, there is a need for robust and granular population-based data to inform how best to target control interventions. Serological markers for enteric infections have historically suffered from cross-reactivity and limited specificity. Recent advances in antigen discovery, new assay platforms, and machine learning techniques have provided emerging opportunities for measuring enteric disease burden by

sero-epidemiology. Sero-epidemiology represents a promising alternative approach to culture-dependent methods to detect where, how frequently and in whom enteric infections are occurring in the community. In the absence of sustained population-based surveillance, serological surveillance may be a more versatile and cost-effective approach to evaluating the burden of disease. This symposium brings together perspectives on the use of sero-epidemiological tools, with a specific focus on data from enteric infections research in Asia and Africa. This session will describe work in African and Asian contexts to evaluate new approaches to assessing the burden of enteric disease using serological markers of infection. The speakers will present new data from the work to develop sero-epidemiological tools to measure transmission and burden of typhoid in Bangladesh, Nepal and Pakistan, cholera in Bangladesh and Cryptosporidium, Campylobacter, Giardia, Salmonella spp. and Enterotoxigenic E. coli in Niger. Additional talks will point towards next steps for point-of-care testing. The presenters will describe the measurement of sero-prevalence, sero-conversion and sero-reversion (waning) of antibody responses in high and low-burden communities.

CHAIR

Denise Garrett

Sabin Vaccine Institute, Washington, DC, United States

Farah Qamar

Aga Khan University, Karachi, Pakistan

1:45 p.m.

NEW ADVANCES IN SEROEPIDEMIOLOGY FOR ENTERIC FEVER

Richelle C. Charles

Massachusetts General Hospital, Boston, MA, United States

2:10 p.m.

SERO-EPIDEMIOLOGY FOR TYPHOID SURVEILLANCE: METHODS AND RESULTS FROM THE SEES STUDY

Jessica Seidman

Sabin Vaccine Institute, Washington, DC, United States

2:20 p.m.

SERO-EPIDEMIOLOGY FOR TYPHOID SURVEILLANCE: METHODS AND RESULTS FROM THE SEES STUDY

Kristen Aiemjoy

Stanford University, San Francisco, CA, United States

2:45 p.m.

ADVANCES IN ESTIMATING VIBRIO CHOLERAE INFECTION RATES WITH CROSS-SECTIONAL SEROLOGY

Andrew Azman

Johns Hopkins School of Public Health, Baltimore, MD, United States

3:15 p.m.

EFFECT OF BIENNIAL MASS AZITHROMYCIN DISTRIBUTION ON SEROLOGICAL MEASURES OF ENTERIC PATHOGEN TRANSMISSION AMONG PRESCHOOL CHILDREN IN NIGER

Benjamin Arnold

University of California, San Francisco, San Francisco, CA, United States

Symposium 56

American Committee of Medical Entomology (ACME) Symposium II: The Origin of ACME: Past, Present and Future of Medical Entomology

Meeting Room 7

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

The American Committee of Medical Entomology was established 35 years ago. The initial formation was spearheaded by Charlie Bailey with support from many of the prominent leaders in the field at the time. ACME's many accomplishments include achieving its objectives of promoting medical entomology in the ASTMH, recognizing outstanding contributions by medical entomologists, and ensuring the next generation of medical entomologists. While the field of medical entomology has made countless advances, we still require core foundations in entomology and the ecology of vector-borne diseases in nature. Although, the field has faced many challenges with the global spread of arthropod vectors and the emergence of new vector-borne diseases, we also continue to battle some of the same disease systems. For example, the first ACME symposium was 'Rift Valley Fever Virus – Field Ecology, Vector Competence and Control', which remains a system that threatens human and animal health. The aim of this symposium is to help retain the knowledge of how ACME was formed, highlight the accomplishments of ACME, and showcase the future of the field of medical entomology.

CHAIR

Gabriel Hamer

Texas A&M University, College Station, TX, United States

Ellen Dotson

Centers for Disease Control and Prevention, Atlanta, GA, United States

1:45 p.m.

NOT WILE E. COYOTE'S ACME, THE ORIGIN OF OUR ACME

Michael Turell

VectorID LLC, Frederick, MD, United States

2:05 p.m.

ACCOMPLISHMENTS OF ACME: 35 YEARS OF EXCELLENCE IN MEDICAL ENTOMOLOGY

Rebekah Kading

Colorado State University, Fort Collins, CO, United States

2:30 p.m.

WHEN VECTOR CONTROL HITS THE WALL: REDUCING THE RISK FOR CHAGAS DISEASE THROUGH INTEGRATED VECTOR AND RESERVOIR CONTROL

Pamela Pennington

Universidad del Valle de Guatemala, Guatemala, Guatemala

2:50 p.m.

HOST AND HABITAT ASSOCIATIONS FOR AN URBAN IXODID TICK COMMUNITY

Meredith VanAcker

Columbia University, New York, NY, United States

Scientific Session 58

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Malaria - Molecular Mechanisms of Pathogenesis

Meeting Room 9

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Supported with funding from the Burroughs Wellcome Fund

CHAIR

Keri Harp

Morehouse School of Medicine, Atlanta, GA, United States

Alexis Kaushansky

Seattle Children's Hospital, Seattle, WA, United States

1659

A NOVEL PROTEIN COMPLEX IS ESSENTIAL FOR THE MATURATION OF TRANSMISSION-STAGE MALARIA PARASITES

Rebecca Clements¹, Esrah W. Du², James P. McGee², Vincent Strevia², Jeffrey D. Dvorin²

¹Biological and Biomedical Sciences, Harvard Medical School, Boston, MA, United States,

²Division of Infectious Diseases, Boston Children's Hospital, Boston, MA, United States

1660

SHIFTING PERSPECTIVES: A MODIFICATION TO THE LIFE CYCLE OF TRYPANOSOMA BRUCEI

Jaime Lisack, Sarah Schuster, Ines Subota, Markus Engstler

Universität Würzburg, Bavaria, Germany

953

PLASMODIUM FALCIPARUM GROWTH IN ERYTHROCYTES IS GOVERNED BY HEMOGLOBIN GENOTYPE AND ENDOGENOUS EXOSOMAL MICRORNA LET-7I-5P

Keri Oxendine Harp¹, Daniel Addo-Gyan², Felix Botchway³, Yvonne Dei-Adomakoh⁴, Michael D. Wilson², Andrew A. Adjei³, Jonathan K. Stiles¹, Adel Driss¹

¹Morehouse School of Medicine, Atlanta, GA, United States, ²Noguchi Memorial Institute for Medical Research, University of Ghana, Accra, Ghana, ³Korle-Bu Teaching Hospital, University of Ghana Medical School, Accra, Ghana, ⁴Korle Bu Teaching Hospital, Accra, Ghana

954

VARIATIONS WITHIN NFKBIA AND NFKB1 PROMOTERS PREDICT LONGITUDINAL SUSCEPTIBILITY TO PEDIATRIC MALARIAL ANEMIA AND REDUCED ALL-CAUSE MORTALITY IN KENYA

Elly Munde¹, Samuel B. Anyona², Evans Raballah³, Benjamin McMahon⁴, Nick Hengartner⁴, Kristan A. Schneider⁵, Clinton Onyango⁶, Ivy Hurwitz⁶, Qiuying Cheng⁶, Christophe G. Lambert⁶, Collins Ouma⁷, Douglas J. Perkins⁶

¹Kirinyaga University School of Health Science, Kerugoya, Kenya, ²Maseno University School of Medicine, Maseno, Kenya, ³Masinde Muliro University of Science and Technology, Kakamega, Kenya, ⁴Theoretical Biology and Biophysics Group, Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM, United States, ⁵Department Applied Computer and Bio Sciences, University of Applied Sciences Mittweida, Mittweida, Germany, ⁶Center for Global Health, Department of Internal Medicine, University of New Mexico, Albuquerque, NM, United States, ⁷Maseno University School of Public Health and Community Development, Maseno, Kenya

(ACMCIP Abstract)

955

MECHANISMS BY WHICH GENETIC VARIATION IN ATP2B4 MAY PROTECT FROM SEVERE MALARIA

Fatou Joof¹, Elena Hartmann², Alison Jarvis², Alhassan Colley¹, Marion Avril³, Andrew M. Prentice¹, Carla Cerami¹

¹Medical Research Council, The Gambia Unit at London School of Tropical Medicine and Hygiene, Banjul, Gambia, ²The University of Manchester, Manchester, United Kingdom, ³University of Washington, Seattle, WA, United States

(ACMCIP Abstract)

956

ERYTHROCYTES CLEARANCE DURING POST-TREATMENT DELAYED HEMOLYSIS IN SEVERE MALARIA: THE BIOMECHANICAL HYPOTHESIS

Charlotte Chambion¹, Mallorie Depond², Oussama Mour³, Sylvestre Biligui³, Michael Dussiot⁴, Eric Kendjo³, Aurélie Fricot-Monsinjon², Aida Taieb³, Camille Roussel¹, Jérôme Cros⁵, Safi Dokmak⁵, Ilhame Tantaoui³, Nicolas Argy⁶, Sandrine Houze⁶, Renaud Piarroux³, Jean-Yves Siriez⁷, Sébastien Larréché⁸, Marc Thellier³, Pierre Buffet¹, Papa Alioune Ndour¹

¹INSERM U1134 INTS. French National Reference Center for Malaria. Labex GRex, Paris, France, ²INSERM U1134 INTS. Labex GRex, Paris, France, ³French National Reference Center for Malaria, Hôpital Pitié Salpêtrière, Paris, France, ⁴Université de Paris, Labex GR-EX, Paris, France, ⁵APHP Beaujon, Paris, France, ⁶Hôpital Xavier Bichat-Claude Bernard, French National Reference Center for Malaria, Paris, France, ⁷Hôpital Robert-Debré, Paris, France, ⁸Département de Biologie Médicale, Hôpital d'Instruction Des Armées Bégin, Paris, France

957

DUFFY-NEGATIVE AND DUFFY-POSITIVE PLASMODIUM VIVAX SHARED SIMILAR GENE POOL INDICATIVE OF FREQUENT TRANSMISSION IN EAST AFRICA

Daniel Kepple¹, Alfred Hubbard², Karen Lopez², Kareen Pestana¹, Musab Ali³, Beka Raya⁴, Daniel Janies², Muzamil Hamid³, Delenasaw Yewhalaw⁴, Eugenia Lo¹

¹Biological Sciences, University of North Carolina at Charlotte, Charlotte, NC, United States, ²Bioinformatics and Genomics, University of North Carolina at Charlotte, Charlotte, NC, United States, ³Department of Parasitology and Medical Entomology, Institute of Endemic Diseases, University of Khartoum, Khartoum, Sudan, ⁴Tropical Infectious Disease Research Center, Jimma University, Jimma, Ethiopia

Symposium 59

Leishmania Vaccine Development: From Research and Development to Licensure

Meeting Room 10

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Leishmaniasis is a neglected tropical disease caused by the Leishmania parasite following transmission by an infected sand fly and causes different clinical presentations ranging from physical disfigurement to fatal systemic visceral infection. Over 12 million people currently suffer from leishmaniasis, and approximately 2 million new cases occur annually, predominantly in areas where surveillance and health infrastructure are weak. There is no vaccine and management of leishmaniasis is primarily based on sand fly control and chemotherapeutic treatments. The majority of the patients with leishmaniasis [both cutaneous leishmaniasis (CL) and visceral leishmaniasis (VL)] develop a long-term protective immunity after cure, indicating that development of an effective vaccine against leishmaniasis should be possible. Several experimental vaccines such as whole organisms (both live and dead) or antigens both from sand fly saliva and parasite have shown promise in pre-clinical studies in different animal

models, yet few have been tested in clinical trials. With over 350 million people worldwide at risk of developing leishmaniasis, the development of a pan-Leishmania vaccine will have a major and far-reaching positive impact in controlling this major global public health problem.

CHAIR

Hira Nakhasi
USFDA, Silver Spring, MD, United States

Abhay Satoskar
The Ohio State University, Columbus, OH, United States

1:45 p.m.

LEISHMANIA VACCINES: CURRENT STATUS, CHALLENGES AND POTENTIAL SOLUTIONS.

Greg Matlashewski
McGill University, Montreal, QC, Canada

2:05 p.m.

HUMAN CHALLENGE MODEL FOR LEISHMANIA VACCINES.

Paul Kaye
University of York, Heslington, York, United Kingdom

2:25 p.m.

SELECTION OF OUTCOME MEASURES FOR EARLY STAGE CLINICAL DEVELOPMENT AND LINKING THEM TO PRECLINICAL STUDIES

Kawsar R. Talaat
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

2:35 p.m.

SELECTION OF OUTCOME MEASURES FOR EARLY STAGE CLINICAL DEVELOPMENT AND LINKING THEM TO PRECLINICAL STUDIES

John J. Donnelly
Vaccinology Consulting LLC, Moraga, CA, United States

2:50 p.m.

LEISHMANIA VACCINE: POSSIBILITIES AND CHALLENGES FOR DEVELOPING A SUCCESSFUL LIVE ATTENUATED PRODUCT

Sanjay Singh
Gennova Biopharmaceuticals, Pune, India

Symposium 60

How to Combat Tropical Zoonoses beyond Medical Interventions: Global One Health Reflecting COVID-19

Meeting Room 11

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

An increasing number of zoonotic diseases are emerging as global pandemics. Despite between 65-75% of emerging infectious diseases being of mammalian origin, there is still limited understanding by the general public and medical establishment about zoonoses, where they come from and how best to talk about them to assuage panic. This symposium will explore the role and utility of better education and understanding of zoonotic infections to provide guidance to public health and medical professionals from a Global One Health point of view. The session will highlight instances where use of a reservoir host provides critical tools

for intervention and where poor understanding of how these reservoirs contribute to human disease prevents appropriate intervention(s). The topics will span the full breadth of tropical disease epidemiology; from communication and social network tools; transmission mechanisms of zoonoses demonstrated via mathematical modeling; and live market challenges and potential interventions to prevent the next COVID-19.

CHAIR

Christine Petersen
University of Iowa, Iowa City, IA, United States

Ann Stewart
USUHS, Bethesda, MD, United States

1:45 p.m.

PREVENTING MUTUAL DESTRUCTION: HOW PANIC AND MISINFORMATION ABOUT ANIMAL INFECTION DURING AN OUTBREAK CAN BE REFOCUSSED INTO EFFECTIVE INTERVENTION

Ryan Wallace
Centers for Disease Control and Prevention, Atlanta, GA, United States

2:10 p.m.

HOW AGRICULTURAL ANIMAL RESEARCH BENEFITS GLOBAL PUBLIC HEALTH

Cyril G. Gay
USDA, Manhattan, KS, United States

2:35 p.m.

THE CANADIAN ONE HEALTH NETWORK FOR GLOBAL GOVERNANCE FOR INFECTIOUS DISEASE AND ANTIMICROBIAL RESISTANCE – BRINGING SOCIAL AND HEALTH SCIENTISTS TOGETHER TO BETTER PREPARE AND RESPOND TO ONE HEALTH EMERGENCIES AND CONSTANT CHALLENGES

Hélène Carabin
University of Montreal, Montreal, ON, Canada

3 p.m.

INSIGHTS FROM TRANSMISSION MODELLING: WHY ZOOSES CAN BECOME PANDEMICS AND HOW TO INTERRUPT TRANSMISSION"

Epke Le Rutte
Erasmus MC, Rotterdam, Netherlands

Scientific Session 61

Coronaviruses and Alphaviruses

Meeting Room 12

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Desiree LaBeaud
Stanford University, Stanford, CA, United States

Amanda E. Calvert
Centers for Disease Control and Prevention, Fort Collins, CO, United States

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CORONAVIRUS SURVEILLANCE IN CONGO BASIN WILDLIFE DETECTS RNA OF MULTIPLE SPECIES CIRCULATING IN BATS AND RODENTS

Christian E. Lange¹, Charles Kumakamba², Fabien R. Niama³, Maria Makuwa⁴, Amethyst Gillis⁵, Matthew LeBreton⁶, David McIver⁷, Damien Joly⁸, Karen Saylors⁴
¹Metabiota, Inc, San Francisco, CA, United States, ²Metabiota, Inc, Kinshasa, Democratic Republic of the Congo, ³National Laboratory of Public Health, Brazzaville, Republic of the Congo, ⁴Labyrinth Global Health, Inc, St Petersburg, FL, United States, ⁵Development Alternatives, Inc., Washington, DC, United States, ⁶Mosaic, Yaounde, Cameroon, ⁷University of California, San Francisco, CA, United States, ⁸British Columbia Ministry of Environment and Climate Change Strategy, Victoria, BC, Canada

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CLINICAL AND EPIDEMIOLOGIC FEATURES ASSOCIATED WITH MILD OR EARLY COVID-19 IN AN OUTPATIENT SETTING

Jessica K. Fairley¹, Taylor Landay², Amy Sherman¹, Henry M. Wu¹, Matthew H. Collins¹
¹Emory University School of Medicine, Atlanta, GA, United States, ²Emory Rollins School of Public Health, Atlanta, GA, United States

961

COMPREHENSIVE IMMUNE PROFILING OF CHIKUNGUNYA AND DENGUE VIRAL RESPONSES USING A NOVEL MINIATURIZED AUTOMATED WHOLE BLOOD CELLULAR ANALYSIS SYSTEM AND MASS CYTOMETRY (CYTOF) IN A PEDIATRIC COHORT IN MSAMBWENI, KENYA

Sangeeta Kowli¹, Amy Krystosik², Matthew Hale³, Francis Mutuku⁴, Jael Sagina⁵, Saidi Lipi⁶, Phillip K. Chebii⁵, Priscilla W. Maina⁵, Elysse Grossi-Soyster², Holden T. Maecker¹, **Desiree LaBeaud**²
¹Human Immune Monitoring Center, Stanford University, School of Medicine, Stanford, CA, United States, ²LaBeaud Laboratory, Stanford University, School of Medicine, Department of Pediatrics, Division of Infectious Disease, Stanford, CA, United States, ³Smart Tube Inc., Menlo Park, CA, United States, ⁴Department of Environment and Health Sciences, Technical University of Mombasa, Mombasa, Kenya, ⁵Vector-borne disease control unit, Msambweni field station, Kwale County, Kenya

962

RISK FACTORS ASSOCIATED WITH CHIKUNGUNYA AND DENGUE EXPOSURE AMONG CHILDREN IN COASTAL AND WESTERN KENYA

Shama Cash-Goldwasser¹, Jonathan Altamirano¹, Bryson Ndenga², Loice Lwamba², Sandra Musaki², Charles Muiruri Ng'ang'a³, Said Lipi Malumbo³, Jael Sagina Amugongo³, Francis Mutuku⁴, A. Desiree LaBeaud¹
¹Stanford University, Stanford, CA, United States, ²Kenya Medical Research Institute, Kisumu, Kenya, ³Vector Borne Disease Control Unit, Msambweni, Kenya, ⁴Technical University of Mombasa, Mombasa, Kenya

964

A MONOCLONAL ANTIBODY MAPPING TO THE FUSION LOOP OF EASTERN EQUINE ENCEPHALITIS VIRUS E1 GLYCOPROTEIN CROSS-NEUTRALIZES VENEZUELAN EQUINE ENCEPHALITIS VIRUS IN VITRO BY SEVERAL MECHANISMS

Amanda E. Calvert¹, Susan L. Bennett², Rachel H. Fong³, Benjamin J. Doranz³, John T. Roehrig², Carol D. Blair²
¹Centers for Disease Control and Prevention, Fort Collins, CO, United States, ²Colorado State University, Fort Collins, CO, United States, ³Integral Molecular, Philadelphia, PA, United States

Symposium 62**A World in Transition: Human Movement and Health in the Context of a Changing Climate***Meeting Room 13***Tuesday, November 17****1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone**

Climate changes interact dynamically with human movement as well as other natural and human systems to shape human health and disease. In the near future, these processes will be drivers of major disruptions in the distribution of human health concerns. The direct effects of climate on infectious disease risk are complicated by the multi-faceted intersections of climate change with human mobility and migration, both voluntary and reactionary, short term and permanent. Human movement, either through daily transit, seasonal travel, or large-scale migration can impact infectious disease transmission, and introduce novel exposures into previously naïve populations. Increasing travel and global connectedness alter transmission routes and complicate public health interventions to control climate-sensitive infectious diseases. Unstable climate in regions with low infrastructure-resilience is leading to the displacement of the most vulnerable populations, creating 'climate refugees'. Large-scale climate-related disasters, in concert with a highly mobile and globally connected population are increasingly linked to major infectious disease outbreaks. The convergence of climate shifts with rapid changes in human behavior, travel, and global connectivity is linked to recurrent outbreaks of novel and emerging infectious diseases and contributes to sustained global pandemics. These complex, dynamic systems demand novel interdisciplinary research approaches to predict, mitigate, and prevent significant human disease. This symposium brings together a multi-disciplinary panel of experts on climate change, displaced populations, human movement, and their contributions to human disease. The first two presentations will take a broad view on the relationship between climate-related disaster, global change, and the globalization of disease, and the remaining two presentations will focus on location-specific research into the impacts of changing human mobility patterns on infectious disease spread and the health consequences of climate-related migration. Bringing together experts in engineering, mathematics, epidemiology, and environmental research, this session will highlight the need for interdisciplinary approaches to tackling climate and disease.

CHAIR

Andrea Geri Buchwald
 Colorado School of Public Health, Aurora, CO, United States

Jenna Coalson
 University of Notre Dame, Eck Institute for Global Health, Notre Dame, IN, United States

1:45 p.m.**THE DUAL IMPACTS OF CLIMATE CHANGE AND URBANIZATION ON ECOLOGICALLY CONSTRAINED DISEASES**

Elizabeth Carlton
 University of Colorado, Denver, Aurora, CO, United States

2:05 p.m.

CHARACTERIZING HUMAN MOBILITY PATTERNS IN LOW-INCOME SETTINGS TO IMPROVE MALARIA INTERVENTION STRATEGIES

Hannah Meredith

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

2:25 p.m.

ROLE OF FINE SCALE HUMAN MOBILITY IN DENGUE PREVENTION AND CONTROL STRATEGIES

Valerie Paz-Soldan

Tulane University School of Public Health and Tropical Medicine, New Orleans, LA, United States

2:45 p.m.

MODELING COVID-19 IN WILDLAND FIREFIGHTING CAMPS IN THE WESTERN UNITED STATES

Jude Bayham

Colorado State University, Fort Collins, CO, United States

Symposium 63

Innovations Pitch Competition Session for Healthy Children, Healthy Planet

Meeting Room 14

Tuesday, November 17

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

For the 3rd Annual Innovations Pitch Competition session, we will focus on the interconnectivity of children's current and future health with planetary health and sustainability. This year we challenged innovators to provide proposals that support a healthier, more sustainable world, with a particular focus on benefit for future generations. Innovations should be rooted in scientific rigor, and Innovators should be able to demonstrate that their innovation will benefit the health of our planet and will impact children's health today and in the future. We put out the call for innovative ideas that address, but are not limited to 1) climate change and consequences to humans and animals, 2) mitigating childhood vaccine-preventable disease risks through social communication and new technology, and, 3) delivering better risk assessment decision tools for measuring planetary health risks and predicting global health actions. Innovators were invited to submit a 3-page proposal. Each proposal was reviewed by 3 members of the ASTMH Innovations expert group, which we have cultivated over the past 2 years. Selection of 5 finalists was based on the scientific novelty and rigor, impact, marketability, sustainability, and demonstrable benefit to children and future generations. The top 5 finalists have been invited to pitch their innovation 'live' at the ASTMH 2020 Annual Meeting. Each finalist will give a rapid-fire pitch in front of a judging panel and audience, following by a question and answer with the judges and audience. The winner will be determined using a weighted score of both judging panel decision and audience voting. Audience participation and real-time voting will be through the use of an interactive application. All finalists will receive a cash prize. The first place winner will receive a monetary award (\$10,000), access to marketing advice, and a private pitch session with relevant potential investors.

Many thanks to the Ronald McDonald House Charities (RMHC) for their funding. A special thank you to Past President Peter Hotez, MD, PhD, FASTMH, FAAP, recipient of the 2019 RMHC Awards of Excellence, for sharing his grant award with ASTMH. Many thanks also to Roche for their contribution.

CHAIR

May C. Chu

Colorado School of Public Health, Aurora, CO, United States

Molly Lamb

Colorado School of Public Health, Aurora, CO, United States

JUDGE

Daniel G. Bausch

UK Public Health Rapid Support Team, London, United Kingdom

Rebecca Richards-Kortum

Rice University, Houston, TX, United States

Matthias Strobl

Roche Diagnostics GmbH, Penzberg, Germany

Minmin Yen

CEO and Co-Founder, PhagePro, Boston, MA, United States

FINALISTS

Adam Soomro

Frisco, TX, United States

Molly Klarman

Director, INACT Studies and Education Coordinator, University of Florida, Gainesville, FL, United States

Sreekar Mantena

Undergraduate Student, Harvard University, Cambridge, MA, United States

Lok Pokhrel

Assistant Professor of Toxicology, Eastern Carolina University, Greenville, SC, United States

Prince Kajazi Kaude, RN

Community Health Nurse, Daeyang Luke Hospital, Lilongwe, Malawi

Break

Tuesday, November 17

3:30 p.m. - 3:45 p.m. U.S. Eastern Time Zone

Sponsored Symposium

Food for Thought: "Food Evolution"- Narrated by Neil DeGrasse Tyson, Featuring Bill Nye, Mark Lynas & Michael Pollan

Grand Ballroom

Tuesday, November 17

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Sponsored by Bayer

See page 44 for information.

Wednesday, November 18

Press Room

Wednesday, November 18

The ASTMH media team is available for assistance at the following:

- Preeti Singh psingh@burness.com, tel: +1 703-862-2515
- Bridget DeSimone, bdesimone@burness.com, tel: +1 202-468-0766
- Anna Chen, achen@burness.com, tel: +1 215-262-7670

Review research highlights and more: <https://astmhpressroom.wordpress.com/annual-meeting-2020/>

ASTMH Information Desk

Lobby

Wednesday, November 18

8 a.m. - 5:30 p.m. U.S. Eastern Time Zone

Poster Session C Viewing

Poster Hall

Wednesday, November 18

Midnight - 11:45 a.m. U.S. Eastern Time Zone

ASTMH/AJTMH Booth

Stop by to learn about GOTropMed, the new ASTMH Global Online Tropical Medical Education website, download a copy of the Inclusion/Respect Policy, check out the latest from the Journal, learn about membership, and more.

Exhibit Hall

Visit the Exhibit Hall to view the schedule for each exhibit booth and connect with our exhibitors and learn about their products and services.

Sponsor Hall

Visit the Sponsor Hall to connect with our sponsors and learn about their work.

Subgroup Hall

Visit the Subgroup Hall to connect with ASTMH's Subgroups: ACAV (Arbovirology), ACCTMTH (Clinical Group), ACGH (Global Health), ACMCIP (Parasitology), and ACME (Medical Entomology)

TropMed Central

Visit TropMed Central to connect with colleagues and attendees.

Symposium 64

Strengthening Malaria Surveillance Systems: Do We Have a Good Understanding of the Level of Investment Needed?

Meeting Room 1

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

In the current epidemiological context where national malaria programs are addressing multiple transmission settings within country boundaries, surveillance techniques must be robust and multifaceted. These data allow program managers to take appropriate, tailored action. However, investments in such surveillance systems, estimated at 5-10% of the malaria intervention budget, may detract from other critical malaria interventions and efforts if resources (financial, human, or otherwise) are limited. Furthermore, while malaria endemic countries are adding surveillance as an intervention in their strategic plans, there is limited understanding of how much it costs to set up and sustain a strong and effective malaria surveillance systems, and to track value for money across the transmission continuum. Better understanding of the cost, coupled with empirical evidence, is important for strategic planning and for advocating for investment in malaria surveillance strengthening, especially in the context in which countries are treating it as an intervention. This symposium will bring lessons learned from Southeast Asia and sub-Saharan Africa to highlight current work on costing surveillance systems. An initial presentation will discuss strategies to establish an operational and financial framework for malaria surveillance. Representatives of two national malaria programs will share country-level experience with costing surveillance, monitoring, and evaluation plans, including lessons learned and persistent challenges. The presentations will conclude with the results of a mapping that has been done to identify existing tools and gaps. The co-chairs will moderate a discussion on how to use existing evidence to best address challenges and gaps in costing malaria surveillance systems.

CHAIR

Jui Shah

RTI International, Bangkok, Thailand

Yazoume Ye

ICF, Rockville, MD, United States

9 a.m.

DEVELOPING AN OPERATIONAL AND FINANCIAL FRAMEWORK FOR A HIGHLY EFFECTIVE SURVEILLANCE SYSTEM IN A RESOURCE LIMITED ENVIRONMENT

Arnaud Le Menach

Clinton Health Access Initiative, Washington, DC, United States

9:15 a.m.

ZAMBIA: COSTING THE MALARIA SURVEILLANCE, MONITORING, AND EVALUATION PLAN

Busiku Hamainza

National Malaria Elimination Centre, Lusaka, Zambia

9:30 a.m.

THAILAND: KEY ELEMENTS IN COSTING AN EFFECTIVE SURVEILLANCE SYSTEM FOR AN ELIMINATION SETTING

Cheewan Lertpiriyasawat

Division of Vector-Borne Disease (Thailand), Nonthaburi, Thailand

9:45 a.m.

LOOKING TOWARD THE FUTURE: TOOLS AND GAPS IN COSTING MALARIA SURVEILLANCE SYSTEMS

Ebenezer Sheshi Baba

World Health Organization, Brazzaville, Republic of the Congo

Symposium 65

Ivermectin and Antimalarial Mass Drug Administration for Malaria Control and Elimination: Preliminary Field Trial Results and Trial Designs

Meeting Room 2

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Ivermectin mass drug administration (MDA) to humans and/or livestock has been proposed as potential vector control tools to accelerate malaria elimination efforts. The mainstays of malaria vector control, insecticide-treated nets and indoor residual spraying with insecticides, have been very effective at reducing the global malaria burden but efforts are beginning to stall and even reverse in some areas. Thus, novel vector control tools are needed, particularly methods that can target vectors outside the home. Ivermectin treatment makes human or animal blood lethal to feeding *Anopheles*, and this measure can directly target outdoor and early evening biting *Anopheles*. Ivermectin MDAs to humans in West Africa have been shown to reduce the survival, shift the population age structure, and reduce the sporozoite rate of wild *Anopheles gambiae*, which in turn reduces malaria parasite transmission to humans. Ivermectin alone will not clear treated persons of their malaria infections, so efforts have been made to assess the safety of ivermectin and antimalarial drugs. Two clinical trials administering ivermectin and dihydroartemisinin-piperaquine in Kenya and Thailand demonstrated the safety, tolerability, and pharmacokinetic interaction that caused increased ivermectin concentrations when co-administered with dihydroartemisinin-piperaquine, and subsequent enhanced mosquito-lethal effect. MDAs with ivermectin alone combined with mass ivermectin treatment of livestock are planned for Mozambique and Tanzania. MDAs with ivermectin and dihydroartemisinin-piperaquine are being evaluated in The Gambia and Guinea-Bissau in two large cluster-randomized trials. Modeling indicates that the addition of ivermectin to dihydroartemisinin-piperaquine will reduce the number of rounds and time necessary to achieve malaria elimination. Seasonal Malaria Chemoprevention (SMC) is the monthly administration of sulfadoxine-pyrimethamine plus amodiaquine during the malaria transmission season to children 3-59 months old in the Sahel of Africa. Modeling indicates that combining SMC with ivermectin MDA to eligible persons = 5 years old would be extremely impactful, and this combination is being assessed in Burkina Faso. Ivermectin-only treatments in low transmission areas outside of Africa where it is more common for malaria vectors to feed outdoors, such as the Greater Mekong Subregion, may be more impactful as few people will harbor malaria parasites, reducing justification for combining ivermectin with antimalarial drugs, and this is being assessed in Thailand. Preliminary results or trial designs from each of these trials will be presented here.

CHAIR

Kevin C. Kobylinski

Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand

Carlos J. Chaccour

ISGlobal Barcelona Institute for Global Health, Barcelona, Spain

9 a.m.

MASS DRUG ADMINISTRATION OF IVERMECTIN AND DIHYDROARTEMISININ-PIPERAQUINE AS AN ADDITIONAL INTERVENTION FOR MALARIA ELIMINATION (MASSIV); RESULTS FROM THE GAMBIA

Umberto D'Alessandro

MRC Unit The Gambia at the London School of Hygiene and Tropical Medicine Disease Control & Elimination Theme, Fajara, Gambia

9:25 a.m.

IVERMECTIN MDA TO HUMANS COMBINED WITH SEASONAL MALARIA CHEMOPROPHYLAXIS (RIMDAMALII); RESULTS FROM BURKINA FASO

Brian D. Foy

Colorado State University, Fort Collins, CO, United States

10 a.m.

IMPACT OF IVERMECTIN MDA TO HUMANS ON ENTOMOLOGICAL OUTCOMES; RESULTS FROM THAILAND

Kevin C. Kobylinski

Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand

Symposium 66

Lessons from the National Malaria Elimination Program in China

Meeting Room 3

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Major achievements in reducing the burden of malaria during the past two decades have been followed by a stagnation in progress. Renewed efforts to pursue the Global Technical Strategy are required, in particular for countries focusing on elimination as there is no single intervention or package to achieve elimination that can be uniformly applied to different settings. The elimination, or interruption of transmission, requires that elimination strategies are tailored to a given endemic setting along with its social, cultural and economic context. Malaria was once a serious public health problem in the People's Republic of China (P. R. China), with at one stage more than 30 million cases annually occurring. After 1980 and the implementation of integrated malaria control programs, the disease burden sharply declined. Tremendous progress was seen following the launch of the national malaria elimination program in P.R. China in 2010; significant changes to the number of indigenous malaria cases occurred given the intervention of proactive surveillance and response approaches, and since 2017 no indigenous case has been reported. It is inspiring that P. R. China is likely to achieve malaria elimination certification later in 2020. The lessons learnt from the national malaria elimination program of China could provide reference to other regions or countries with similar ecological settings aiming to move from malaria control to elimination. Despite the current success, the effort is not over and challenges remain during the post-elimination

stage. If ecological conditions are unchanged and Anopheles mosquitoes remain widespread, once intervention activities cease there is always potential for malaria to be re-introduced and resurge. In recent years, the number of recorded imported falciparum malaria cases has increased with most patients being residents returning from business, tourism or work in malaria highly endemic regions, such as Southeast Asia and Africa. To mitigate risks of reintroduction, malaria surveillance and response activities need to be continue and reinforced. New techniques, such as tracking malaria cases, screening key populations, and multi-lateral cooperation are warranted. The symposium is the one of two joint symposia to share Chinese experiences on malaria elimination in China, including lessons of malaria elimination, from general to case studies, from national level to local level, and from domestic to international cooperation.

CHAIR

Xiao-Nong Zhou

National Institute of Parasitic Diseases at China CDC, Shanghai, China

Pedro Alonso

World Health Organization, Geneva, Switzerland

9 a.m.

STRATEGY AND ACHIEVEMENTS OF THE NATIONAL MALARIA ELIMINATION PROGRAMME IN CHINA

Xiao-Nong Zhou

National Institute of Parasitic Diseases at China CDC, Shanghai, China

9:25 a.m.

SUCCESSFUL CASE STUDIES ON MALARIA ELIMINATION WITH MULTI-PROVINCE COOPERATION IN CHINA

Ying Liu

Henan Provincial Center for Disease Control and Prevention, Zhengzhou, China

9:50 a.m.

MULTI-LATERAL COOPERATION ON MALARIA ELIMINATION IN CHINA-MYANMAR BORDER AREAS

Kay Thwe Han

Department of Medical Research, MoH, Myanmar, Yangon, Myanmar

10:15 a.m.

CASE STUDIES ON CHINA-TANZANIA COOPERATION ON MALARIA CONTROL IN TANZANIA

Prosper Pius Chaki

Ifakara Health Institute, Dar es Salaam, United Republic of Tanzania

10:40 a.m.

SUMMARY

Pedro Alonso

World Health Organization, Geneva, Switzerland

Scientific Session 67

Zika

Meeting Room 4

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Christina M. Newman

University of Wisconsin-Madison, Madison, WI, United States

Nikos Vasilakis

UTMB Health, Galveston, TX, United States

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DETERMINANTS OF ARBOVIRUS VECTOR DENSITY AS A MEASURE OF TRANSMISSION RISK IN REGIONS OF RECENT ZIKA VIRUS INTRODUCTION IN THE AMERICAS

Benoit Talbot¹, Beate Sander², Camila González³, Varsovia Cevallos⁴, Marcos Miretti⁵, Mauricio Espinel⁶, Jianhong Wu⁷, María Cristina Carrasquilla Ferro³, Mario Iván Ortiz Yanine³, Denisse Benítez⁴, Patricio Ponce⁴, Neris Gauto⁸, Karen López⁹, Claudio Carissimo⁸, Fabián Zelaya⁸, Sergio Litwiński⁶, Manisha A. Kulkarni¹

¹University of Ottawa, Ottawa, ON, Canada, ²University Health Network, Toronto,

ON, Canada, ³Universidad de los Andes, Bogotá, Colombia, ⁴Instituto Nacional

de Investigación en Salud Pública, Quito, Ecuador, ⁵UNAM-CONICET, Posadas,

Argentina, ⁶Universidad Laica Elroy Alfaro de Manabí, Manta, Ecuador, ⁷York University,

Toronto, ON, Canada, ⁸Municipalidad de Posadas, Posadas, Argentina

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CARING FOR CHILDREN EXPOSED TO ZIKA VIRUS PRENATALLY

Viviana Rosario-Villafañe, Irelis C. Repollet-Carrer, Marilyn Borges-Rodríguez, Paola B. Velázquez-González, Vanessa Rivera-Amill, Mary Rodriguez-Rabassa, **Luisa I. Alvarado-Domenech**

Ponce Health Sciences University, Ponce, PR, United States

967

RAPID HOST ADAPTATION AND EMERGENCE OF A VIRULENCE-ENHANCING MUTATION DURING SERIAL VERTEBRATE TRANSMISSION OF ZIKA VIRUS

Kasen Riemersma¹, Anna Jaeger², Chelsea Crooks¹, Katarina Braun¹, James Weger-Lucarelli³, Greg Ebel⁴, Thomas Friedrich¹, Matthew Aliota²

¹University of Wisconsin, Madison, WI, United States, ²University of Minnesota, St.

Paul, MN, United States, ³Virginia Tech, Blacksburg, VA, United States, ⁴Colorado State

University, Fort Collins, CO, United States

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EARLY FETAL DEMISE FOLLOWING INTRAVAGINAL ZIKA VIRUS CHALLENGE IN RHESUS MACAQUES

Christina M. Newman¹, Alice F. Tarantal², Christopher J. Miller², David H. O'Connor¹

¹University of Wisconsin-Madison, Madison, WI, United States, ²California National

Primate Research Center, Davis, CA, United States

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THE INFLUENCE OF TYPE 1 INTERFERON ON PROGRAMMING THE ZIKA VIRUS SPECIFIC T-FOLLICULAR HELPER CELL AND B CELL RESPONSE

Tara L. Steffen, Mariah Hassert, Amelia K. Pinto, James D. Brien

Saint Louis University, Saint Louis, MO, United States

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A ROBUST NONHUMAN PRIMATE PREGNANCY MODEL TO TEST ZIKA VIRUS COUNTERMEASURES

Dawn M. Dudley¹, Keisuke Yamamoto¹, Phoenix M. Shepherd¹, Meghan E. Breitbart¹, Christina M. Newman¹, Kathryn Bach¹, Mason I. Bliss², Sierra L. Rybarczyk², Emily Sneed², Heather A. Simmons², Andres Mejia², Michael K. Fritsch¹, Emma L. Mohr¹,

Karla K. Ausderau¹, Matthew T. Aliota³, Thomas C. Friedrich¹, David H. O'Connor¹

¹University of Wisconsin-Madison, Madison, WI, United States, ²Wisconsin National

Primate Research Center, University of Wisconsin-Madison, Madison, WI, United

States, ³University of Minnesota, St. Paul, MN, United States

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CLARIFYING THE CONGENITAL ZIKA SYNDROME PHENOTYPE AND EXPANDING TO CONGENITAL ZIKA SPECTRUM

Laura D. Zambrano¹, Augustina Delaney¹, Charles E. Rose¹, Suzanne Gilboa¹, Van Tong¹, Miguel Valencia², Nicole M. Roth¹, Janet Cragan¹, Jazmyn Moore¹, J. Erin Staples¹, Margaret Honein¹, Cynthia Moore¹

¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Puerto Rico Department of Health, San Juan, PR, United States

Symposium 68

Triple Artemisinin Combination Therapies: A New Paradigm for the Treatment of Uncomplicated falciparum Malaria?

Meeting Room 5

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Artemisinin Combination Therapies (ACTs) have contributed to substantial reductions in global malaria morbidity and mortality over the last decade. However, further gains are threatened by the emergence of artemisinin and partner drug resistance in Southeast Asia. A major concern is that artemisinin and partner drug resistance may spread across a wider geographic area, as chloroquine resistance did in the 1960s and 1970s, moving from Southeast Asia to the Indian subcontinent and subsequently to Africa, which bears the vast majority of the global malaria burden. New antimalarial drugs may not come to the market within the next 5 years or more. There is an urgent need to evaluate alternative treatments using combinations of existing drugs which will not fall rapidly to resistance and can be deployed immediately. These treatments are needed now for areas in the Greater Mekong Subregion where ACTs are increasingly failing. For regions where ACTs are still effective, including Sub-Saharan Africa, it is important to develop strategies to prevent the spread or delay the emergence of artemisinin and ACT partner drug resistance. Triple Artemisinin Combination Therapies (TACTs) could be part of such a strategy. They were first tested in a study titled Tracking Resistance to Artemisinin Collaboration II (TRACII), where the second partner drug was carefully selected based on the pharmacokinetic profiles of the drugs and resistance profiles of parasites to these drugs. This randomized study, conducted in 8 countries, enrolling >1000 patients, was the first study to show that two TACTs, dihydroartemisinin-piperaquine with mefloquine and artemether-lumefantrine with amodiaquine, are safe, well tolerated and efficacious even in patients with multi-drug resistant uncomplicated falciparum malaria. The results of clinical studies with these TACTs in the TRACII study and a follow-up study in Cambodia and Vietnam, which might directly inform first-line antimalarial treatment in Cambodia in the near future will be presented. Drug-drug interactions observed during these studies that have implications on dosing regimens will be presented. The results of TRACII led to further development of TACTs in a project titled Development of Triple Artemisinin Combination Therapies (DeTACT), which will be presented. The DeTACT project takes a holistic approach to provide evidence needed for immediate deployment of TACTs in Asia and Africa. In association with the DeTACT project, mathematical modeling of the impact of deploying TACTs in different settings of drug resistance and malaria transmission intensities will be presented. Similarly, as part of the DeTACT project, the ethical considerations of deploying these TACTs in Africa will be presented.

CHAIR

Arjen M. Dondorp

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

Mehul J. Dhorda

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

9 a.m.

THE "DEVELOPMENT OF TRIPLE ARTEMISININ COMBINATION THERAPIES (DETECT)" PROJECT

Chanaki Amaratunga

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

9:15 a.m.

SAFETY, TOLERABILITY, AND EFFICACY OF TRIPLE ARTEMISININ COMBINATION THERAPIES

Rupam Tripura

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

9:40 a.m.

PHARMACOKINETIC AND PHARMACODYNAMIC ASPECTS OF TRIPLE ARTEMISININ COMBINATION THERAPIES

Richard Hoglund

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

10 a.m.

MODELING THE IMPACT OF TRIPLE ARTEMISININ COMBINATION THERAPIES ON THE EVOLUTION OF DRUG-RESISTANT MALARIA

Maciej F. Boni

Pennsylvania State University, University Park, PA, United States

10:20 a.m.

ETHICAL CONSIDERATIONS OF DEPLOYING TRIPLE ARTEMISININ COMBINATION THERAPIES IN AFRICA

Phaik Yeong Cheah

Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

Symposium 69

Surveillance of Malaria: Sampling Strategies, Technical Tools and Analytic Methods to Most Accurately Represent Sampled Populations

Meeting Room 6

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Surveillance data that report key variables of the disease in a way that is representative of the population surveyed are essential for programmatic intervention and effective disease control. In malaria, population representative surveillance is often dependent on data collected from health centers through systems like DHIS2. This reporting is often supplemented by occasional large population surveys, such as Malaria Indicator Surveys (MIS). Moreover, a plethora of information is derived from convenience sampling and other sentinel site studies, in particular for antimalarial resistance. Each of these approaches has limitations and critical populations for malaria surveillance are missed by each of these approaches. In addition, new technologies for analysis of biological samples are available that are scalable and inexpensive enough to provide additional information about malaria epidemiology. However, the wide implementation of these techniques at a national or regional scale has been slow, in part by a lack of firm recommendations about their collection and analysis. This symposium will explore issues about implementation of population representative surveillance and novel methods for understanding the burden of malaria in these studies. The first talk will focus on understanding current surveillance, the

gaps that are missed by these methods and guidance on how to implement assessment for malaria in a population representative way. The second talk will focus on new high-throughput genomics tools that can be added to population surveys to provide additional data missed by simple prevalence estimates. The third talk will focus on implementation and challenges of serological surveillance at a population level. The last talk will describe novel simulation methods that allow for the evaluation of study designs for genomic studies of malaria on a population scale. Together, these talks will highlight the challenges and potential solutions for providing rapid and accurate population representative surveillance data that can be useful for malaria control programs.

CHAIR

Carol Hopkins Sibley
University of Washington, Seattle, WA, United States

Jonathan J. Juliano
University of North Carolina, Chapel Hill, NC, United States

9 a.m.

MALARIA ROUTINE SURVEILLANCE DATA: MAKING USE OF STRENGTHS AND ADDRESSING THE WEAKNESSES

Katherine E. Battle
Institute for Disease Modeling, Bellevue, WA, United States

9:30 a.m.

SEROLOGY FOR MALARIA SURVEILLANCE

Chris Drakeley
London School of Hygiene and Tropical Medicine, London, United Kingdom

10 a.m.

POWERING SAMPLING DESIGNS FOR GENETIC APPLICATIONS

Robert J. Verity
Imperial College, London, United Kingdom

Late-Breaker Abstract Session 70

Late-Breakers in Malaria

Meeting Room 8

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

This session is specifically designed for brief presentations of new data obtained after the closing date for abstract submission. See Late-Breaker Abstract Presentation Schedule booklet (available online) for the presentation schedule.

CHAIR

Miranda Oakley
FDA, Silver Spring, MD, United States

Silvia M. Di Santi
São Paulo University, São Paulo, Brazil

Scientific Session 71

Malaria Epidemiology I: Infection and Disease in High-Transmission Settings

Meeting Room 9

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Francisca Abanyie-Bimbo
Centers for Disease Control and Prevention, Atlanta, GA, United States

Sumaiyya G. Thawer
Swiss Tropical and Public Health Institute, Dar-es-Salaam, United Republic of Tanzania

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CROSS BORDER SURVEILLANCE IN SOUTHERN ANGOLA: AN ANALYSIS OF RESULTS ACHIEVED AFTER THREE YEARS (2017-2020) OF ACTIVITY IMPLEMENTATION

José Franco Martins¹, Joana Rosário², Rukaaka Mugizi², Paulo Máquina², Nyasha Mwendera³, Anna Johansson⁴, Sergio Lopes⁵, Julio Ramirez⁵
¹National Malaria Control Program, National Directorate for Public Health, Ministry of Health Angola, Luanda, Angola, ²Elimination 8 Secretariat, Luanda, Angola, ³Elimination 8 Secretariat, Windhoek, Namibia, ⁴ADPP Angola – Ajuda de Desenvolvimento de Povo para Povo, Luanda, Angola, ⁵The MENTOR Initiative, Luanda, Angola

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A MALARIA MICRO-STRATIFICATION APPROACH TO SUPPORT EVIDENCE-BASED DECENTRALIZED MALARIA CONTROL PLANNING AND IMPLEMENTATION IN MAINLAND TANZANIA

Sumaiyya G. Thawer¹, Victor Alegana², Frank Chacky³, Sigsbert Mkude⁴, Peter M. Macharia⁵, Samwel Lazaro⁶, Ally Mohamed⁶, Christian Lengeler¹, Amanda Ross¹, Robert W. Snow⁷, Fabrizio Molteni⁸, Emilie Pothin⁹
¹Swiss Tropical and Public Health Institute/ University of Basel, Basel, Switzerland, ²Population Health Unit, KEMRI-Welcome Trust Research Programme, Nairobi, Kenya, ³National Malaria Control Programme, Ministry of Health, Community Development, Gender, Elderly, and Children, Dodoma, United Republic of Tanzania, ⁴Swiss Tropical and Public Health Institute, Dar es Salaam, United Republic of Tanzania, ⁵Population Health Unit, KEMRI-Welcome Trust Research Programme, Nairobi, Kenya, ⁶National Malaria Control Programme, Ministry of Health, Community Development, Gender, Elderly, and Children, Dodoma, United Republic of Tanzania, ⁷Population Health Unit, KEMRI-Welcome Trust Research Programme/ Centre for Tropical Medicine and Global Health, Nuffield Department of Clinical Medicine, University of Oxford, Nairobi, Kenya, ⁸Swiss Tropical and Public Health Institute/ National Malaria Control Programme, Dar es Salaam, United Republic of Tanzania, ⁹Swiss Tropical and Public Health Institute/ University of Basel/Clinton Health Access Initiative, Basel, Switzerland

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PLASMODIUM MALARIAE INFECTION IS ASSOCIATED WITH ANEMIA AMONG FEBRILE PATIENTS PRESENTING TO AN URBAN EMERGENCY DEPARTMENT IN DOUALA, CAMEROON

Daniel Z. Hodson¹, Yannick M. Mbarga², Tatiana Nganso³, Glwadys Cheteug N⁴, Abigail D. Pershing⁵, Narcisse M. Nghokeng², Martina Wade⁶, Carole E. Eboumbou Moukoko³, Sunil Parikh⁶, Yap Boum II⁷
¹Yale University School of Medicine, New Haven, CT, United States, ²Douala Military Hospital, Douala, Cameroon, ³Pasteur Center of Cameroun, Yaoundé, Cameroon, ⁴University of Buea, Buea, Cameroon, ⁵Yale Law School, New Haven, CT, United States, ⁶Yale School of Public Health, New Haven, CT, United States, ⁷Médecins Sans Frontières/Epicentre, Yaoundé, Cameroon

975

PREDICTORS AND THE EFFECTS ON BIRTH OUTCOMES OF PLASMODIUM FALCIPARUM INFECTION IN EARLY PREGNANCY AMONG NULLIPAROUS WOMEN FROM THE DEMOCRATIC REPUBLIC OF THE CONGO, KENYA, AND ZAMBIA

Sequoia Iris Leuba¹, Melissa Bauserman¹, Carl Bose¹, Daniel Westreich¹, Kimberly Powers¹, Andrew Olshan¹, Antoinette Tshetu², Waldemar Carlo³, Elwyn Chomba⁴, Edward Liechty⁵, Fabian Esamai⁶, Saleem Jessani⁷, Janet Moore⁸, Jennifer Hemingway-Foday⁹, Steven Meshnick¹
¹University of North Carolina at Chapel Hill, Chapel Hill, NC, United States, ²Kinshasa School of Public Health, Kinshasa, Democratic Republic of the Congo, ³University of Alabama at Birmingham, Birmingham, AL, United States, ⁴University Teaching Hospital, Lusaka, Zambia, ⁵School of Medicine, Indiana University, Indianapolis, IN, United States, ⁶Department of Child Health and Paediatrics, Moi University School of Medicine, Eldoret, Kenya, ⁷Aga Khan University, Karachi, Pakistan, ⁸RTI International, Research Triangle Park, NC, United States

976

ESTIMATING CASES OF SEVERE MALARIA AT THE POPULATION-LEVEL: AN ANALYSIS OF HOUSEHOLD SURVEYS FROM 19 MALARIA ENDEMIC COUNTRIES IN AFRICA

Cameron Taylor¹, Sorrel Namaste¹, Joanna Lowell², Johanna Useem¹, Yazoumé Yé³

¹The DHS Program-ICF, Rockville, MD, United States, ²The DHS Program-Vysnova Partners, Rockville, MD, United States, ³PMI Measure Malaria-ICF, Rockville, MD, United States

1155

SEASONAL MALARIA CHEMOPREVENTION WITH SULFADOXINE-PYRIMETHAMINE PLUS AMODIAQUINE AND GAMETOCYTE CARRIAGE IN CHILDREN WITH ASYMPTOMATIC PLASMODIUM FALCIPARUM INFECTIONS

Abdullahi Ahmad, Mamadou Ndiath, Aurelia Prom, Blessed Etoketim, Mamadou Bah, Bennoit Assogba, Umberto D'Alessandro

Medical Research Council Unit The Gambia at the London School of Hygiene and Tropical Medicine, Banjul, Gambia

Scientific Session 72

Malaria: Plasmodium Genetics and Genomics

Meeting Room 10

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Xue Li

Texas Biomedical Research Institute, San Antonio, TX, United States

Shannon Takala Harrison

University of Maryland School of Medicine, Baltimore, MD, United States

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COMPARATIVE GENOMIC ANALYSIS OF RIFIN AND STEVOR VARIANT SURFACE ANTIGENS REVEALS HIGHLY CONSERVED, STRAIN-TRANSCENDENT SEQUENCES AND LIMITED DIVERSITY IN CLINICAL AND REFERENCE ISOLATES

Albert E. Zhou¹, Zalak V. Shah¹, James B. Munro¹, Katie R. Bradwell¹, Emily M. Stucke¹, Kara A. Moser¹, Drissa Coulibaly¹, Mahamadou A. Thera¹, Chanthap Lon², Dysoley Lek³, Stuart D. Tyner², David L. Saunders⁴, Myaing M. Nyunt⁵, Christopher V. Plowe⁵, Andrea A. Berry¹, Shannon Takala-Harrison¹, Timothy D. O'Connor¹, David Serre¹, Joana C. Silva¹, Mark A. Travassos¹

¹University of Maryland School of Medicine, Baltimore, MD, United States, ²Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand, ³The National Center for Parasitology, Entomology and Malaria Control, Ministry of Health, Phnom Penh, Cambodia, ⁴US Army Research Institute of Infectious Diseases, Ft. Detrick, MD, United States, ⁵Duke Global Health Institute, Duke University, Durham, NC, United States

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EFFICIENT MAPPING OF COMPLEX TRAITS IN THE MALARIA PARASITE PLASMODIUM FALCIPARUM USING GENETIC CROSSES AND BULK SEQUENCING

Xue Li¹, Sudhir Kumar², Kate Vendrely³, Marina McDew-White¹, Ann Reyes¹, Katie Button-Simons³, Abeer Sayeed¹, Lisa Checkley³, Meseret Haile², Spencer Kennedy², Ian Cheeseman¹, Stefan Kappe², Francois Nosten⁴, Michael Ferdig³, Ashley Vaughan², Tim Anderson¹

¹Texas Biomedical Research Institute, San Antonio, TX, United States, ²Seattle Children's Research Institute, Seattle, WA, United States, ³University of Notre Dame, Notre Dame, IN, United States, ⁴Shoklo Malaria Research Unit, Mae Sot, Thailand

980

MICROGEOGRAPHIC EPIDEMIOLOGY OF MALARIA PARASITES REVEALED BY MULTIPLEXED, DEEP AMPLICON SEQUENCING AT A SUGAR CANE FACTORY, ETHIOPIA: A HYBRID REPEATED CROSS-SECTIONAL AND PASSIVE CASE DETECTION DESIGN TO STUDY THE IMPACTS OF MIGRATION AND IRRIGATION IN A LOW TRANSMISSION SETTING

Elizabeth Hemming-Schroeder¹, Daibin Zhong², Lauren Bradley², Delenesaw Yewhalaw³, James W. Kazura¹, Guiyun Yan²

¹Case Western Reserve University, Cleveland, OH, United States, ²University of California, Irvine, Irvine, CA, United States, ³Jimma University, Jimma, Ethiopia

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PLASMODIUM POPULATION STRUCTURE IN MALARIA LOW TRANSMISSION AREAS OF SOUTH AMERICA: HOW CLOSE ARE WE TO ELIMINATION?

Fabian E. Saenz¹, Claudia A. Vera-Arias¹, Eileen C. Velez-Alvarez¹, Bibiana Salazar¹, Luis E. Castro², Javier Gomez-Obando³, Manuel Calvopiña⁴

¹Pontificia Universidad Católica del Ecuador, Quito, Ecuador, ²Ministerio de Salud Pública del Ecuador, Guayaquil, Ecuador, ³Ministerio de Salud Pública del Ecuador, San Lorenzo, Ecuador, ⁴Universidad de las Américas, Quito, Ecuador

983

CONTRASTING EPIDEMIOLOGY AND GENETIC VARIATION OF DUFFY NEGATIVE PLASMODIUM VIVAX ACROSS AFRICA

Eugenia Lo¹, Daniel Kepple¹, Kareen Pestana¹, Beka Raya², Muzamil Mahdi Hamid³, Delenasaw Yewhalaw², Gianluca Russo⁴, Giacomo Paganotti⁵

¹University of North Carolina Charlotte, Charlotte, NC, United States, ²Jimma University, Jimma, Ethiopia, ³University of Khartoum, Khartoum, Sudan, ⁴Sapienza University of Rome, Rome, Italy, ⁵Botswana - University of Pennsylvania Partnership, Gaborone, Botswana

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COMPARATIVE PLASMODIUM FALCIPARUM POPULATION GENETIC STRUCTURES IN COGNATE HUMAN AND MOSQUITO HOSTS IN WESTERN KENYA

Kelsey M. Sumner¹, David Rasmussen², Elizabeth Freedman³, Lucy Abel⁴, Andrew Obala⁵, Steven R. Meshnick¹, Wendy Prudhomme-O'Meara³, Steve M. Taylor³

¹University of North Carolina at Chapel Hill, Chapel Hill, NC, United States, ²North Carolina State University, Raleigh, NC, United States, ³Duke University, Durham, NC, United States, ⁴Moi Teaching and Referral Hospital, Eldoret, Kenya, ⁵Moi University, Eldoret, Kenya

(ACMCIP Abstract)

Symposium 73

Clinical Conundrums in Tropical Medicine

Meeting Room 11

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

During this symposium updates on the management of neurocysticercosis, refractory giardia, treatment and screening of Chagas disease and an update on approach to echinococcal disease will be covered. The first talk, Neurocysticercosis Update on Management of Disease, will focus on subarachnoid disease and calcified parenchymal disease addressing emerging literature by the leading expert in the field. The second talk, Unraveling the Complexity of Testing and Treating Chagas Disease, will review how to approach and develop a robust screening program for Chagas disease. The speaker will also address approaches to treatment of Chagas disease and complications of treatment.

The third talk, Refractory Giardia: A Bloaty Issue, will review epidemiology of refractory giardia and approach to treatment. The last talk, Echinococcus: Cases that Blur the Line, will review approach to imaging, diagnosis and management of Echinococcus and complications of disease.

CHAIR

Christina Coyle

Albert Einstein College of Medicine, Bronx, NY, United States

Michael Libman

J.D. MacLean Centre for Tropical Diseases at McGill University, Montreal, Canada

9 a.m.

UNRAVELING THE COMPLEXITY OF TESTING AND TREATING CHAGAS DISEASE

Natasha Hochberg

Boston University, Boston, MA, United States

9:20 a.m.

ECHINOCOCCUS: CASES THAT BLUR THE LINE

Christina Coyle

Albert Einstein College of Medicine, Bronx, NY, United States

9:40 a.m.

REFRACTORY GIARDIASIS: A BLOATY ISSUE

Michael Libman

MacClean Centre for Tropical Medicine, Quebec, United States

10 a.m.

NEUROCYSTICERCOSIS: UPDATE ON MANAGEMENT OF DISEASE

Hugo Garcia

Cayetano Heredia University, Lima, Peru

Symposium 74

Antimicrobial Resistant Bacterial Infections as a Cause of Stillbirths and Child Death in Low- and Middle-Income Countries: From Evidence to Treatment and Prevention Strategies

Meeting Room 12

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Globally, bacterial resistance to antibiotics has been steadily increasing and is a major public health concern. Strong surveillance for resistant infections is limited to higher income countries where the resources and awareness about prevention are strongest. Nonetheless, resistant strains continue to emerge in new areas, and increasingly, are resistant to multiple antibiotics or are untreatable with available antibiotics. Relatively little evidence is available on the burden of antimicrobial resistant bacterial infections in low- and middle-income countries, where prevention programs are weak or non-existent. Healthcare facilities can be contaminated, leading to outbreaks, but increasing evidence suggests that resistant infections are carried by health community members. The Child Health and Mortality Prevention Surveillance (CHAMPS) project is a seven-country study aiming to identify the etiology of child deaths and stillbirths through use of minimally invasive tissue sampling postmortem. Some of the countries participating in this network – Bangladesh,

Kenya, and South Africa – are beginning to identify the burden of antimicrobial resistant infections as causes of stillbirths and child deaths, providing important insights into the true burden of these infections, and the threat they pose to global gains in child survival. This symposium will present new findings about infections from CHAMPS sites as well as current recommendations for control and prevention. The speakers will discuss the implications of emerging evidence from the unprecedented sampling and surveillance efforts from these countries and recommendations for changes to local or global policies in light of the improving understanding of burden of resistant infections.

CHAIR

Emily Gurley

Johns Hopkins Bloomberg School of Public Health, Baltimore, United States

Beth Barr

CDC-Western Kenya, Kisumu, Kenya

9 a.m.

IMPORTANCE OF INFECTION CONTROL FOR RESISTANT INFECTIONS – EXAMPLE FROM A NEONATAL INTENSIVE CARE UNIT

Portia Mutevedzi

Chris Hani Baragwanath Academic Hospital, Soweto, South Africa

9:20 a.m.

THE ROLE OF UNTREATABLE INFECTIONS IN STILLBIRTHS AND NEONATAL DEATHS

Muntasir Alam

ICDDR,B, Dhaka, Bangladesh

9:40 a.m.

RESISTANT KLEBSIELLA PNEUMONIAE INFECTIONS CAUSING DEATH – CAN THESE OCCUR IN THE COMMUNITY?

Jennifer Verani

US Centers for Disease Control and Prevention, Atlanta, United States

10 a.m.

GLOBAL EFFORTS TO PREVENT DRUG RESISTANT INFECTIONS: WHAT IS WORKING AND WHAT ELSE IS NEEDED TO REDUCE IMPACT ON CHILD MORTALITY

Benjamin Park

US Centers for Disease Control and Prevention, Atlanta, United States

Scientific Session 75

Mosquitoes: Vector Biology - Epidemiology I

Meeting Room 13

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Evelyn A. Olanga

Malaria Alert Centre of the College of Medicine, Malawi, Blantyre, Malawi

Michel Slotman

Texas A&M University, College Station, TX, United States

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USING THE M-LOCUS GENE *NIX* FOR *AEDES AEGYPTI* SPERM QUANTIFICATION

Miguel Ángel Toro-Londoño, Frank W. Avila

Max Planck Tandem Group in Mosquito Reproductive Biology - Universidad de Antioquia, Medellín, Colombia

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THE RAPID DETECTION OF ZIKA, DENGUE AND CHIKUNGUNYA VIRUSES IN *Aedes Aegypti* MOSQUITOES TO PRODUCE A RAPID RESPONSE VECTOR CONTROL

Gabriela A. Garcia¹, Lilha M. Santos¹, Mariana R. David¹, Marcio G. Pavan¹, Maggy Sikulu-Lord², Anton Lord³, Rafael Maciel-de-Freitas¹
¹Oswaldo Cruz Foundation, Rio de Janeiro, Brazil, ²School of Public Health, University of Queensland, Brisbane, Australia, ³QIMR Berghofer Medical Research Institute / School of Public Health, University of Queensland, Brisbane, Australia

988

INDICES OF HUMAN EXPOSURE TO *ANOPHELES* BITES IN CENTRAL AND SOUTHERN MALAWI

Evelyn A. Olanga¹, Nellie C. Kaunde¹, Eggrey A. Kambewa¹, Judith S. Banda¹, Christopher M. Jones², Lisa Reimer³, Charles Wondji⁴, Philip McCall³, Hilary Ranson³, Themba Mzilahowa¹
¹Malaria Alert Centre of the College of Medicine, Malawi, Blantyre, Malawi, ²Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi, ³Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ⁴Centre for Research in Infectious Diseases, Yaounde, Cameroon

989

RAPID INDUCTION OF APOPTOSIS IN *Aedes Aegypti* MIDGUTS FOLLOWING DENGUE-2 OR ZIKA VIRUS INFECTION

Jasmine Blue Ayers, Rhoel Dinglasan, Lei Zhou
 University of Florida, Gainesville, FL, United States

990

USING MULTI-SCALE REMOTELY SENSED DATA TO UNDERSTAND SPATIO-TEMPORAL PATTERNS IN MALARIA RISK IN CENTRAL MALAWI: HOW HIGH DO WE NEED TO FLY?

Patrick K. Kalonde¹, Christopher M. Jones¹, Kennedy K. Zembere¹, Michelle C. Stanton²
¹Malawi-Liverpool-Wellcome Trust, Blantyre, Malawi, ²Liverpool School of Tropical Medicine, Liverpool, United Kingdom

588

NEW METHODS FOR MODELING *ANOPHELES GAMBIAE* S.L. MOVEMENT WITH ENVIRONMENTAL AND GENETIC DATA

Tomás M. León¹, Héctor M. Sánchez Castellanos¹, Yoosook Lee², John M. Marshall¹
¹University of California, Berkeley, Berkeley, CA, United States, ²University of California, Davis, Davis, CA, United States

Scientific Session 76

Filariasis: Epidemiology and Control I

Meeting Room 14

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

CHAIR

Krufinta Bun
 Case Western Reserve University, Cleveland, OH, United States

Tara Brant
 Centers for Disease Control and Prevention, Atlanta, GA, United States

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ALTERNATIVE TREATMENT STRATEGIES IN ACCELERATING ONCHOCERCIASIS ELIMINATION IN THE MASSANGAM HEALTH DISTRICT IN CAMEROON

Kareem Atekem¹, Ruth Dixon², Rogers Nditanchou¹, Benjamin Biholong³, Joseph Oye¹, Hugues Nana Djeunga⁴, Philippe Nwane⁴, Franklin Ayisi³, Daniel Boakye⁵, Joseph Kamgno⁴, Elena Schmidt², Laura Senyonjo²
¹Sightsavers, Yaounde, Cameroon, ²Sightsavers, Haywards Heath, United Kingdom, ³National Onchocerciasis Control Program, Ministry of Health, Yaounde, Cameroon, ⁴Centre for Research on Filariasis and other Tropical Diseases (CRFiMT), Yaounde, Cameroon, ⁵Parasitology Department, Noguchi Memorial Institute for Medical Research, University of Ghana, Legon, Accra, Ghana

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COMPARING POST-MDA COVERAGE SURVEY DATA FOR TRACHOMA, ONCHOCERCIASIS AND LYMPHATIC FILARIASIS WITH REPORTED DATA AMONG 14 DISTRICT COUNCILS IN TANZANIA

Veronica Kabona¹, Denis Kailembo¹, Gerald Robi¹, Oscar Kaitaba², Kerry Dobies³, Mary Linehan³, Abdel Direny³, Josh West⁴, Benjamin Crookston⁴
¹IMA World Health, Dar Es Salaam, United Republic of Tanzania, ²Ministry of Health, Dar Es Salaam, United Republic of Tanzania, ³IMA World Health, Washington, DC, United States, ⁴Brigham Young University, Provo, UT, United States

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CHALLENGES OF TRANSMISSION ASSESSMENT SURVEYS (TAS) FOR DETERMINING TRANSMISSION INTERRUPTION FOR LYMPHATIC FILARIASIS IN EAST NEW BRITAIN PROVINCE, PAPUA NEW GUINEA

Krufinta Bun¹, Michael Payne¹, Daniel Tisch¹, Catherine Bjerum¹, Benedict Mode², Moses Laman³, Melinda Susapu⁴, Makoto Sekihara⁵, Peter J. Diggle⁶, Emanuele Giorgi⁶, Leanne Robinson⁷, Gary Weil⁸, Christopher L. King¹
¹Case Western Reserve University, Cleveland, OH, United States, ²East New Britain Provincial Health Department, Kokopo, Papua New Guinea, ³Papua New Guinea Institute of Medical Research, Madang, Papua New Guinea, ⁴National NTD Program, Ministry of Health, Port Moresby, Papua New Guinea, ⁵Japan International Cooperation Agency (JICA), Tokyo, Japan, ⁶Lancaster University, Lancaster, United Kingdom, ⁷Burnet Institute, Melbourne, Australia, ⁸Washington University, St. Louis, MO, United States

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MONITORING IMPACT OF MASS DRUG ADMINISTRATION USING A 3-DRUG REGIMEN ON LYMPHATIC FILARIASIS IN AMERICAN SAMOA

Tara A. Brant¹, Aifili J. Tufa², Fara Utu², Lynette Suiaunua-Scanlan³, June Vaifanua-Leo², Loretta S. Lees², Benjamin Sili², Rebecca J. Chancey¹, Marisa A. Hast¹, Keri L. Robinson¹, Emily A. Dodd¹, Janet Camacho⁴, Emi Chutaró⁴, Kimberly Y. Won¹, Motusa T. Nua²
¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²American Samoa Department of Health, Pago Pago, American Samoa, ³Pacific Island Health Officers' Association, Pago Pago, American Samoa, ⁴Pacific Island Health Officers' Association, Honolulu, HI, United States

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SEGMENTING IMPLEMENTATION UNITS (IUS) DURING PRE-TAS IN HAITI TO STRENGTHEN MASS DRUG ADMINISTRATION (MDA) IN CONFIRMED HOTSPOTS

Carl Renand Fayette¹, Alain Javel¹, Eurica Denis¹, Paul-Emile Dalexis¹, Marc-Aurele Telfort², Ellen Knowles³, Abdel Direny³, Mary Linehan³, Josh West⁴, Benjamin Crookston⁴
¹IMA World Health, Port au Prince, Haiti, ²Ministry of Health and Population, Port au Prince, Haiti, ³IMA World Health, Washington, DC, United States, ⁴Brigham Young University, Provo, UT, United States

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INTERRUPTION OF ONCHOCERCIASIS TRANSMISSION IN NIGERSalissou Adamou¹, Yaobi Zhang², Yaye Youssouf³, Daniel Boakye⁴, Charles Mackenzie⁴, Jamie Tallant⁴, Sashi Leff⁴, Sara Laskowski⁴¹Ministry of Health, Niamey, Niger, ²Helen Keller International, London, United Kingdom, ³Helen Keller International, Niamey, Niger, ⁴END Fund, New York, NY, United States**Symposium 77****Promoting Operational and Financial Sustainability for Neglected Tropical Disease Programs in West Africa: Tools to Estimate the Costs and Benefits and Support Sustainability Planning**

Meeting Room 15

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

NTD programs have made significant progress over the last decade leading to global declines in the burden for five of the NTDs responsive to Preventive Chemotherapy. Act West | NTDs is a USAID-funded project supporting 11 countries in West Africa to achieve elimination and control goals of the five PCT diseases. As programs near elimination targets, sustaining gains met by NTD programs may be challenging as national health programs may prioritize other high-prevalence diseases with higher visibility. To ensure countries are pursuing a greater proportion of financing from local sources, NTD Programs are deploying tools to understand the financial and economic impacts of sustaining their investments and progress. Deloitte has developed and deployed a Sustainability Maturity Model (SMM) to assess and improve national NTD program sustainability along the six sustainability outcomes identified in USAID's Strategy and Framework for Promoting Sustainable NTD Control and Elimination: (i) coordination, (ii) policy, (iii) operational capacity, (iv) strategic information, (v) service delivery, and (vi) financing. The SMM was developed based on Deloitte's Capacity Results Performance Sustainability (CYPRESS) capacity building methodology and adapted to an NTD sustainability context through an extensive review of available scientific and gray literature and systematic input of domain experts. Further, Sierra Leone is currently developing applied cost-effectiveness tools for NTDs to support advocacy for domestic resource mobilization, emphasizing investments made in reducing NTDs, potential benefits of integrated programs and projected gaps in future stakeholder investments and capacity. This symposium will focus on tools being used by countries to support integration and sustainability where PCT NTDs are endemic, highlighting innovations in post-elimination and investment case development to support domestic resource mobilization. An emphasis will be placed on presenting tools that use real data from national programs. Presentations will incorporate applied use of the tool results to support decision-making and advocacy for domestic resource mobilization.

CHAIR

Courtney Johnson

Deloitte Consulting, Washington, DC, United States

Justin Tine

FHI 360, Accra, Ghana

9 a.m.

INTRODUCTION OF THE USAID ACT | WEST PROGRAM AND ITS SPECIFIC FOCUS ON NTD PROGRAM SUSTAINABILITY IN GHANA

Benjamin Marfo

Ghana Health Services, Accra, Ghana

9:15 a.m.

SIERRA LEONE COUNTRY EXPERIENCES USING THE TOOL FOR INTEGRATED PLANNING AND COSTING TO SUPPORT EVIDENCE-DRIVEN NTD PROGRAM BUDGETING AND SUSTAINABILITY MATURITY MODEL

Mary Hodges

Helen Keller International, Freetown, Sierra Leone

9:30 a.m.

SUSTAINABILITY MATURITY MODEL FOR NEGLECTED TROPICAL DISEASES

Berthine Njiemoun

Deloitte Consulting, Atlanta, GA, United States

9:45 a.m.

PRESENTATION OF A MODEL TOOL FOR FORECASTING THE BENEFITS OF LYMPHATIC FILARIASIS PROGRAM INVESTMENT USING DATA FROM SIERRA LEONE

AnnaMaria Shaker

Deloitte Consulting, Washington, DC, United States

Symposium 78**Large Scale and Large Success: Implementing, Evaluating and Future Planning of India's National Soil-Transmitted Helminth Control Program**

Meeting Room 16

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

The growing success of the Government of India's (GOI) National Deworming Day (NDD) is possible due to significant GOI investment and political commitment. A strong example of achievable gains will be presented, detailing strategic and operational development of India's NDD, and how best practice evaluation is enabling the GOI to evaluate success and develop a five-year STH Control Roadmap; an international first. In 2015-16 the National Centre for Disease Control led national mapping of STH. This important baseline was used to develop the national treatment strategy, implemented through the NDD. Results, the first STH map of India, and impact assessments will be presented. In 2018 and 2019, seven state-representative community- and school-based STH impact assessment surveys were conducted. Substantial STH reductions were observed (up to 99%;), likely reflecting combined consistent high coverage NDD and India's Total Sanitation Campaign. Results and future implications will be presented. No standardized protocol exists for surveying STH in non-school cohorts. An expanded cohort community-based method for assessing STH was piloted in India in 2018, then evaluated for feasibility. Development, application, and evaluation of community- versus school-based surveys will be presented.

CHAIR

Mark Minnery

Evidence Action, Washington DC, DC, United States

Donald Bundy

London School of Hygiene and Tropical Medicine, London, United Kingdom

Wednesday
November 18

9 a.m.

DEVELOPMENT OF THE GOVERNMENT OF INDIA'S 5-YEAR STH CONTROL ROADMAP: DESIGNING A 'NEW CHAPTER' IN HELMINTH CONTROL FOR ONE OF THE WORLD'S LARGEST POPULATIONS

Sila Deb

Ministry of Health & Family Welfare, Government of India, New Delhi, India

9:20 a.m.

MAPPING SOIL-TRANSMITTED HELMINTHS ACROSS THE WHOLE OF INDIA

C.S. Aggarwal

National Centre for Disease Control, Government of India, New Delhi, India

9:35 a.m.

EXTENSIVE REDUCTIONS IN STH IN LARGE-SCALE EXPANDED AND SCHOOL-BASED IMPACT ASSESSMENTS IN SEVEN STATES OF INDIA

Manoj Murhekar

National Institute of Epidemiology, Government of India, Chennai, India

9:55 a.m.

EVALUATING THE FEASIBILITY AND COST-EFFECTIVENESS OF CONDUCTING COMMUNITY-BASED SURVEYS OF STH

Priya Jha

Evidence Action, Washington DC, United States

Scientific Session 79

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Parasite Biology, Genomics and Genome Editing

Meeting Room 17

Wednesday, November 18

9 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Supported with funding from the Burroughs Wellcome Fund

CHAIR

Jessica C. Kissinger

University of Georgia, Athens, GA, United States

Nicolas J. Wheeler

University of Wisconsin-Madison, Madison, WI, United States

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IMMUNOMODULATORY EFFECTS OF HELMINTH (LITOMOSOIDES SIGMODONTIS) ANTIGEN ON HUMAN BLOOD CELLS

Priscilla Kini, Priscilla Kyerewaa Okomeng, Alexander Kwarteng

Department of Biochemistry and Biotechnology, College of Science, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana

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DETERMINANTS OF PRAZIQUANTEL MASS DRUG ADMINISTRATION FAILURE TO CONTROL SCHISTOSOMIASIS INFECTION IN A PERSISTENT FOCI OF TRANSMISSION: A CROSS SECTIONAL STUDY OF FIVE DIFFERENTIALLY AFFECTED NEIGHBOURING VILLAGES IN RURAL CAMEROON

Donald Severin Kamdem¹, Erve Martial Kuemkon², Francis Konhawa², Leonel Meyo Kamguia², Gladys K. Tchanana², Frungwa Nche², Alim Oumarou², Essomba Rene Ghislain², Marie Claire Okomo Assoumou², Frank Brombacher¹, Justin Komguez Nono¹

¹International Centre for Genetic Engineering and Biotechnology, Cape Town Component, Cape Town, South Africa, ²Ministry of Public Health, Yaounde, Cameroon

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COMPARISON OF PERFORMANCE OF CRISPR-CAS9 VERSUS -CAS12A RIBONUCLEOPROTEIN COMPLEXES IN EDITING THE *SCHISTOSOMA MANSONI* OMEGA-1 GENE

Wannaporn Ittiprasert

George Washington University, Washington, DC, United States

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CRISPR-MEDIATED TRANSFECTION OF *BRUGIA MALAYI*

Canhui Liu¹, Alexandra Grote², Elodie Ghedin³, Thomas R. Unnasch¹

¹University of South Florida, Tampa, FL, United States, ²Broad Institute of MIT and Harvard, Cambridge, MA, United States, ³New York University, New York City, NY, United States

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CHARACTERIZATION OF THE CHEMOSENSORY PATHWAY OF FILARIAL WORMS

Nicolas J. Wheeler, Zachary W. Heimark, Paul M. Airs, Alexis Mann, Lyric C.

Bartholomay, Mostafa Zamanian

University of Wisconsin-Madison, Madison, WI, United States

(ACMCIP Abstract)

1003

ATTENUATED VIRULENCE FOLLOWING PROGRAMMED GENOME EDITING OF THE CARCINOGENIC LIVER FLUKE, *OPISTHORCHIS VIVERRINI*

Thewarach Laha¹, Wannaporn Ittiprasert², Patpicha Arunsan¹, Sujittra Chaiyadet¹,

Sirikachorn Tangkawattana¹, Michael J. Smout³, Alex Loukas³, Paul J. Brindley²

¹Khon Kaen University, Khon Kaen, Thailand, ²The George Washington University, Washington DC, DC, United States, ³James Cook University, Cairns, Australia

(ACMCIP Abstract)

Break

Wednesday, November 18

10:45 a.m. - 11 a.m. U.S. Eastern Time Zone

Plenary Session 80

Plenary Session IV: President's Address

Grand Ballroom

Wednesday, November 18

11 a.m. - 11:45 a.m. U.S. Eastern Time Zone

11 a.m.

INTRODUCTION

Anne W. Rimoin

UCLA, Los Angeles, CA, United States

11:15 a.m.

PRESIDENT'S ADDRESS: SMALLPOX ERADICATION: AFRICAN ORIGIN, AFRICAN SOLUTIONS AND RELEVANCE TO COVID-19



Joel G. Breman, MD, DTPH, FASTMH
Fogarty International Center, Bethesda, MD, United States

After undergraduate studies at the University of California, Los Angeles, Dr. Breman was an artillery officer. Following post-bac, pre-med work, he trained at the

Keck School of Medicine, University of Southern California, with an internal medicine residency at the Los Angeles-County-USC Medical Center. In the late 1960s, he lived in Guinea, as CDC-supported chief of project to eliminate smallpox and control measles in 20 West and Central African countries as part of the global smallpox program. With a career development award from the CDC, Dr. Breman was an infectious diseases fellow on the Harvard Medical Service, Boston City Hospital, followed by study at the London School of Hygiene & Tropical Medicine. In the mid-1970s, he worked with eight francophone countries to develop surveillance for epidemic diseases as Chief of Epidemiology at the Organisation de Coopération et de Coordination pour la lutte contre les Grandes Endémies, a regional African health organization based in Burkina Faso. There, he began research into the immuno-depressive effect of malaria on childhood immunizations.

In 1977, Dr. Breman became deputy chief of the Smallpox Eradication unit at WHO, Geneva, where he was responsible for certifying eradication, decreasing the number of laboratories with variola virus, and, characterizing human monkeypox.

Returning to CDC in 1980, Dr. Breman began work on malaria full-time. The Malaria Branch had 15 persons in 1981 and he became chief of the epidemiology and control activities and then deputy chief. During the 1980s and 1990s, he helped African countries define: antimalarial drug efficacy; the importance of malaria in pregnancy; and, the benefits of insecticide-treated bed nets. The U.S.-based scientists partnered with those in 15 African countries doing research that was incorporated into national and international control guidelines. By 1993, there were 74 persons in the Branch.

Dr. Breman then became Associate Director of the National Vaccine Program Office in Washington, DC where he learned much about the way things work in Washington: networking, diplomacy, and money are key.

Dr. Breman came to the Fogarty International Center, NIH in 1995 to begin the emerging infectious diseases program. The only research training program we had focused on HIV/AIDS. Today, there are many extramural programs and work in over 100 lower-income countries. Although retired from Federal service since 2010, he has continued to collaborate with FIC, as a honorary Senior Scientist Emeritus, on epidemiological research defining the burden of malaria and the pervasiveness of poor quality drugs.

Dr. Breman currently teaches at George Washington University, consults for the WHO, The Carter Center, the Gates Foundation, USAID, FDA, and the Multilateral Initiative on Malaria. He is Co-chair of the WHO International Commission for the Certification of Dracunculiasis Eradication and chair of an ad hoc group planning the celebration of the 40th anniversary since the World Health Assembly confirmed the eradication of smallpox.

Poster Session 81

Poster Session C Presentations

Poster Hall

Wednesday, November 18

11:45 a.m. - 1:15 p.m. U.S. Eastern Time Zone

Poster Session C Directory

Global Health: #1004 - 1040

Mosquitoes - Insecticide Resistance and Control: #1041 – 1054

Mosquitoes - Molecular Genetics: #1055 - 1059

Mosquitoes - Vector Biology-Epidemiology: #1060 – 1071

Flaviviridae – Dengue: #1072 – 1085

Flaviviridae - Other: #1086 - 1097

Viruses - Other: #1098 – 1113

Malaria - Chemotherapy and Drug Resistance: #1114 - 1127

Malaria - Diagnosis: #1128 – 1138

Malaria – Epidemiology: #1139 – 1162

Malaria - Genetics/Genomics: #1163 – 1175

Malaria - Immunology: #1176 – 1188

Malaria - Modeling: #1189 – 1199

Malaria - Other: 1200 – 1215

Malaria - Prevention: #1216 – 1226

Malaria - Strategies for Elimination: #1227 – 1244

Malaria - Vaccines: #1245 – 1256

Malaria - Vector Control: #1257 – 1272

Bacteriology - Enteric Infections: #1273 – 1283

Bacteriology - Systemic Infections: #1284 – 1292

Bacteriology - Trachoma: #1293 – 1302

Clinical Tropical Medicine: #1303 - 1332

Helminths - Nematodes - Filariasis

(Cellular and Molecular Biology): 1333 - 1334

Helminths - Nematodes - Intestinal Nematodes: #1335

Helminths - Nematodes - Filariasis (Epidemiology): #1336 – 1353

Kinetoplastida - Epidemiology (Including Leishmania and

Trypanosomes): #1354 - 1365

Schistosomiasis and Other Trematodes –

Epidemiology and Control: #1366 - 1377

Water, Sanitation, Hygiene and Environmental Health: #1378 - 1393

Global Health

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DATA VALIDATION AND REVIEW ACTIVITIES, COMPLEMENTED WITH TRAINING AND MENTORING, IMPROVE DATA QUALITY IN OSUN STATE, NIGERIA

Isaac Adejo¹, Chinedu Chukwu¹, Olabisi Kalejaye¹, Mariah Boyd-Boffa², Tom Hall³, Sonachi Ezeiru⁴, Frank Oronsaye⁴, Diwe Ekweremadu⁴, Perpetua Uhomoibhi⁵, Bala Mohammed Audu⁵, Ibrahim Maikore⁵, Cyril Ademu⁵, James Ssekitooleko⁶

¹Management Sciences for Health (MSH), Abuja, Nigeria, ²Management Sciences for Health (MSH), Medford, MA, United States, ³Management Sciences for Health (MSH), Arlington, VA, United States, ⁴Catholic Relief Services (CRS), Abuja, Nigeria, ⁵National Malaria Elimination Program (NMEP), Abuja, Nigeria, ⁶The Global Fund, Geneva, Switzerland

1006

A COMPARISON OF COVID-19 RESPONSE IN THREE EAST AFRICAN COUNTRIES

Ruth N. Kigozi¹, Simon Peter Kigozi², Adoko Yeka³

¹Malaria Consortium, Kampala, Uganda, ²London School of Hygiene and Tropical Medicine, London, United Kingdom, ³Makere University School of Public Health, Kampala, Uganda

1007

AN ANALYSIS OF THE IDEATIONAL, BEHAVIORAL AND STRUCTURAL DETERMINANTS OF ANTIMICROBIAL RESISTANCE: A GLOBAL REVIEW OF THE LITERATURE

William Benié¹, Abdul Dosso¹, Thomas Dadie², Serge Dali³, Natalie Tibbels⁴, Jeanne Brou¹, Anne Yao⁵, Mieke McKay¹, Corinne Fordham⁶, Natalie Nguessan², Regina Koko⁷, Diarra Kamara¹, Danielle Naugle⁴

¹Johns Hopkins Center for Communication Programs, Abidjan, Côte D'Ivoire, ²Technical Working Group, Abidjan, Côte D'Ivoire, ³Consultant, Abidjan, Côte D'Ivoire, ⁴Johns Hopkins Center for Communication Programs, Baltimore, MD, United States, ⁵National Institute of Public Hygiene, Abidjan, Côte D'Ivoire, ⁶Johns Hopkins Center for Communication Programs, Baltimore, Côte D'Ivoire, ⁷US Agency for International Development, Abidjan, Côte D'Ivoire

1008

WHEN WOMEN RETURN TO THEIR NATAL HOMES TO DELIVER: IMPACT ON HEALTHCARE SEEKING AND HEALTH OUTCOMES

Atique Iqbal Chowdhury¹, Asraful Alam¹, Abu Bakkar Siddique¹, Md. Mamunur Rashid¹, Kyu Han Lee², Sanwarul Bari¹, Qazi Sadeq-ur Rahman¹, Abu Mohammed Naser³, Solveig A. Cunningham³, Shams El Arifeen¹, Emily S. Gurley²

¹icddr, Dhaka, Bangladesh, ²Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³Department of Global Health, Rollins School of Public Health, Emory University, USA, Atlanta, GA, United States

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A COMPREHENSIVE RADIO-BASED ARCHIPELAGO SYNDROMIC SURVEILLANCE SYSTEM (RASSS) PROVIDED PROSPECTIVE DEFENSE IN ISLANDS COUNTRIES FOR EMERGING RESPIRATORY INFECTIONS

HAN-YI CHIU¹, HUI-JU CHIANG¹, Arata Nathan²

¹Mackay Memorial Hospital, Taipei, Taiwan, ²Ministry of Health, Majuro, the Republic of the Marshall Islands, Marshall Islands

1010

IDENTIFY, DESIGN AND IMPLEMENT CULTURALLY APPROPRIATE STRATEGIES TO APPROACH BANGLADESHI FAMILIES FOR MINIMALLY INVASIVE TISSUE SAMPLING WHEN CHILDREN DIE AT HOME

Shahana Parveen¹, Emily S. Gurley², Farzana Islam¹, Sazzad Hossain Khan¹, Tonmoy Sarkar¹, Kamal Ibne Chowdhury¹, Dalia Yeasmin¹, Abdullah Al Masud¹, Muhammad Faruque Hussain¹, John Blevins³, Sanwarul Bari¹, Shams El Arifeen¹

¹International Centre for Diarrhoeal Diseases Research, Bangladesh (icddr), Dhaka, Bangladesh, ²John Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³Rollins School of Public Health, Emory University, Atlanta, GA, United States

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THE HELP MODEL OF STAKEHOLDER ENGAGEMENT FOR GLOBAL HEALTH PROGRAMS

James V. Lavery¹, Emma Z. Richardson², Breanna K. Wodnik¹, Michelle Grek³, Lee Wilkers³, Susan Landskroener¹

¹Emory University, Atlanta, GA, United States, ²St. Michael's Hospital, Toronto, ON, Canada, ³Emory University, Avondale Estates, GA, United States

1012

NETWORK MODELS TO IDENTIFY SIGNIFICANT ENTERIC PATHOGEN COINFECTIONS AND THEIR RELATIONSHIP TO ACUTE DIARRHEA IN INFANTS IN DHAKA, BANGLADESH

Connor L. Klopfer¹, Laurent Hébert-Dufresne¹, John P. Hanley², Dorothy M. Dickson², Marya P. Carmolli², Md. Ashraful Alam³, Benjamin Lee², Mami Taniuchi⁴, Beth D. Kirkpatrick², E. Ross Colgate²

¹Department of Computer Science, Vermont Complex Systems Center, University of Vermont, Burlington, VT, United States, ²Department of Microbiology and Molecular Genetics, Translational Global Infectious Disease Research Center, University of Vermont Larner College of Medicine, Burlington, VT, United States, ³Maternal and Child Nutrition and Clinical Services Division, icddr, Dhaka, Bangladesh, ⁴Division of Infectious Diseases and International Health, Department of Medicine, University of Virginia, Charlottesville, VA, United States

1013

TOWARDS UNIVERSAL HEALTH CARE: ECONOMIC COSTS AND BENEFITS OF COMMUNITY HEALTH WORK IN RWANDA

Janna M. Schurer¹, Kelly Fowler², Ellen Rafferty³, Ornella Masimbi¹, Olivia Rozanski², Hellen Amuguni²

¹University of Global Health Equity, Kigali, Rwanda, ²Cumming School of Veterinary Medicine at Tufts University, North Grafton, MA, United States, ³University of Alberta, Edmonton, AB, Canada

1014

STRENGTHENING MALARIA DATA CAPTURE AND ADDRESSING DATA ACCURACY THROUGH TARGETED SUPPORTIVE SUPERVISION OF HEALTHCARE WORKERS AT FACILITY LEVEL: EARLY LESSONS IN PROGRAMMING

Hellen Gatakaa¹, James Andati², Christine Mbui³, Willis Akhwale², Gladys Tetteh⁴, Lolade Oseni⁴

¹Jhpiego, Nairobi, Kenya, ²USAID PMI – Impact Malaria Project, Nairobi, Kenya, ³Division National Malaria Program, Ministry of Health, Nairobi, Kenya, ⁴Jhpiego, Baltimore, MD, United States

1015

BUILDING CAPACITY AND INFRASTRUCTURE AT HOSPITALS IMPLEMENTING MINIMALLY INVASIVE TISSUE SAMPLING

Anna Marie Aceituno¹, Gervais Ntakirutimana², Marie Claire Ndayisaba², Djibril Mbarushimana³, Elisé Hategekimana³, Nuwadata Subedi⁴, Christina Paganelli¹, Norman Goco¹

¹RTI International, Research Triangle Park, NC, United States, ²Kigali University Teaching Hospital, Kigali, Rwanda, ³Butare University Teaching Hospital, Butare, Rwanda, ⁴Gandaki Medical College, Pokhara, Nepal

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PATTERNS OF MOBILITY AND ITS IMPACT ON RETENTION IN CARE AMONG PEOPLE LIVING WITH HIV IN THE MANHIÇA DISTRICT, MOZAMBIQUE

Edson L. Bernardo¹, Tacilta Nhampossa¹, Denise Naniche¹, Troy D. Moon², Kate Clouse², James G. Carlucci², Moshin Sidat³

¹Health Research Center of Manhica, Maputo, Mozambique, ²Vanderbilt Institute for Global Health, Vanderbilt, TN, United States, ³Eduardo Mondlane University, Maputo, Mozambique

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IMPROVING THE QUALITY OF MALARIA SERVICE DELIVERY BY COMMUNITY HEALTH OFFICERS THROUGH INTERNSHIP TRAINING IN GHANA

James Sarkodie¹, Akosua Gyasi², Amos Asiedu³, Eric LaFary³, Richard Dogli³, Raphael Ntumi³, Keziah Malm², Lolade Oseni⁴, Gladys Tetteh⁴

¹Impact Malaria Ghana, Accra, Ghana, ²National Malaria Control Programme, Accra, Ghana, ³Impact Malaria Ghana, Accra, Ghana, ⁴Jhpiego, Baltimore, MD, United States

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HUMAN AND COMPUTER GENERATED REMOTE ENUMERATIONS OF SATELLITE IMAGERY: A COMPARATIVE ANALYSIS AGAINST A FIELD VERIFIED GOLD STANDARD

Anne Martin¹, Frazer Bwalya¹, Derek Pollard¹, Hugh Sturrock², Claire Dooley³, Heather Chamberlain³, Olena Borkovska⁴, Rhiannon Price⁵, Silvia Renn⁶, Hannah Koenker⁷, Emmanuel Kooma⁸, Anna Winters¹, John Miller⁹

¹Akros, Lusaka, Zambia, ²University of California San Francisco, San Francisco, CA, United States, ³WorldPop, University of Southampton, Southampton, United Kingdom, ⁴Center for International Earth Science Information Network, New York, NY, United States, ⁵Maxar Technologies, Denver, CO, United States, ⁶Afgeo, Lusaka, Zambia, ⁷Johns Hopkins Center for Communication Programs, Baltimore, MD, United States, ⁸National Malaria Elimination Centre, Ministry of Health, Lusaka, Zambia, ⁹PATH Malaria Control and Elimination Partnership in Africa (MACEPA), Lusaka, Zambia

1019

PROTECTING PEOPLE IN LONG-TERM CARE FACILITIES FROM COVID-19 BY ROUTINE TESTING OF EMPLOYEES - A MODELING APPROACH

Nessma Adil Mahmoud Yousif¹, Looli Alawam², Pierre Ngougoue Ngougoue³, Henri Christian Tsoungui Obama³, Gideon Ngwa⁴, Martin Eichner², Kristan A. Schneider³

¹AIMS Cameroon, Limbe, Cameroon, ²University of Tübingen, Tübingen, Germany, ³University of applied sciences of Mittweida, Mittweida, Germany, ⁴University of Buea, Buea, Cameroon

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ASSESSING THE ETHICAL COMPLEXITIES OF CONFIDENTIALITY DURING APPROACH AND FOLLOW-UP ON MORTALITY SURVEILLANCE

John Blevins¹, Maria Maixenchs², Ahoua Kone¹, Emily S. Gurley³, Faruque Hussain⁴, Shahana Parveen⁴, Berhanu Damise⁵, Ketema Degefa⁵, Peter Otieno⁶, Kounandji Diarra⁷, Tieman Diarra⁷, Rui A. Guilaze⁸, Nellie Myburgh⁹, Bindu Kosia¹⁰, Khatia Munguambe¹¹

¹Emory University Rollins School of Public Health, Atlanta, GA, United States, ²ISGlobal, Barcelona, Spain, ³Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD, United States, ⁴International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ⁵Haramaya University, Harar, Ethiopia, ⁶Kenya Medical Research Institute, Kisumu, Kenya, ⁷Centre for Vaccine Development, Mali, Bamako, Mali, ⁸Centro de Investigação em Saúde de Manhica, Manhica, Mozambique, ⁹University of the Witwatersrand, Johannesburg, South Africa, ¹⁰FOCUS1000, Makeni, Sierra Leone, ¹¹Eduardo Mondlane University, Maputo, Mozambique

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CLINEPIDB.ORG: GLOBAL HEALTH DATA SHARING, SEMANTIC HARMONIZATION AND EXPLORATORY DATA ANALYSIS

Brianna Lindsay¹, Cristina Aurrecoechea², John Brestelli¹, Brian Brunk¹, Danielle Callan¹, Dave Falke², Steve Fischer¹, Danica Helb¹, Jay Humphrey², John Judkins¹, Jessica C. Kissinger², David S. Roos¹, Sheena Shah Tomko¹, Christian J. Stoeckert Jr¹, Jie Zheng¹

¹University of Pennsylvania, Philadelphia, PA, United States, ²University of Georgia, Athens, GA, United States

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ENHANCING COMPETENCE OF HEALTH FACILITY WORKERS TO USE DATA TO IMPROVE INTERMITTENT PREVENTIVE TREATMENT IN PREGNANCY (IPTP) UPTAKE, LIBERIA

Lauretta Nagbe¹, Gaspar Mbita¹, Birhanu Getahun¹, Jessica Kafuko², Joseph O. Alade³, Maweyata Sow¹, Gladys Tetteh⁴, Lolade Oseni⁴, Shelly Wright⁵, Anne Fiedler¹
¹USAID Maternal and Child Survival Program/Expansion of Malaria Services (MCSP/EMS), Jhpigo Liberia, Monrovia, Liberia, ²U.S. President's Malaria Initiative (PMI), U.S. Agency for International Development (USAID), Monrovia, Liberia, ³National Malaria Control Program (NMCP) Ministry of Health (MOH), Monrovia, Liberia, ⁴Jhpigo Johns Hopkins University, Baltimore, MD, United States, ⁵U.S. Agency for International Development (USAID), Monrovia, Liberia

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PERFORMANCE OF THE GUARAL+ST MOBILE APP IN ASSESSING THERAPEUTIC RESPONSE IN CUTANEOUS LEISHMANIASIS PATIENTS IN COLOMBIA

Alejandra Maria Del Castillo¹, Maria Del Mar Castro¹, Alexandra Cossio¹, Ruth Mabel Castillo¹, Domiciano Rincon², Andres Navarro², Neal Alexander¹

¹Centro Internacional de Entrenamiento e Investigaciones Medicas-CIDEIM, Cali, Colombia, ²Universidad Icesi, Cali, Colombia

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ADDRESSING THE MENTAL HEALTH OF PERSONS LIVING WITH LYMPHATIC FILARIASIS IN LÉOGÂNE, HAITI: EFFECTIVENESS OF A CHRONIC DISEASE SELF-MANAGEMENT PROGRAM

Sarah Bazur-Leidy, Luccene Desir, Martha Desir, Lauren Paul, Cassandra Bryan, Tsion Horra, Samhita Kumar, Gregory Noland, Eve Byrd
The Carter Center, Atlanta, GA, United StatesGlobal Health

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UTILIZATION OF A HEALTH-RELATED DATA COLLECTION TOOL DURING SHORT-TERM EDUCATIONAL MEDICAL TRIPS TO DEVELOPING COUNTRIES FOR SURVEILLANCE AND REPORTING

Etienne Jaime¹, Joe Bryan¹, Julissa Grullon², Dulfelina Cruz³, Mayelin Peña², Alexandra Amador³, Xiomara Erazo⁴, Zaira Alvarado⁵, Pedro Solano⁵, Harold R. Garner⁶, Cameron Sumpter⁶, Dean Sutphin¹

¹Edward Via College of Osteopathic Medicine, Blacksburg, VA, United States, ²Oscar de la Renta Pediatric Center, Veron, Dominican Republic, ³Veron Rural Clinic, Veron, Dominican Republic, ⁴James Moody Adams Clinic, Tegucigalpa, Honduras, ⁵Shalom Family Medical Center, Santiago Texacuangos, El Salvador, ⁶Edward Via College of Osteopathic Medicine, Spartanburg, SC, United States

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EXPANDED PRIMARY CARE IN BUGESERA DISTRICT, RWANDA: OPPORTUNITIES FOR INCREASING PREVENTIVE SERVICES

Donald S. Shepard¹, Regis Hitimana², Maria Kulchychkyj¹, Sabine F. Musange²

¹Brandeis University, Waltham, MA, United States, ²University of Rwanda School of Public Health, Kigali, Rwanda

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DRIVING FORCES BEHIND TIMING AND DECISION-MAKING FOR U.S. PUBLIC AND PRIVATE UNIVERSITIES DURING THE COVID-19 PANDEMIC

Michael E. von Fricken, Kevin Cevasco, Hayley North, Rachel Wofford, Sheryne Zeitoun, Abigail Gregory, Maha Hassan, Graham Matulis, Aya Abdo, David Farris, Amira Roess

George Mason University, Fairfax, VA, United States

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EMPOWERMENT THROUGH EDUCATION: A QUALITATIVE ANALYSIS OF THE SOCIO-CULTURAL AND ECONOMIC FACTORS IMPACTING MAASAI GIRLS' EDUCATIONAL ATTAINMENT IN LAIKIPIA COUNTY, KENYA

Margaret E. Crampton, Saumya Kumar

Frank H. Netter School of Medicine at Quinnipiac University, Hamden, CT, United States

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ONE-YEAR IMPLEMENTATION OUTCOMES OF ICD-10 BASED ELECTRONIC CLINIC REPORT AT SHALOM FAMILY MEDICAL CENTER IN SANTIAGO TEXACUANGOS, EL SALVADOR

Zaira Alvarado¹, Etienne Jaime Hinojosa², Andrea Lopez¹, Teri Benner³, Harold R. Garner⁴, Cameron Sumpter⁴, H. Dean Sutphin²

¹Shalom Family Medical Center, Santiago Texacuangos, El Salvador, ²The Edward Via College of Osteopathic Medicine, Blacksburg, VA, United States, ³Harvesting in Spanish, Santiago Texacuangos, El Salvador, ⁴The Edward Via College of Osteopathic Medicine, Spartanburg, SC, United States

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GLOBAL SEMINAR FOR HEALTH AND ENVIRONMENT

Dean Sutphin¹, Etienne Jaime Hinojosa¹, Gabriela Estrada², Sandra Gomez², Alba Beltre³, Zaira Alvarado⁴, Dolores Muro⁵, Ana Jones⁶

¹Via College of Osteopathic Medicine, Blacksburg, VA, United States, ²UNITEC, Tegucigalpa, Honduras, ³INTEC, Santo Domingo, Dominican Republic, ⁴Via College of Osteopathic Medicine/UEES, Blacksburg, VA, United States, ⁵Via College of Osteopathic Medicine, Spartanburg, SC, United States, ⁶Via College of Osteopathic Medicine, Auburn, AL, United States

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UNDERSTANDING RESEARCH VULNERABILITIES AND RESEARCHER OBLIGATIONS ALONG THE THAI-MYANMAR BORDER

Napat Khirikoekong¹, Suphak Nosten¹, Supa-at Asarath², Rose McGready¹, Francois Nosten¹, Jennifer Roest³, Michael Parker³, Maureen Kelley³, Phaik Yeong Cheah²

¹Shoklo Malaria Research Unit, Mae Sot, Thailand, ²Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand, ³Ethox Centre, University of Oxford, Oxford, United Kingdom

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DEVELOPING INTERNATIONAL PARTNERSHIPS FOR MPH GLOBAL HEALTH TRAINING

Peter A. Zimmerman, Andrew Morris, Daniel J. Tisch

Case Western Reserve University, Cleveland, OH, United States

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IDENTIFYING STAKEHOLDER ENGAGEMENT NEEDS FOR DEVELOPMENT, REGULATION, AND TESTING OF GENE DRIVE MOSQUITOES

Kanya C. Long, Cynthia Triplett, Omar S. Akbari, Cinnamon S. Bloss

University of California San Diego, La Jolla, CA, United States

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MARKET CHARACTERISTICS AND RISK PERCEPTION IN CAMEROON BUSHMEAT MARKETS

Karen Saylor¹, Moutar M. Mouiche², Ashley Lucas¹, David J. McIver³, Annie Matsida⁴, Catherine Clary⁵, Victorine T. Maptue⁶, Jason D. Euren⁵, Matthew LeBretton², Ublad Tamoufe⁶

¹Labyrinth Global Health, Saint Petersburg, FL, United States, ²Mosaic, Yaoundé, Cameroon, ³Metabiota Inc., Nanaimo, BC, Canada, ⁴Ministère de la Recherche Scientifique et de l'Innovation, Yaoundé, Cameroon, ⁵Metabiota Inc., San Francisco, CA, United States, ⁶Metabiota Inc., Yaoundé, Cameroon

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PRECISION MAPPING REVEALS VARIATION IN THE EPIDEMIOLOGICAL TRANSITION WITHIN MIDDLE-INCOME COUNTRIES

Nathaniel Henry

Institute for Health Metrics and Evaluation, Seattle, WA, United States

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DISTRICT HOSPITAL SYMPOSIUM: THE SOUTH AFRICAN PERSPECTIVE

Hans Jurgen Hendriks

Walter Sisulu University, Mqanduli, South Africa

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NEW TECHNOLOGIES AND GLOBAL STANDARDS FOR IMPROVED HEALTH OUTCOMES

Tori Ghine¹, Kaitlyn Roche¹, Nuran Idris², Claude Bahati³

¹GHSC-PSM, Arlington, VA, United States, ²GS1 Global Office, Nairobi, Kenya, ³GHSC-PSM, Yaoundé, Cameroon

Mosquitoes - Insecticide Resistance and Control

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DESIGN, DEVELOPMENT AND EVALUATION OF THE MOSQUITO REPELLENT ACTIVITY OF AZADIRACHTA INDICA OIL BASED SOLID LIPID NANOPARTICLES AGAINST Aedes Aegypti

Chinekwu Sherridan Nwagwu, John D. Ogbonna, Lotanna G. Nwobi, Ezinwanne N.

Ezeibe, Chinenye N. Ugwu, Mumuni A. Momoh, Anthony A. Attama

University of Nigeria, Nsukka, Enugu State, Nigeria

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INSECTICIDE SUSCEPTIBILITY PROFILE OF ANOPHELES ARABIENSIS FROM 2017-2019 IN ETHIOPIA

Mesheha Balkew Managido¹, Peter Mumba¹, Dereje Dengela², Gedeon Yohannes¹, Delenasaw Yewhalaw³, Sheleme Chibsa⁴, Matthew Murphy⁴, Gunawardena Dissanayake⁴, Jenny Carlson⁵, Kristen George⁵, Allison Belemvire⁵, Cecilia Flatley², Seth Irish⁶

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ALLELIC FREQUENCIES OF KDR AND ACE-1 MUTATIONS AMONG WILD ANOPHELES ARABIENSIS AND AN. MELAS POPULATIONS IN THE COASTAL ZONE OF LOW MALARIA TRANSMISSION IN SENEGAL

Ousmane Sy

UCAD, Dakar, Senegal

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HOUSEHOLD ACCEPTANCE OF YEAST INTERFERING RNA BAITED OVITRAPS IN TRINIDAD

Akilah Stewart¹, Nikhella Winter¹, Jessica Igiede², Rachel M. Wiltshire³, Limb K. Hapairai³, Azad Mohammed¹, David W. Severson², Molly Duman-Scheel³

¹The University of the West Indies at St. Augustine, Trinidad and Tobago, St. Augustine, Trinidad and Tobago, ²The University of Notre Dame, Notre Dame, IN, United States, ³Indiana University School of Medicine, South Bend, IN, United States

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INSECTICIDE RESISTANCE STATUS AND MECHANISMS IN Aedes MOSQUITOES IN GHANA

Anisa Abdulai, Simon Kwaku Attah, Akua Obeng Forson, Christopher Mfum Asenso, Yaw Asare Afrane

University of Ghana, Accra, Ghana

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A COMPARATIVE ANALYSIS OF THE SPATIAL DISTRIBUTION OF INSECTICIDE RESISTANCE IN Aedes Aegypti AND Ae. Albopictus FOR INFORMED CONTROL OF ASSOCIATED NEGLECTED TROPICAL DISEASES

Duncan K. Athinya¹, Melinda P. Hadi², Seline A. Omondi³, Eric O. Ochomo³

¹Vestergaard, Nairobi, Kenya, ²Vestergaard, Lausanne, Switzerland, ³Kenya Medical Research Institute, Kisumu, Kenya

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France Paraudie Affoue Kouadio¹, Nadja Christina Wipf², Angele Sika Nygble³, Behi Fodjo Kouadio¹, Christabelle Gba Sadia¹, Konstantinos Mavridis⁴, John Vontas⁵, Pie Müller², Chouaibou Seidou Mouhamadou⁶

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UTILIZING EBOLA VIRUS GLYCOPROTEIN SUBUNITS TO REVEAL ANTIBODY POPULATIONS ELICITED BY A RECOMBINANT SUBUNIT EBOLA VIRUS VACCINE

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PLASMODIUM FALCIPARUM GAMETOCYTE SEX RATIOS IN CHILDREN AND ADULTS WITH ASYMPTOMATIC, LOW-DENSITY INFECTION IN TANZANIA

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LOW INCIDENCE OF CLINICAL MALARIA IN UNDER-FIVES IN BANCOUMANA, MALI, A MALARIA VACCINE TESTING SITE

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SPATIAL HETEROGENEITIES IN MALARIA TRANSMISSION INTENSITY, INSECTICIDE TREATED NET USE AND ACCESS IN NIGERIA AND ASSOCIATED FACTORS

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CO-INFECTION OF *PLASMODIUM FALCIPARUM* AND HELMINTHS AMONG SCHOOL CHILDREN IN COMMUNITIES IN SOUTHERN AND NORTHERN GHANA

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DATA-DRIVEN AND INTERVENTION-SPECIFIC STRATIFICATION IN MOZAMBIQUE TO GUIDE DECISION MAKING IN A HIGH-BURDEN, HIGH-IMPACT COUNTRY

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INTEGRATING PARASITOLOGICAL AND ENTOMOLOGICAL OBSERVATIONS TO UNDERSTAND MALARIA TRANSMISSION IN RIVERINE VILLAGES IN THE PERUVIAN AMAZON

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HIGH PREVALENCE OF CO-INFECTION IN PATIENTS WITH MALARIA: A CROSS-SECTIONAL STUDY IN THE MAIN ENDEMIC REGION OF VENEZUELA

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ANTIBODY PROFILE KINETICS TO *PLASMODIUM FALCIPARUM* DURING A PERIOD OF DECLINING MALARIA TRANSMISSION IN SOUTHERN ZAMBIA FROM 2008 TO 2015

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ASSOCIATION BETWEEN *FCGR3A* RS396991 AND *FCGR3B* RS5030738 POLYMORPHISMS AND *PLASMODIUM FALCIPARUM* INFECTION OUTCOME IN GHANAIA CHILDREN

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VEUPATHDB.ORG: EUKARYOTIC PATHOGEN, VECTOR AND HOST OMICS DATA MINING FOR EVERYONE

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Malaria - Immunology

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ANTIBODY RESPONSES TO REPETITIVE CONTROLLED HUMAN MALARIA INFECTIONS IN MALARIA-NAÏVE ADULTS USING NF54 STRAIN *PLASMODIUM FALCIPARUM*

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COMPARATIVE TRANSCRIPTOMIC ANALYSIS OF THE PRIMATE IMMUNE RESPONSE TO MALARIA AND MALARIA-LIKE PARASITES

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Malaria - Modeling

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THE SPREAD OF DRUG RESISTANCE IN *P. VIVAX* VS. *P. FALCIPARUM* MALARIA - THE EFFECT OF HYPNOZOITES

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A DETAILED MODEL OF *P. FALCIPARUM* RECOMBINATION RUNS MODULARLY ON TRANSMISSION TREES TO PROVIDE NEW INSIGHTS ON POPULATION GENETIC DYNAMICS

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A SPATIAL EPIDEMIOLOGICAL-GENETIC MODEL TO SUPPORT COUNTRY PROGRAM DECISION-MAKING IN MALARIA CONTROL AND ELIMINATION STRATEGY

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Malaria - Other

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"WHEN WE GOT HERE, THEY WELCOMED US": EXPERIENCES OF PRIMARY CAREGIVERS OF CEREBRAL MALARIA SURVIVORS WITH BEHAVIOR PROBLEMS ENROLLED IN THE COPS STUDY IN BLANTYRE, MALAWI

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ASSESSING THE REAL WORLD STABILITY OF ARTESUNATE RECTAL CAPSULES

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INHIBITORY ACTIVITY OF THE JUNCTIONAL AND MAJOR REPEAT ANTIBODIES AGAINST *PLASMODIUM FALCIPARUM* CIRCUMSPOROZOITE PROTEIN

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MAKE DIVERSITY MEASURES GREAT

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ALTERNATIVE INDICATORS TO MONITOR TRACHOMA ELIMINATION; DOES LONGITUDINAL CHLAMYDIA INFECTION AND ANTIBODY DATA ADD EVIDENCE TO THE UNDERSTANDING OF RESURGENCE

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RESULTS OF TRACHOMA SURVEILLANCE SURVEYS IN 21 HEALTH DISTRICTS OF THE FAR NORTH AND THE NORTH REGIONS OF CAMEROON AT LEAST TWO YEARS AFTER STOPPING MASS DRUG ADMINISTRATION

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DISTRICT-LEVEL CORRELATES OF OCULAR *CHLAMYDIA TRACHOMATIS* INFECTION AMONG CHILDREN AGED 1-5 YEARS AFTER 5 YEARS OF THE SAFE STRATEGY IN AMHARA, ETHIOPIA

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STOPPING MASS DRUG ADMINISTRATION FOR TRACHOMA IN 15 HEALTH DISTRICTS IN GUINEA

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POST-ENDEMIC SURVEILLANCE FOR TRACHOMA: SUCCESSES AND CHALLENGES FROM A HIGHLY ENDEMIC REGION, AMHARA, ETHIOPIA

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DIETARY OMEGA-3 FATTY ACIDS AMELIORATE PATHOLOGICAL INFLAMMATION IN A MODEL OF MODERATE ACUTE MALNUTRITION

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YELLOW FEVER VACCINATION: STRATEGIES DURING SHORTAGES AND THE EFFECT OF COVID-19

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PREVALENCE, CLINICAL AND LABORATORY PRESENTATION OF FILARIASIS AMONG INDIVIDUAL SCREENED FOR THE FUTURE MALARIA CLINICAL TRIAL IN BIOKO ISLAND, EQUATORIAL GUINEA

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FEASIBILITY OF ROUTINE HEALTH ACTIVITIES EMBEDDED SURVEILLANCE STRATEGY FOR LYMPHATIC FILARIASIS IN THE EVALUATION UNIT OF BOUGOUNI AND YANFOLILA IN MALI

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THE CHANGING EPIDEMIOLOGY OF LYMPHATIC FILARIASIS AND SOIL-TRANSMITTED HELMINTHIASIS WITH PREVENTIVE CHEMOTHERAPY AND THE FEASIBILITY OF COMBINING SKIN-TDS WITH THE TRANSMISSION ASSESSMENT SURVEY

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SINGLE-MICROFILARIA GENOTYPING AND KINSHIP RECONSTRUCTION IN *ONCHOCERCA VOLVULUS* FOR DETECTING MACROFILARICIDAL TREATMENT EFFICACY

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MOLECULAR CHARACTERIZATION OF WUCHERERIA BANCROFTI FROM MICROFILARIAEMIC INDIVIDUALS IN NEPAL

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SUSTAINING INTERRUPTION OF TRANSMISSION FOR LYMPHATIC FILARIASIS IN EIGHT DISTRICTS IN SIERRA LEONE

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IMPROVING MASS DRUG ADMINISTRATION COVERAGE FOR LYMPHATIC FILARIASIS IN 2019 BASED ON SUB-DISTRICT LEVEL DATA ANALYSIS

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SUPERVISION OF MASS DRUG ADMINISTRATION FOR LYMPHATIC FILARIASIS AND ONCHOCERCIASIS USING THE SUPERVISORS COVERAGE TOOL (SCT) IN SIERRA LEONE

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PROGRESS TOWARDS ONCHOCERCIASIS ELIMINATION IN TANZANIA: METHODS AND RESULTS OF MONITORING TRANSMISSION OF ONCHOCERCA VOLVULUS IN 16 ENDEMIC DISTRICTS

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OPTIMIZED MOLECULAR XENOMONITORING OF ONCHOCERCA VOLVULUS, THE CAUSATIVE AGENT OF RIVER BLINDNESS

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COMPARISON OF DIAGNOSTIC MONITORING TOOL CONVERSION DURING LYMPHATIC FILARIASIS ELIMINATION

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TRYPANOSOMA CRUZI INFECTION AMONG RURAL AND URBAN VIRGINIA OPOSSUMS AND NORTH AMERICAN RACCOONS FOUND IN NORTH FLORIDA, USA**Norman L. Beatty¹**, Zoe S. White², Chanakya R. Bhosale³, Kristen N. Wilson², Sarah E. Maestas³, Samantha M. Wisely²¹University of Florida College of Medicine, Department of Medicine, Division of Infectious Diseases and Global Medicine, Gainesville, FL, United States, ²University of Florida Institute of Food and Agricultural Sciences, Department of Wildlife Ecology and Conservation, Gainesville, FL, United States, ³University of Florida Institute of Food and Agricultural Sciences, Entomology and Nematology Department, Gainesville, FL, United States

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VISCERAL LEISHMANIASIS IN PREGNANCY AND VERTICAL TRANSMISSION: A SYSTEMATIC REVIEW OF THE LITERATURE ON THE THERAPEUTIC ORPHANS**Prabin Dahal¹**, Sauman Singh-Phulgenda¹, Brittany J. Maguire¹, Philippe J. Guerin¹, Piero L. Olliaro²¹Infectious Diseases Data Observatory, Centre for Tropical Medicine & Global Health, University of Oxford, Oxford, United Kingdom, ²Centre for Tropical Medicine & Global Health, University of Oxford, Oxford, United Kingdom

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MEASURING THE IMPACT OF MASS TREATMENT WITH PRAZIQUANTEL ON SCHISTOSOMIASIS IN THREE BORDER COUNTIES IN LIBERIA: ASSESSING THE IMPACTS OF A DISRUPTED TREATMENT PATTERN**Anthony Kerkula Bettée¹**, Karsor Kollie², Precious Z. Cooper Bettée¹¹Ministry of Health, Monrovia, Liberia, ²Ministry of Health, Congo Town, P.O. Box 10-9009, 1000, Monrovia, Liberia

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LOCALISING EVIDENCE FOR DECISION-MAKING: A PARTICIPATORY AND AGENT-BASED MODELLING APPROACH TO INFORM AND ASSIST SCHISTOSOMIASIS CONTROL AND ELIMINATION**Cristin Alexis Fergus¹**, Georgina Pearson¹, Liz Storer¹, Melissa Parker², Tim Allen¹¹London School of Economics and Political Science, London, United Kingdom, ²London School of Hygiene and Tropical Medicine, London, United Kingdom

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EPIDEMIOLOGY OF SCHISTOSOMIASIS IN AN URBAN AREA OF THE CITY OF SALVADOR, BA**Camila F. Chaves¹**, Luciano K. Silva¹, Lúcio M. Barbosa¹, Mitermayer G. Reis¹, Ronald E. Blanton²¹Oswaldo Cruz Foundation, BA, Salvador, Brazil, ²Tulane School of Public Health and Tropical Medicine, New Orleans, LA, United States

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EVALUATION OF INTERVENTIONS AND RISK FACTORS CONTRIBUTING TO SCHISTOSOMIASIS PERSISTENCE IN SALVADOR, BRAZIL**Fernanda M. Cedraz¹**, Luciano K. Silva¹, Mitermayer G. Reis¹, Ronald E. Blanton², Lucio M. Barbosa¹¹Oswaldo Cruz Foundation, BA, Salvador, Brazil, ²Tulane School of Public Health and Tropical Medicine, New Orleans, LA, United States

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INTEGRATING WATER CONTACT BEHAVIOR, ENVIRONMENTAL HAZARD AND SOCIAL VULNERABILITY INTO ESTIMATES OF SCHISTOSOMIASIS OCCURRENCE IN NORTHERN SENEGAL**Andrea Lund¹**, Susanne Sokolow¹, Isabel Jones¹, Andrew Chamberlin¹, Nicolas Jouanard², Simon Senghor², Assane Fall², Gilles Riveau², Giulio De Leo¹, David Lopez-Carr³¹Stanford University, Stanford, CA, United States, ²Centre de Recherche Biomedical Espoir pour la Sante, Saint-Louis, Senegal, ³University of California, Santa Barbara, Santa Barbara, CA, United States

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OCCUPATIONAL RISK FOR SCHISTOSOMA MANSONI AND EVIDENCE FOR RAPID REINFECTION IN AGRICULTURAL WORKERS IN SALVADOR, BRAZIL**Pedro S. Mucillo¹**, João R. Cruz¹, Luciano K. Silva¹, Adriano P. dos Santos¹, Mitermayer G. Reis¹, Ronald E. Blanton², Lúcio M. Barbosa¹¹Oswaldo Cruz Foundation, BA, Salvador, Brazil, ²Tulane School of Public Health and Tropical Medicine, New Orleans, LA, United States

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SENSITIVE DIAGNOSTIC TOOLS AND TARGETED DRUG ADMINISTRATION STRATEGIES ARE NEEDED TO ELIMINATE SCHISTOSOMIASIS**Govert J. van Dam¹**, Abena S. Amoah¹, Pytsje T. Hoekstra¹, Miriam Casacuberta Partal¹, Luc E. Coffeng², Paul L. Corstjens³, Beatrice Greco⁴, Lisette van Lieshout¹, Mark D. Lim⁵, Christine F. Markwalter⁶, Maurice R. Odiere⁷, Jutta Reinhard-Rupp⁴, Russell Stothard⁸, Louis-Albert Tchuem Tchuenté⁹, Sake J. de Vlas²¹LUMC - Dept. of Parasitology, Leiden, Netherlands, ²Erasmus University Medical Center - Dept. Public Health, Rotterdam, Netherlands, ³LUMC - Dept. of Cell and Chemical Biology, Leiden, Netherlands, ⁴Merck Global Health Institute, Eysins, Switzerland, ⁵The Bill & Melinda Gates Foundation, Seattle, WA, United States, ⁶Vanderbilt University - Dept. of Chemistry, Nashville, TN, United States, ⁷Kenya Medical Research Institute, Kisumu, Kenya, ⁸Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ⁹University of Yaoundé I - Lab. of Parasitology and Ecology, Yaoundé, Cameroon

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IS KNOWLEDGE POWER OR A PREDICTOR?: ASSESSING PARENTAL EDUCATION ASSOCIATIONS WITH *SCHISTOSOMA HAEMATOBII* INFECTION IN KANO STATE, NIGERIA

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SUSTAINED WASH BEHAVIOR CHANGE AMONG HOUSEHOLD MEMBERS OF DIARRHEA PATIENTS (CHOBIT PROGRAM): LESSONS LEARNED FROM DOERS AND NON-DOERS

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IMPLEMENTING INTEGRATED WASH, NUTRITION, AND EARLY CHILDHOOD DEVELOPMENT INTERVENTIONS -COMMUNITY HEALTH WORKERS' EXPERIENCES FROM BANGLADESH

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MEASURING THE WATER QUANTITY FOR PERSONAL AND DOMESTIC HYGIENE AND DETERMINANTS OF WATER USE IN LOW-INCOME URBAN COMMUNITY

Rebeca Sultana¹, Nadia Ali Rimi¹, Nazmun Nahar², Syeda Tasnuva Swarna¹, Shifat Khan¹, Humayun Kabir¹, Khaled Saifullah¹, Peter Kjær Mackie Jensen³

¹icddr, Dhaka, Bangladesh, ²Swiss Tropical and Public Health Institute, Basel, Switzerland, ³Copenhagen Center for Disaster Research, Department of Public Health, University of Copenhagen, Denmark

1383

COMPARATIVE ASSESSMENT OF FECAL CONTAMINATION IN 'IMPROVED' PIPED-TO-PLOT COMMUNAL SOURCE AND POINT-OF-DRINKING WATER

Jannatul Ferdous¹, Rebeca Sultana², Ridwan Rashid¹, Anowara Begum¹, Peter Kjær Mackie Jensen³

¹University of Dhaka, Dhaka, Bangladesh, ²icddr, Dhaka, Bangladesh, ³University of Copenhagen, Copenhagen, Denmark

1384

LOCAL PERCEPTIONS, CULTURAL BELIEFS, PRACTICES AND CHANGING PERSPECTIVES OF HANDLING INFANT FECES: A CASE STUDY IN A RURAL GEITA DISTRICT, NORTH-WESTERN TANZANIA

Joy J. Chebet¹, Aminata Kilungo¹, Halimatou Alaofè¹, Hamisi Malebo², Shaaban Katani², Mark Nichter¹

¹University of Arizona, Tucson, AZ, United States, ²Tanzania National Institute for Medical Research, Dar es Salaam, United Republic of Tanzania

1385

MEASURING EFFECT OF A MENSTRUAL HYGIENE MANAGEMENT (MHM) INTERVENTION THROUGH SCHOOL PERFORMANCE OF GIRLS IN BANGLADESH

Farhana Sultana¹, Shirina Aktar¹, Shifat Khan¹, Farhana Akand¹, Md. Nuruzzaman¹, Supta Sarker¹, Md. Mahbubur Rahman¹, Leanne Unicomb¹, Peter J. Winch², Stephen P. Luby³, Fahmida Tofail¹

¹icddr, Dhaka, Bangladesh, ²Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³Stanford University, Stanford, CA, United States

1386

HEAVY METAL RESIDUAL ANALYSIS OF TOMATO IN THE HOHOE MUNICIPAL MARKET, GHANA

Forgive A. Norvivor, Nicholas O. Opoku

University of Health and Allied Sciences, Ho, Ghana

1387

EXPOSURE TO FECAL PATHOGENS AMONG INFANTS IN URBAN ECUADOR: DEVELOPMENT OF A STRUCTURED OBSERVATION INSTRUMENT

Andrea Sosa-Moreno¹, Gwenyth O. Lee¹, Amanda Van Engen¹, Kelly Sun¹, Jessica Uruchuma¹, Laura Kwong², Elizabeth Ludwig-Borycz¹, Bethany Caruso³, William Cevallos⁴, Karen Levy³, Joseph N. Eisenberg¹

¹University of Michigan, Ann Arbor, MI, United States, ²Stanford University, Stanford, CA, United States, ³Emory University, Atlanta, GA, United States, ⁴Instituto de Biomedicina, Carrera de Medicina, Universidad Central del Ecuador, Ecuador

1388

BURDEN OF CHOLERA IN NORTHWESTERN NIGERIA. AN ANALYSIS OF TREND OF CASES BETWEEN 2014-2019 IN KANO STATE, NIGERIA

Usman L. Shehu

AFENET/Nigeria Field Epidemiology and Laboratory Training Program, Abuja, Nigeria

1389

ACCESS TO ALCOHOL-BASED HAND RUB AND HAND HYGIENE ADHERENCE AMONG HEALTHCARE PROFESSIONALS IN KABAROLE DISTRICT, UGANDA, 2018-2019Matthew Lozier¹, Maureen Kesande², Sunkyoung Kim¹, Patricia Akers¹, Olive Tumuhairwe³, Martin Watsisi⁴, Winifred Omuut², Margaret Person¹, Mohammed Lamorde², Jennifer Murphy¹, Robert Quick¹, David Berendes¹¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Infectious Diseases Institute, Kampala, Uganda, ³Kabarole District Health Office, Ministry of Health, Fort Portal, Uganda, ⁴International Water and Sanitation Centre – WASH, Fort Portal, Uganda

1390

PERSISTENCE OF *SALMONELLA* TYPHI VIABILITY AND DNA IN SEWAGE

Renuka Kapoor, Christine L. Moe

Center for Global Safe Water, Sanitation, and Hygiene, Emory University, Atlanta, GA, United States

1391

INTEGRATING PREVENTATIVE MEASURES OF COVID 19 THROUGH NEGLECTED TROPICAL DISEASES WASH & HEALTH PROMOTION: TANZANIA EXPERIENCEAlistidia Simon¹, Cecilia Uisso², Oscar Kaitaba¹, Upendo Mwingira³, Jeremiah Ng'ondi³, Kimberly Kamara⁴¹Ministry of Health, Dar es salaam, United Republic of Tanzania, ²National Institute of Medical Research, Dar es salaam, United Republic of Tanzania, ³RTI, Washington, DC, United States, ⁴END FUND, New York, NY, United States**Poster Session C Viewing**

Poster Hall

Wednesday, November 18

1:15 p.m. - 11:59 p.m. U.S. Eastern Time Zone

Break

Wednesday, November 18

1:15 p.m. - 1:45 p.m. U.S. Eastern Time Zone

Scientific Session 82**Clinical Tropical Medicine: Vaccines, Travel**

Meeting Room 1

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Nouhoun Barry

Groupe de Recherche Action en Santé (GRAS), Ouagadougou, Burkina Faso

Lin H. Chen

Mount Auburn Hospital, Cambridge, MA, United States

1394

SAFETY AND IMMUNOGENICITY OF COADMINISTRATION OF MENINGOCOCCAL TYPE A VACCINE WITH TYPHOID CONJUGATE VACCINE IN HEALTHY CHILDREN 15-23 MONTHS OF AGE IN BURKINA FASOSodiomon B. Sirima¹, Alphonse Ouédraogo¹, Nouhoun Barry¹, Mohamadou Siribié¹, Alfred Tiono¹, Issa Nèbié Ouédraogo¹, Shrimati Datta², Yuanyuan Liang², Kathleen M. Neuzil³, Matthew B. Laurens³¹Groupe de Recherche Action en Santé (GRAS), Ouagadougou, Burkina Faso, ²University of Maryland School of Medicine, Baltimore, MD, United States, ³Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, MD, United States

1395

SINGLE-DOSE, LIVE ORAL CHOLERA VACCINE CVD 103-HGR (PXVX0200) INDUCES LONG-TERM SERUM VIBRIOCIDAL ANTIBODIES (SVA) IN ADOLESCENTSJames M. McCarty¹, Lisa Bedell², Sean Bennett²¹Stanford University, Stanford, CA, United States, ²Emergent BioSolutions, Gaithersburg, MD, United States

1396

ONE DOSE ORAL CHOLERA VACCINE COVERAGE DURING AN OUTBREAK IN URBAN HARARE, ZIMBABWE, 2018Ashley T. Longley¹, Nandini Sreenivasan², Emmaculate Lebo³, Aluwiso Mukavhi⁴, Grace Chaora⁴, Trymore Chawurura⁵, Maxwell Rupfuts³, Lloyd Machacha⁵, Manes Munyanyi⁵, Jethro Chakauya³, Mayuko Takamiya⁶, Naeema Logan², Marc Poncin³, Kashmiri Date², Portia Manangazira⁵¹CDC Foundation, Atlanta, GA, United States, ²Centers for Disease Control and Prevention, Atlanta, GA, United States, ³World Health Organization, Harare, Zimbabwe, ⁴Zimbabwe National Statistics Agency, Harare, Zimbabwe, ⁵Ministry of Health and Child Care, Harare, Zimbabwe, ⁶Centers for Disease Control and Prevention, Zimbabwe Country Office, Harare, Zimbabwe

1397

PERSISTENCE OF IMMUNOGLOBULIN M ANTIBODIES AFTER VACCINATION WITH LIVE ATTENUATED JAPANESE ENCEPHALITIS VACCINESusan L. Hills¹, Alex Van Keulen¹, Jodi Feser², Amanda Panella¹, G William Letson², J Erin Staples¹, Anthony A Marfin², Aaron C. Brault¹¹Centers for Disease Control and Prevention, Fort Collins, CO, United States, ²PATH, Seattle, WA, United States

1398

UNPLANNED HEALTHCARE DURING TRAVEL: A DESCRIPTIVE ANALYSIS FROM THE GEOSENTINEL NETWORKLin H. Chen¹, Watcharapong Piyaphanee², Marta Diaz-Menendez³, Hilmir Asgeirsson⁴, Philippe Gautret⁵, Elizabeth Barnett⁶, Michael Libman⁷, Patricia Schlagenhauf⁸, Karin Leder⁹, Katherine Plewes¹⁰, Kunjana Mavunda¹¹, Martin Grobusch¹², Davidson Hamer¹³¹Mount Auburn Hospital and Harvard Medical School, Cambridge, MA, United States, ²Mahidol University Faculty of Tropical Medicine, Bangkok, Thailand, ³Hospital La Paz Carlos III, Madrid, Spain, ⁴Karolinska University Hospital, Stockholm, Sweden, ⁵Aix Marseille University, Marseille, France, ⁶Boston Medical Center, Boston, MA, United States, ⁷McGill University J.D. MacLean Centre for Tropical Diseases, Cambridge, QC, Canada, ⁸University of Zurich, Zurich, Switzerland, ⁹Monash University and Royal Melbourne Hospital, Melbourne, Australia, ¹⁰University of British Columbia, Vancouver, BC, Canada, ¹¹International Travel Clinic, Miami, FL, United States, ¹²University of Amsterdam, Amsterdam, Netherlands, ¹³Boston University School of Public Health and Boston University School of Medicine, Boston, MA, United States

EARLY DIAGNOSIS AND FOLLOW-UP OF ACUTE SCHISTOSOMIASIS IN A COHORT OF BELGIAN TRAVELLERS USING ANTIBODY AND CIRCULATING ANODIC ANTIGEN (CAA) DETECTION METHODS

Pytsje Hoekstra¹, Marjan van Esbroeck², Claudia J. de Dood³, Paul L. Corstjens³, Lieselotte Cnops², Christel J. Zeijl - van der Ham⁴, Jutte J. de Vries⁴, Govert J. van Dam¹, Joannes Clerinx², Lisette van Lieshout¹

¹Department of Parasitology, Leiden University Medical Center, Leiden, Netherlands, ²Department of Clinical Sciences, Institute of Tropical Medicine Antwerp, Antwerp, Belgium, ³Department of Cell and Chemical Biology, Leiden University Medical Center, Leiden, Netherlands, ⁴Department of Medical Microbiology, Leiden University Medical Center, Leiden, Netherlands, ⁵Department of Clinical Sciences, Institute of Tropical Medicine Antwerp, Leiden, Netherlands

CLINICAL EVALUATION OF THE FILMARRAY GLOBAL FEVER PANEL

Brian W. Jones, David A. Rabiger, Mark A. Gurling, Madeline Veloz, Olivia Jackson, Marissa Burton, Natalie Batty, Ashley Wiltsie, Haley Halberg, Pascal Belgique, Cynthia D. Andjelic, Cynthia L. Phillips

BioFire Defense, LLC, Salt Lake City, UT, United States

Symposium 83

Monoclonal Antibodies to Prevent Malaria Infection and Transmission – from Antibody Identification to Clinical Evaluation

Meeting Room 2

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

The scientific rationale and potential use of mAbs to control and eliminate malaria has been recently discussed in a prior symposium. This symposium will move beyond the pre-clinical data and present novel results from two of the first ever clinical trials with anti-malaria mAbs in human volunteers. These trials evaluated the safety, tolerability, pharmacokinetics and efficacy of CIS43LS, a mAb targeting a conserved epitope at the junction of the N- and repeat regions of the pre-erythrocytic PfCSP antigen with an LS mutation to increase half-life, and TB31F, a mAb targeting a conserved epitope on the gamete protein Pfs48/45. CIS43LS has been adapted using site-directed mutagenesis to increase product half-life in plasma, which will be critical for optimizing its use. TB31F is a humanized version of 45.1, the most potent transmission blocking mAb for *P. falciparum* described to date. In addition to these clinical trial results, novel findings from two independent groups that use cutting-edge approaches to identify novel mAbs from naturally exposed or vaccinated populations will be presented. In the first of these studies, anti-sporozoite mAbs were isolated from unvaccinated Malian individuals who remained parasite-free over multiple years of intensive monitoring whilst residing in an area of intense malaria transmission. Identified mAbs reduced liver parasite burden in experimental rodent models and were used for structural characterization of antigen-epitope complexes. In the second study, B cell receptor responses were characterized among Malian adults who were vaccinated against the first domain of the cysteine-rich 230kDa gamete surface protein Pfs230. Two high affinity mAbs with complement-dependent activity were identified,

one of which targeted a highly conserved epitope and potentially blocked transmission to mosquitoes. The general discussion will focus on the use-scenarios of mAbs for malaria prevention and control efforts. The overall goals of the symposium are i) to provide the first data on the safety, pharmacokinetics and protective efficacy to illustrate how the scientific investigation on mAbs, a much-debated topic in malaria research, has moved from an attractive concept to clinical testing; ii) to discuss critical scientific insights into the mechanisms of efficacy and the deployability of mAbs for future clinical use.

CHAIR

Teun Bousema

Radboud University Medical Center, Nijmegen, Netherlands

Robert Seder

NIH/NIAID, Bethesda, MD, United States

1:45 p.m.

NATURALLY ACQUIRED ANTIBODIES TARGETING *PLASMODIUM FALCIPARUM* SPOROZOITES

Joshua Tan

NIAID, NIH, Rockville, MD, United States

2:05 p.m.

PREVENTION OF MALARIA BY A MONOCLONAL ANTIBODY (CIS43LS) AGAINST PFCSP IN HUMANS FOLLOWING CONTROLLED HUMAN MALARIA INFECTION

Robert Seder

NIH/NIAID, Bethesda, MD, United States

2:30 p.m.

A HUMAN MONOCLONAL ANTIBODY BLOCKS MALARIA TRANSMISSION AND DEFINES A HIGHLY CONSERVED NEUTRALIZING EPIOTOPE ON GAMETES.

Camila Henriques Coelho

NIAID/NIH, Rockville, MD, United States

5:50 p.m.

SAFETY AND TRANSMISSION BLOCKING ACTIVITY OF HUMANIZED MONOCLONAL ANTIBODY TB31F

Saskia C. van der Boer

Radboud University Medical Center, Nijmegen, Netherlands

Symposium 84

Towards Regional Elimination of Malaria in Central America

Meeting Room 3

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Malaria elimination is an ambitious and achievable goal for Central America. In 2018, three of the seven countries in the region reported fewer than 100 cases, including El Salvador (0), Belize (3), and Costa Rica (70). Not too far behind are Honduras and Guatemala which will end 2019 with less than 350 and 1800 indigenous cases, respectively, representing case declines of well over 50% in the past two years alone. The impressive progress across the region can be attributed, in part, to high level commitment leading to country-specific mixes in improved case management and better targeted vector control interventions on a base of strengthened surveillance. While it is possible that case

reductions may be catalyzed by favorable ecological conditions (i.e. reduced rainfall), the historically low case numbers suggest elimination is within reach. Despite the success in recent years, challenges remain to reaching zero cases. Importation, especially from Nicaragua (>10000 cases) and potentially from Venezuela (>400,000 cases), threatens regional progress. Questions related to *Plasmodium vivax* relapses and vector biting behavior continue to obscure where interventions are most effective or how capital should be allocated between available interventions. As cases become more concentrated to remote, and often indigenous, communities, gaps in access to treatment and diagnosis may grow. As case numbers fall, shifting financial and human resources away from malaria towards other vector borne diseases like dengue and Zika also threatens to slow progress. This symposium will provide an overview from country malaria programs and their partners on the progress towards malaria elimination and the main remaining hurdles in the path towards elimination. Specific emphasis will be given to describing drivers of country-specific case declines, discussing region wide challenges for elimination, and outlining the path forward as it relates to financial commitment and innovative funding schemes from donors and financial institutions.

CHAIR

Justin T. Lana
Clinton Health Access Initiative, Panama City, Panama
Blanca Escribano
Pan American Health Organization, Washington, DC, United States

1:45 p.m. PROGRESS TOWARDS MALARIA ELIMINATION ACROSS CENTRAL AMERICA AND ENSUING CHALLENGES

Blanca Escribano
Pan American Health Organization, Washington, DC, United States

2:05 p.m. NEARING ELIMINATION: HOW HONDURAS PLANS TO ACHIEVE ZERO CASES IN THE NEXT FEW YEARS

Carlos Miranda
Ministry of Health, Honduras, Tegucigalpa, Honduras

2:25 p.m. MAINTAINING ZERO CASES IS DIFFICULT: EXPERIENCES FROM COSTA RICAN PROGRAMME

Alejandra Acuña Navarro
Ministry of Health, Costa Rica, San Jose, Costa Rica

2:45 p.m. WAY FORWARD: SUSTAINABLE FINANCIAL MECHANISM TO ACHIEVE MALARIA ELIMINATION

Emma Margarita Iriarte
Inter-American Development Bank, Panama City, Panama

Symposium 85

Host-Directed Therapeutics for Malaria

Meeting Room 4
Wednesday, November 18
1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Infectious diseases remain a leading cause of morbidity and mortality worldwide, yet most of the world's most dangerous

infectious diseases still lack specific adjunct therapies that could be given in combination with anti-pathogen drugs to improve patient outcomes. Host-directed therapy is a new direction for infectious disease drug development that is designed to interfere with host pathways that are required for host cell infection or contribute to disease mechanisms. Drugs that target human proteins are safely in widespread usage to treat non-communicable diseases, ranging from cancer to blood pressure control, and represent a rich arsenal of safe and effective human-targeted interventions. Host-directed therapies are increasingly recognized as a safe and viable adjunct therapy for anti-microbial treatments. Significant progress has been made in the understanding of host pathways critical for *Plasmodium* survival in hepatocytes or involved in pathogenic mechanisms in severe malaria. The aim of this symposium is to discuss recent progress in identifying host pathways as druggable targets of liver stage parasites or as adjunct treatments for severe malaria.

CHAIR

Joseph D. Smith
Seattle Children's Research Institute, Seattle, WA, United States
Alexis Kaushansky
Seattle Children's Research Institute, Seattle, WA, United States

1:45 p.m. NEW APPROACHES TO ELUCIDATE HOST REGULATORS AND HOST-BASED INHIBITORS OF PLASMODIUM LIVER INFECTION

Alexis Kaushansky
Seattle Children's Research Institute, Seattle, WA, United States

2:10 p.m. DISCOVERY OF DRUGGABLE HOST FACTORS CRITICAL TO LIVER STAGE INFECTION

Emily Derbyshire
Duke University, Durham, NC, United States

2:35 p.m. KINASE INHIBITOR MODULATION OF ENDOTHELIAL BARRIER PERMEABILITY: TACKLING VASCULAR LEAK SYNDROMES

Joseph Smith
Seattle Children's Research Institute, Seattle, WA, United States

3 p.m. NEW INSIGHTS INTO MICROVASCULAR INJURY TO INFORM HOST-TARGETED THERAPEUTICS

Kevin Kain
University of Toronto, Toronto, ON, Canada

Symposium 86

Severe Malaria: Improving the Continuum of Care

Meeting Room 5
Wednesday, November 18
1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Severe malaria is typically the result of a failure in the healthcare delivery and/or healthcare seeking behavior for uncomplicated malaria. In 2019, an estimated 405,000 malaria related deaths occurred, mostly in children in sub-Saharan Africa. There is mounting evidence that a pre-referral intervention with artesunate rectal capsules, followed by appropriate severe malaria treatment with injectable artesunate at a referral health facility, and

completed with a full ACT course, leads to better outcomes. An increasing number of countries have updated their national guidelines for the treatment of severe malaria. Translating these guidelines into practice is proving challenging in remote settings. This symposium will provide an opportunity to learn from diverse country experiences where activities are being operationalized to improve prompt access to severe malaria case management in the continuum of care for severe malaria patients.

CHAIR

Hans Rietveld
Medicines for Malaria Venture, Geneva, Switzerland

Elizabeth Juma
World Health Organization, Africa Regional Office, Harare, Zimbabwe

1:45 p.m.

BEHAVIOR-CHANGE COMMUNICATION AND TRAINING OF HEALTH SURVEILLANCE ASSISTANTS TO IMPROVE SEVERE MALARIA CASE-MANAGEMENT PRACTICES: RESULTS FROM A STUDY IN MALAWI

John Phuka
University of Malawi, School of Public Health and Family Medicine, College of Medicine, Lilongwe, Malawi

2:05 p.m.

A RAPID ASSESSMENT OF SEVERE MALARIA CASE-MANAGEMENT PRACTICES, INCLUDING REFERRALS, IN ANGOLA

José Martins
Programa Nacional de Controlo da Malária, Direcção Nacional de Saude Publica, Luanda, Angola

2:25 p.m.

ROLLING OUT ARTESUNATE RECTAL CAPSULES AS A PRE-REFERRAL INTERVENTION IN SIERRA LEONE

Anitta R. Kamara
National Malaria Control Programme, Freetown, Sierra Leone

2:45 p.m.

A COUNTRY EXPERIENCE: TRAINING, IMPLEMENTATION AND PROCESS EVALUATION RELATED TO A PRE-REFERRAL INTERVENTION FOR SEVERE MALARIA PATIENTS IN MADAGASCAR

Mauricette Andriamananjara Nambinisoa
National Malaria Control Program Madagascar, Antananarivo, Madagascar

Symposium 87

The Path from Development to Delivery: Accelerated Development and Introduction of Ivermectin, DEC, and Albendazole (IDA) Triple Therapy; How Was It Done?

Meeting Room 6

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

The combination of ivermectin, DEC, and albendazole (IDA) triple therapy was researched, developed and introduced at a remarkable pace. This session will review the data, the partnerships, and the process to achieve this rapid uptake to help eliminate lymphatic filariasis (LF).

CHAIR

Julie A. Jacobson
Bridges to Development, Seattle, WA, United States

Jonathan King
World Health Organization, Genève, Switzerland

1:45 p.m.

INTRODUCTION TO PANEL DISCUSSION #1: IVERMECTIN, DEC, AND ALBENDAZOLE (IDA) TRIPLE THERAPY DEVELOPMENT; WHAT MADE THIS UNIQUE?

Julie Jacobson
Bridges to Development, Seattle, WA, United States

1:55 p.m.

PANEL DISCUSSION #1: IVERMECTIN, DEC, AND ALBENDAZOLE (IDA) TRIPLE THERAPY DEVELOPMENT; WHAT MADE THIS UNIQUE?

Moderator: Julie Jacobson
Bridges to Development, Seattle, WA, United States

Gary J. Weil
Washington University School of Medicine, St. Louis, MO, United States

Rachel Taylor
Merck Mectizan Donation Program, Kenilworth, NJ, United States

Warren Lancaster
END Fund Amsterdam, Amsterdam, Netherlands

Alison Krentel
Bruyère Research Institute, University of Ottawa, Ottawa, ON, Canada

Jonathan King
World Health Organization, Genève, Switzerland

2:35 p.m.

INTRODUCTION TO PANEL DISCUSSION #2: ACCELERATING INTRODUCTION OF IDA INTO COUNTRY PROGRAMS

Jonathan King
World Health Organization, Genève, Switzerland

2:45 p.m.

PANEL DISCUSSION #2: ACCELERATING INTRODUCTION OF IDA INTO COUNTRY PROGRAMS

Moderator: Jonathan King
World Health Organization, Genève, Switzerland

Sultani H. Matendebero
MOH Kenya, Nairobi, Kenya

Neeraj Dhingra
National Vector Borne Disease Control Programme (NVBDCP), New Delhi, India

Aya Yajima
NTD Focal Point, WPRO, Manila, Philippines

Melinda Susapu
National Department of Health, Port Moresby, Papua New Guinea

Scientific Session 88

Zika: Vaccines and Immunity

Meeting Room 7

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Jason S. Richardson
EBSI, Winnipeg, MB, Canada

Anna P. Durbin
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

1401

LIVE-ATTENUATED CHIMERIC VACCINE CANDIDATES AGAINST ZIKA VIRUS INDUCE PROTECTIVE IMMUNITY IN AG129 MICE AND NON-HUMAN PRIMATES**Whitney Baldwin¹**, Holli Giebler¹, Janae Stovall², Ginger Young³, Kelly Bohning³, Hansi Dean³, Jill Livengood¹, Claire Huang²¹Takeda Vaccines, Centers for Disease Control and Prevention/Division of Vector-Borne Diseases, Fort Collins, CO, United States, ²Centers for Disease Control and Prevention/Division of Vector-Borne Diseases, Fort Collins, CO, United States, ³Takeda Vaccines, Cambridge, MA, United States

1402

A PHASE 1 DOSE RANGING TRIAL OF A ZIKV MRNA VACCINE CANDIDATE IN HEALTHY FLAVIVIRUS BASELINE SEROPOSITIVE AND SERONEGATIVE ADULTS**Nancy Le Cam**, Veronica Faughnan, Rolando Pajon, Shiva Kalidindi, Shu Han, Wellington Sun, Tal Zaks, Hamilton Bennett
ModernaTx, Cambridge, MA, United States

1403

RESULTS OF A PHASE 1 STUDY TO EVALUATE SAFETY AND PHARMACOKINETICS OF ANTI-ZIKA VIRUS IMMUNE GLOBULIN (HUMAN) (ZIKV-IG) IN HEALTHY VOLUNTEERSJane White¹, Priya Tunga², Debbie Anderson³, Ken C. Iledan³, Tobi Loreth³, Geraldine Parrera³, Hugo Astacio³, Bojan Drobnic², **Jason S. Richardson³**¹Emergent BioSolutions Inc, New York, NY, United States, ²Emergent BioSolutions Inc, Toronto, ON, Canada, ³Emergent BioSolutions Inc, Winnipeg, MB, Canada

1404

CD8+ T CELLS MEDIATE AN NS3-BASED VACCINE PROTECTION AGAINST ZIKA VIRUS: A NEW STRATEGY FOR VACCINE DEVELOPMENT**Annie Elong-Ngono¹**, Thasneem Syed¹, Anh-Viet Nguyen¹, Jose Angel Regla-Nava¹, Mercylia Susantono¹, Darina Spasova², Allison Aguilar², Melissa West², Jessica Sparks², Andrew Gonzalez¹, Emilie Branche¹, Jason L. DeHart², Jerel Boyd Vega², Priya Prakash Karmali³, Padmanabh Chivukula³, Parinaz Aliahmad², Nathaniel Wang², Sujan Shresta¹¹La Jolla Institute for Immunology, La Jolla, CA, United States, ²Synthetic Genomics, Inc, La Jolla, CA, United States, ³Arcturus Therapeutics, San Diego, CA, United States

1405

ANTIGEN-SPECIFIC T CELLS RESTRICT VIRAL DIVERSITY AND DISSEMINATION DURING ZIKA VIRUS INFECTION**Mariah Hassert¹**, Christopher M. Weiss², Lark L. Coffey², Amelia K. Pinto¹, James D. Brien¹¹Saint Louis University, St. Louis, MO, United States, ²University of California-Davis, Davis, CA, United States

1406

ASSESSING ANTIVIRAL FUNCTIONS OF A ZIKV-NEUTRALIZING HUMAN IGM AS A CANDIDATE FOR ANTIBODY-BASED PROPHYLAXIS DURING PREGNANCY**Tulika Singh¹**, Kwan Ki-Hwang¹, Rebecca Jones¹, Joshua Eudailey¹, Helen Webster¹, Cesar Lopez², Premkumar Lakshmanan², Kan Luo¹, Robert J. Edwards¹, Camila Giuberti³, Summer Zhang⁴, Morgan Gladden¹, Jesse Mangold¹, Joshua Tu¹, Maria Dennis¹, Reynaldo Dietze³, Aravinda de Silva², Helen Lazear², Eng Eong Ooi⁴, Sallie Permar¹, Mattia Bonsignori¹¹Duke University, Durham, NC, United States, ²University of North Carolina – Chapel Hill, Chapel Hill, NC, United States, ³Universidade Federal do Espírito Santo, Vitória, Brazil, ⁴Duke University-National University of Singapore Medical School, Singapore, Singapore

1407

PRIOR DENGUE IMMUNITY MAY ENHANCE ZIKA VIRUS INFECTION IN THE PLACENTA IN NON-HUMAN PRIMATES**Chelsea M. Crooks¹**, Andrea M. Weiler², Sierra L. Rybarczyk², Mason I. Bliss², Anna S. Jaeger³, Megan E. Murphy⁴, Heather A. Simmons², Jennifer M. Hayes², Andres Mejia², Michael K. Fritsch⁵, Elizabeth A. Brown¹, Katarina M. Braun¹, Ann M. Mitzey⁴, Elaina Razo⁶, Keisuke Yamamoto⁵, Phoenix M. Shepherd⁵, Amber R. Possell², Kara Weaver², Terry K. Morgan⁷, Christina M. Newman⁵, Dawn M. Dudley⁵, Nancy Schultz-Darken², Eric Peterson², Leah C. Katzelnick⁸, Angel Balmaseda⁹, Eva Harris⁸, Emma L. Mohr⁶, Thaddeus G. Golos⁴, David H. O'Connor⁵, Matthew T. Aliota³, Thomas C. Friedrich¹¹Department of Pathobiological Sciences, University of Wisconsin-Madison, Madison, WI, United States, ²Wisconsin National Primate Research Center, University of Wisconsin-Madison, Madison, WI, United States, ³Department of Veterinary and Biomedical Sciences, University of Minnesota, Twin Cities, St. Paul, MN, United States, ⁴Department of Comparative Biosciences, University of Wisconsin-Madison, Madison, WI, United States, ⁵Department of Pathology and Laboratory Medicine, University of Wisconsin-Madison, Madison, WI, United States, ⁶Department of Pediatrics, University of Wisconsin-Madison, Madison, WI, United States, ⁷Departments of Pathology and Obstetrics and Gynecology, Oregon Health and Science University, Portland, OR, United States, ⁸Division of Infectious Diseases and Vaccinology, University of California Berkeley, Berkeley, CA, United States, ⁹Laboratorio Nacional de Virologia, Centro Nacional de Diagnóstico y Referencia, Ministry of Health, Managua, Nicaragua**Scientific Session 89****Malaria Epidemiology II: Dynamics and Heterogeneity in Low-Transmission Settings**

Meeting Room 8

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Tatiana Loboda

University of Maryland, College Park, MD, United States

Peter D. McElroy

CDC, Atlanta, GA, United States

1408

THE TOP 1% - QUANTIFYING THE UNEQUAL DISTRIBUTION OF MALARIA: THE CASE OF BRAZIL**Narimane Nekkab¹**, Raquel Lana², Andre Siqueira², Cassio Peterka³, Paola Marchesini⁴, Marcus Lacerda³, Ivo Mueller¹, Michael White¹, Daniel Villela²¹Institut Pasteur, Paris, France, ²Fundação Oswaldo Cruz, Rio de Janeiro, Brazil, ³Fundação de Medicina Tropical Dr. Heitor Vieira Dourado, Manaus, Brazil, ⁴Department of Transmissible Diseases Surveillance, Ministry of Health, Brasília, Brazil

1409

ASSESSING MULTI-SCALE EXPOSURE PATHWAYS IN ZONES OF PATCHY DISTRIBUTION OF MALARIA RESERVOIRS WITHIN REMOTE REGIONS OF MYANMAR**Tatiana Loboda¹**, Amanda Hoffman-Hall¹, Dong Chen¹, Allison Baer¹, Varada Shevade¹, Robin Puett¹, Julie Silva¹, Kay Thwe Han², Kyin Hla Aye², Zay Yar Han³, Thura Htay⁴, Zaw Win Thein⁴, Poe Poe Aung⁴, Christopher Plowe³, Myaing Myaing Nyunt³¹University of Maryland, College Park, MD, United States, ²Department of Medical Research, Yangon, Myanmar, ³Duke Global Health Institute, Durham, NC, United States, ⁴Duke Global Health Institute, Myanmar, Yangon, MyanmarWednesday
November 18

1410

FACTORS ASSOCIATED WITH CLUSTERING OF MALARIA CASES WITHIN THE INDEX CASE HOUSEHOLDS AND NEIGHBORHOOD HOUSEHOLDS IN ZANZIBAR

Abdul-wahid Al-mafazy¹, Abdullah Ali², Faiza Abbas², Mohamed Ali², Wahida Hassan², Makame Makame², Raya Ibrahim², Salum Massoud², Moza Khamis², Chonge Kitojo³, Richard Reithinger⁴, Mike McKay⁴, Ssanyu Nyinondi⁵, Joseph Joseph⁵, Humphrey Mkali⁵, Erik Reaves⁶, Shabbir Lalji⁵, Jeremiah Ngondi⁷
¹RTI International, Zanzibar, United Republic of Tanzania, ²Zanzibar Malaria Elimination Programme, Zanzibar, United Republic of Tanzania, ³U.S. President's Malaria Initiative/ United States Agency for International Development, Dar es Salaam, United Republic of Tanzania, ⁴Dar-es-salaam, United Republic of Tanzania, ⁵RTI International, Washington, DC, United States, ⁶RTI International, Dar-es-salaam, United Republic of Tanzania, ⁷U.S. President's Malaria Initiative, US Centers for Disease Control and Prevention, Dar es Salaam, United Republic of Tanzania, ⁸Dar-es-salaam, United Republic of Tanzania, ⁹RTI International, Cambridge, United Kingdom

1412

TEMPORAL AND MICRO-SPATIAL HETEROGENEITY IN TRANSMISSION DYNAMICS OF CO-ENDEMIC *PLASMODIUM VIVAX* AND *PLASMODIUM FALCIPARUM* IN TWO RURAL COHORT POPULATIONS IN THE PERUVIAN AMAZON

Angel Rosas-Aguirre¹, Mitchel Guzman-Guzman², Raul Chuquiyauri², Marta Moreno³, Paulo Manrique⁴, Roberson Ramirez⁴, Gabriel Carrasco-Escobar², Hugo Rodriguez⁵, Niko Speybroeck⁶, Jan Conn⁷, Dionicia Gamboa², Joseph M. Vinet², Alejandro Llanos-Cuentas⁹
¹Fund for Scientific Research FNRS; Research Institute of Health and Society (IRSS), Université catholique de Louvain, Brussels, Belgium, ²Instituto de Medicina Tropical Alexander von Humboldt; Laboratorio ICEMR-Amazonia, Laboratorios de Investigación y Desarrollo, Facultad de Ciencias y Filosofía, Universidad Peruana Cayetano Heredia, Lima, Peru, ³London School of Hygiene and Tropical Medicine, Department of Immunology and Infection, London, United Kingdom, ⁴Laboratorio ICEMR-Amazonia, Laboratorios de Investigación y Desarrollo, Facultad de Ciencias y Filosofía, Universidad Peruana Cayetano Heredia, Lima, Peru, ⁵Dirección Regional de Salud Loreto DIRESA Loreto, Iquitos, Peru, ⁶Research Institute of Health and Society (IRSS), Université catholique de Louvain, Brussels, Belgium, ⁷Wadsworth Center, NYSDOH, Albany, NY, US; Department of Biomedical Sciences, School of Public Health, University at Albany, State University of New York, Albany, NY, United States, ⁸Section of Infectious Diseases, Department of Internal Medicine, Yale School of Medicine, New Haven, CT, United States, ⁹Instituto de Medicina Tropical Alexander von Humboldt; Facultad de Salud Pública y Administración, Universidad Peruana Cayetano Heredia, Lima, Peru

1413

A HIGH PROPORTION OF *PLASMODIUM VIVAX* RECURRENCES ARE DUE TO RELAPSE ACROSS DIVERSE GEOGRAPHICAL LOCATIONS

Robert J. Commons¹, Julie A. Simpson², James Watson³, Nicholas J. White³, Ric N. Price¹
¹Menzies School of Health Research, Darwin, Australia, ²Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ³Mahidol-Oxford Tropical Medicine Research Unit (MORU), Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand

Scientific Session 90

Malaria: Biology and Pathogenesis

Meeting Room 9

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Arlene E. Dent

Case Western Reserve University, Cleveland, OH, United States

Robert O. Opoka

Makerere University, Kampala, Uganda

1414

CHARACTERIZING THE PHYSIOLOGY OF HEMOLYTIC TOXICITY IN A HUMANIZED MOUSE MODEL OF G6PD DEFICIENCY

Siobhan Flaherty¹, Pamela Strauch¹, Conner Jackson¹, Mahdi Maktabi¹, Larry Walker², Rosemary Rochford¹
¹University of Colorado, Aurora, CO, United States, ²University of Mississippi, Oxford, MS, United States

1415

ANEMIA AND INFLAMMATION IN CHILDREN BELOW 5 YEARS LIVING IN AREAS OF HIGH AND LOW TRANSMISSION SETTINGS IN WESTERN KENYA

Shehu S. Awundu¹, Lindsey B. Turnbull², Veronicah Knight¹, George Ayodo¹, John C. Chandy²
¹Kenya Medical Research Institute (KEMRI) / Jaramogi Oginga Odinga University of Science and Technology, Kisumu, Kenya, ²Ryan White Center for Pediatric Infectious Disease & Global Health, Department of Pediatrics, Indiana University, Indianapolis, IN, United States

1416

SEVERE FALCIPARUM MALARIA IN YOUNG CHILDREN IS ASSOCIATED WITH POOR POST-DISCHARGE OUTCOMES: A PROSPECTIVE COHORT STUDY

Robert O. Opoka¹, Ruth Namazzi¹, Dibadyuti Datta², Paul Bangirana³, Andrea L. Conroy², Chandy C. John²
¹Makerere University, Kampala, Uganda, ²Ryan White Center for Pediatric Infectious Diseases and Global Health, Indiana University School of Medicine, IN, United States, ³Department of Psychiatry, College of Health Sciences, Kampala, Uganda

1417

DIFFERENTIAL EXPRESSION OF UBIQUITYLATION PATHWAY GENES IN KENYAN CHILDREN WITH SEVERE MALARIAL ANEMIA

Samuel Bonuke Anyona¹, Evans Raballah², Qiuying Cheng³, Ivy Hurwitz³, Caroline Ndege³, Elly Munde³, Clinton Onyango³, Nick Lauve³, Kristan A. Schneider⁴, Christophe G. Lambert³, Benjamin H. McMahon⁵, Collins Ouma⁶, Douglas J. Perkins³
¹Maseno University School of Medicine, Kisumu, Kenya, ²Masinde Muliro University of Science and Technology, Kakamega, Kenya, ³Center for Global Health, Department of Internal Medicine, University of New Mexico, Albuquerque, NM, United States, ⁴Department Applied Computer and Bio-Sciences, University of Applied Sciences Mittweida, Mittweida, Germany, ⁵Theoretical Biology and Biophysics Group, Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM, United States, ⁶Maseno University School of Public Health and Community Development, Kisumu, Kenya (ACMCIP Abstract)

1418

PERSISTENT DYSREGULATION OF METABOLISM IN CHILDREN WITH ACUTE MALARIA

Arlene E. Dent¹, Adam Pelletier¹, Leanne Robinson², Katherine Dobbs¹, Moses Laman³, Rafick Sekaly¹, James Kazura¹
¹Case Western Reserve University, Cleveland, OH, United States, ²Burnett Institution, Melbourne, Australia, ³PNG IMR, Madang, Papua New Guinea

1419

ACUTE KIDNEY INJURY AND PERSISTENT KIDNEY INJURY AT ONE MONTH FOLLOW-UP IN UGANDAN CHILDREN WITH SEVERE MALARIA

Andrea L. Conroy¹, Ruth Namazzi², Anthony Batte², Dibadyuti Datta¹, John Ssenkusu³, Robert O. Opoka², Chandy C. John¹
¹Indiana University School of Medicine, Indianapolis, IN, United States, ²Makerere University, Kampala, Uganda, ³Makerere University School of Public Health, Kampala, Uganda

1420

IMPACT OF MALARIA ON FETAL GROWTH: A LONGITUDINAL ULTRASOUND COHORT STUDY IN BENIN

Valerie Briand¹, Emmanuel Yovo², Manfred Accrombessi², Auguste Degbe-Abagnon², William Atade², Titilola Ladikpo², Muriel Mehoba², Achille Massougboji², Nicola Jackson³, Nadine Fievet⁴, Jennifer Zeitlin⁵, François Koladjo²

¹Research Institute for Development (IRD), Bordeaux, France, ²IRCB, Cotonou, Benin, ³Oxford University, Oxford, United Kingdom, ⁴Research Institute for Development (IRD), Paris, France, ⁵Inserm, U1153, Paris, France

Scientific Session 91**Malaria: Modeling to Support Implementation and New Approaches**

Meeting Room 10

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Jonathan J. Juliano

University of North Carolina, Chapel Hill, NC, United States

Hannah Slater

PATH, Seattle, WA, United States

1421

NEUREGULIN-1 ATTENUATES HEME- AND PLASMODIUM FALCIPARUM HISTIDINE RICH PROTEIN II (HRPII)- INDUCED INFLAMMATION AND NEURONAL DAMAGE IN CORTICAL BRAIN ORGANOID

Adriana Harbuzariu¹, Annette Nti¹, Juan Carlos Cespedes¹, Keri Harp¹, Andrew Shaw², Sha'aqua Asberry², Jonathan K. Stiles¹

¹Morehouse School of Medicine, Atlanta, GA, United States, ²Georgia Institute of Technology, Atlanta, GA, United States

1422

QUANTIFYING AND PREVENTING PLASMODIUM VIVAX RECURRENCES IN PRIMAQUINE-UNTREATED PREGNANT WOMEN: AN OBSERVATIONAL AND MODELING STUDY IN BRAZIL

Rodrigo M. Corder¹, Antonio C. de Lima¹, David S. Khoury², Steffen S. Docken², Miles P. Davenport², Marcelo U. Ferreira¹

¹University of Sao Paulo, Sao Paulo, Brazil, ²University of New South Wales, Sydney, Australia

1423

MODELLING PUBLIC HEALTH IMPACT AND PRIMAQUINE OVERTREATMENT FOR SEROLOGICAL-TEST-AND-TREAT STRATEGIES TARGETING THE HIDDEN PLASMODIUM VIVAX RESERVOIR

Thomas Obadia¹, Michael White, Narimane Nekkab, Ivo Mueller
Institut Pasteur, Paris, France

1424

USING MECHANISTIC MODELS TO SUPPORT DECISION-MAKING IN COUNTRIES WITH HIGH MALARIA BURDEN

Monique Ambrose¹, Ifeoma D. Ozodiegwu², Aadrita Nandi², Kamaldeen Okuneye², Sebastian Rodriguez², Marita Zimmermann¹, Beatriz Galatas³, Abdusalim Noor³, Caitlin Bever¹, Jaline Gerardin²

¹Institute for Disease Modeling, Bellevue, WA, United States, ²Northwestern University, Chicago, IL, United States, ³World Health Organization, Geneva, Switzerland

1425

PROJECTED DEVELOPMENT OF ANTIMALARIAL DRUG RESISTANCE IN BURKINA FASO USING HIGH RESOLUTION SPATIAL MODELING

Robert J. Zupko¹, Thir Tran¹, Trần Đăng Nguyễn¹, Fabrice Somé², Jean-Bosco Ouedraogo², Maciej F. Boni¹

¹Pennsylvania State University, State College, PA, United States, ²Institut de Recherche en Sciences de la Santé, Direction Régionale de l'Ouest, Bobo-Dioulasso, Burkina Faso

1426

USING MALARIA ANTIGEN DATA AND MACHINE LEARNING MODELS TO CLASSIFY MALARIA INFECTIONS AND STRATIFY VILLAGES BY PREVALENCE LEVEL

Leo Zoeckler¹, Hannah Slater¹, Ihn Kyung Jang¹, Allison Golden¹, Francois Nosten², Jordi Landier³, Gonzalo J. Domingo¹

¹PATH, Seattle, WA, United States, ²Mahidol Oxford Tropical Medicine Research Unit, Shoklo Malaria Research Unit, Bangkok, Thailand, ³French National Research Institute for Sustainable Development, Marseille, France

1427

TRANSLATING OBSERVATIONAL STUDIES FOR DISEASE MODELLING

Theresa Reiker¹, Thomas Smith¹, Manuela Runge², Melissa Penny¹

¹Swiss Tropical and Public Health Institute, Basel, Switzerland, ²Northwestern University, Chicago, IL, United States

Scientific Session 92**Malaria: SMC and Beyond**

Meeting Room 11

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Sol Richardson

Malaria Consortium, London, United Kingdom

Monica Anna de Cola

Malaria Consortium, London, United Kingdom

1429

IMPACT OF SEASONAL MALARIA CHEMOPREVENTION (SMC) BEYOND MALARIA CONTROL AMONGST UNDER-FIVE CHILDREN IN EIGHT LOCAL GOVERNMENT AREAS (LGAS) ACROSS KATSINA AND YOBE STATES.

Akinola Shonde¹, Frank Oronsaye¹, Jamilu Nikau², Olatayo Abikoye¹, Jane Onyilo³, Nnenna Ogbulafor², Yakubu Cherima¹, Bala Mohammed², Diwe Ekweremadu¹, Sonachi Ezeiru¹, Olugbenga Mokuolu²

¹Catholic Relief Services Nigeria, Abuja, Nigeria, ²National Malaria Elimination Program, Abuja, Nigeria, ³Malaria Consortium, Abuja, Nigeria

1430

ASSESSING THE IMPACT OF SEASONAL MALARIA CHEMOPREVENTION (SMC) ON SUSPECTED AND CONFIRMED MALARIA CASES IN 10 HEALTH DISTRICTS IN CHAD USING ROUTINE CLINICAL DATA, 2013-2018

Sol Richardson¹, Azoukalne Moukenet², Arantxa Roca-Feltre¹, Monica A. de Cola¹, Zana Coulibaly²

¹Malaria Consortium, London, United Kingdom, ²Malaria Consortium, N'Djamena, Chad

Wednesday
November 18

EXTENDING SEASONAL MALARIA CHEMOPREVENTION IN BURKINA FASO TO FIVE CYCLES TO COINCIDE WITH THE START OF THE RAINY SEASON IN THE CASCADES REGION: RESULTS FROM A PILOT STUDY TO ASSESS FEASIBILITY, ACCEPTABILITY, COST AND IMPACT ON MALARIA INCIDENCE

Kevin Nicholas Baker¹, Adama Traore², Charlotte Ward¹, Benoit Sawadogo², Helen Counihan¹, Christian Rassi¹, Sol Richardson¹, Helen Smith¹, Johanna Johansson², Justin Savadogo³, Alain Toe²

¹Malaria Consortium, London, United Kingdom, ²Malaria Consortium, Ouagadougou, Burkina Faso, ³National Malaria Control Programme, Ouagadougou, Burkina Faso

MEASURING IMPACT OF SEASONAL MALARIA CHEMOPREVENTION (SMC) IN BURKINA FASO USING NATIONAL HOUSEHOLD SURVEYS (2010-2017)

Monica Anna deCola¹, Benoit Sawadogo², Sol Richardson¹, Arantxa Roca-Feltrer¹, Christian Rassi¹

¹Malaria Consortium, London, United Kingdom, ²Malaria Consortium, Ouagadougou, Burkina Faso

DIFFERENTIAL REDUCTION IN FACILITY-LEVEL AND DISTRICT-LEVEL MALARIA CASES FOLLOWING A NATIONAL MASS BEDNET DISTRIBUTION CAMPAIGN WITH TWO TYPES OF NETS, MALAWI, 2018-2019

Collins Kwizombe¹, Tyson Volkmann¹, Kevin Griffith², Julie Gutman³, Pius Masache¹, Lilia Gerberg², John Gimnig³, Austin Gumbo⁴, Michael Kayange⁴, Edson Dembo¹, Monica Bautista¹, John Painter³

¹PMI, Lilongwe, Malawi, ²PMI, Washington, DC, United States, ³CDC, Atlanta, GA, United States, ⁴NMCP, Lilongwe, Malawi

GROUP ANTENATAL CARE (GANC): A BASELINE INITIATIVE TO IMPROVE MALARIA IN PREGNANCY & ANC INDICATORS. A CASE FROM GEITA TANZANIA

Jasmine Chadewa¹, Mary Drake¹, Chonge Kitojo², Ryan Lash³, Stephanie Suhowatsky⁴, Abdallah Lusasi⁵, Japhet Simeo⁶, Goodluck Tesha⁷, Ruth Lemwayi¹, Issa Garimo⁵, Agnes Kosia¹, Alice Christensen¹, Rita Noronha¹, Zahra Mkomwa⁷, Naomi Serbantez², Melkior Assenga¹, Erik Reaves⁸, Samwel Lazaro⁵, Miriam Kombe⁹, Alen Kinyina¹, Alen Kinyina¹, Ally Mohamed⁵, Gladys Tetteh⁴, Bill Brieger¹⁰, Edward Kenyi⁴, Annette Almeida¹, Julie Gutman³

¹USAID Boresha Afya Project -Jhpiego Tanzania, Dar es Salaam, United Republic of Tanzania, ²President's Malaria Initiative/United States Agency for International Development, Tanzania, Dar es Salaam, United Republic of Tanzania, ³Malaria Branch, Division of Parasitic Diseases and Malaria, Center for Global Health, Centers for Disease Control and Prevention, Dar es Salaam, United Republic of Tanzania, ⁴Jhpiego Headquarter U.S.A, Baltimore, MD, United States, ⁵National Malaria Control Program-Tanzania Ministry of Health, Community Development, Gender, Elderly and Children, Dar es Salaam, United Republic of Tanzania, ⁶Regional Health Management Team, Dar es Salaam, United Republic of Tanzania, ⁷USAID Boresha Afya Project -Path Tanzania, Dar es Salaam, United Republic of Tanzania, ⁸President's Malaria Initiative, Centers for Disease Control and Prevention Tanzania, Dar es Salaam, United Republic of Tanzania, ⁹USAID, Dar es Salaam, Dar es Salaam, United Republic of Tanzania, ¹⁰Jhpiego Headquarter U.S.A, Dar es Salaam, United Republic of Tanzania

BRINGING LLIN DISTRIBUTION CLOSER TO COMMUNITIES IN GUINEA THROUGH ADAPTIVE MANAGEMENT

Aissata Fofana¹, Mohamed Sitan Keita¹, Hamidou Barry¹, Mohamed Saran Condé¹, Lamine Bangoura², Eugène Kaman Lama³, Alioune Camara³, Donal Bisanzio⁴, Elizabeth Fitch⁵

¹RTI International, Conakry, Guinea, ²President's Malaria Initiative, US Agency for International Development, Conakry, Guinea, ³National Malaria Control Program, Ministry of Health, Conakry, Guinea, ⁴RTI International, Washington, DC, United States, ⁵RTI International, RTP, NC, United States

Evidence to Action: Accelerating Introduction of Typhoid Conjugate Vaccines in Africa

Meeting Room 12

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Vaccination is a promising strategy to reduce morbidity & mortality caused by typhoid. Each year, typhoid accounts for nearly 11 million cases and >116,000 deaths worldwide. The disease is mainly spread through contaminated food & water, with the highest burden in sub-Saharan Africa & Asia. While typhoid can be treated with antibiotics, multidrug-resistant (MDR) & extensively drug resistant (XDR) typhoid are rising – both more difficult & costly to treat. In addition, access to care is often limited, which can lead to increased complications of the disease. Current trends in drug resistance, urbanization, & climate change may increase typhoid transmission & hamper control efforts. While improvements in water, sanitation, & hygiene are the major ways to break the transmission cycle, many countries in sub-Saharan Africa lack the necessary infrastructure. Until these investments can be made in all countries, vaccination is an important & effective adjunct to prevent typhoid. In March 2018, the World Health Organization (WHO) recommended the introduction of the prequalified typhoid conjugate vaccine (TCV) for infants & children beginning at six months of age in campaigns & routine vaccinations in endemic countries. Subsequently, Gavi, the Vaccine Alliance earmarked \$85M to fund the introduction of TCV in the world's poorest countries. Two countries in Africa, Liberia & Zimbabwe, will introduce TCV into their immunization programs when it is safe to do so, with other countries to follow. As most of the supporting data that informed global decisions was generated in Asia, understanding the performance of TCV in Africa is critical to driving country introduction decisions. The Typhoid Vaccine Acceleration Consortium (TyVAC), led by the Center for Vaccine Development and Global Health (CVD) at the University of Maryland School of Medicine & THECA consortium, led by the University of Cambridge, are generating such data through studies in Malawi, Burkina Faso, Ghana & the Democratic Republic of Congo (DRC). These data are critical to inform decision-making & accelerate the introduction of TCVs in Africa. This symposium will present data on the ongoing studies in Malawi, Ghana, & DRC. The objectives are: (1) Provide data from the first clinical trial of TCV in Africa, including safety, immunogenicity, & effectiveness in Malawi; (2) Discuss the status of planned studies in Ghana & surveillance data in DRC; & (3) Understand the importance of these data to regional & country policy-makers for TCV introduction. The session will begin with an overview of global policy recommendations, followed by data on the clinical studies, & ending with policy implications for TCV introduction in Africa. There will be time for discussion.

CHAIR

Kathleen M. Neuzil

Center for Vaccine Development and Global Health at the University of Maryland School of Medicine, Baltimore, MD, United States

Florian Marks

International Vaccine Institute, Seoul, Republic of Korea

1:45 p.m.**SAFETY, IMMUNOGENICITY, AND EFFECTIVENESS OF TYPHOID CONJUGATE VACCINES IN MALAWI**

Priyanka Patel

Malawi-Liverpool Wellcome Trust, Blantyre, Malawi

2:05 p.m.**USING DATA TO SUPPORT TYPHOID CONJUGATE VACCINE INTRODUCTION IN AFRICA. A CLUSTER-RANDOMIZED TRIAL IN GHANA**

Ellis Owusu-Dabo

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

2:25 p.m.**TYPHOID SURVEILLANCE IN THE DEMOCRATIC REPUBLIC OF CONGO (DRC)**

Octavie Lunguya

University of Kinshasa, Faculty of Medicine, Kinshasa, Democratic Republic of the Congo

2:45 p.m.**TYPHOID CONJUGATE VACCINE INTRODUCTION IN AFRICA: REGIONAL AND COUNTRY POLICY CONSIDERATIONS**

Phionah Atuhebwe

World Health Organization Regional Office for Africa, Brazzaville, Republic of the Congo

Scientific Session 94**Mosquitoes: Vector Biology - Epidemiology II**

Meeting Room 13

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

John Marshall

University of California, Berkeley, Berkeley, CA, United States

Bernard Kouassi

Abt Associates/Vectorlink, Abidjan, Côte D'Ivoire

1435**MODELING NOVEL GENETIC CONTROL STRATEGIES FOR Aedes Aegypti DISEASE VECTORS**John M. Marshall¹, Héctor M. Sánchez C.¹, Jared B. Bennett¹, Sean L. Wu¹, Tomás M. León¹, Gordana Rašić², Omar S. Akbari³¹University of California, Berkeley, Berkeley, CA, United States, ²QIMR Berghofer Medical Research Institute, Brisbane, Australia, ³University of California, San Diego, La Jolla, CA, United States**1436****OPPORTUNISTIC BLOOD HOST UTILIZATION AND SPATIAL HETEROGENEITY OF ANOPHELES BITES PROMOTE PERSISTENT MALARIA TRANSMISSION IN MADANG, PAPUA NEW GUINEA**John B. Keven¹, Michelle Katusale², Rebecca Vinit², Daniella Rodriguez-Rodriguez³, Manuel Hetzel³, Moses Laman², Leanne Robinson⁴, Stephan Karl⁵, Edward D. Walker¹¹Michigan State University, East Lansing, MI, United States, ²PNG IMR, Madang, Papua New Guinea, ³Swiss Tropical and Public Health Institute, Basel, Switzerland, ⁴Burnet Institute, Melbourne, Australia, ⁵Australian Institute of Tropical Health and Medicine, Townsville, Australia**1437****THE ANOPHELES GAMBIAE VITELLOGENIN REGULATES FERTILITY AND AFFECTS PLASMODIUM FALCIPARUM DEVELOPMENT**

Iryna Stryapunina, Lydia Mendoza, Maurice A. Itoe, W. Robert Shaw, Kristine Werling, Flaminia Catteruccia

Harvard University, Boston, MA, United States

1438**RELEVANCE OF ENTOMOLOGICAL MONITORING DATA IN DECISION MAKING FOR APPROPRIATE AND SUSTAINABLE MALARIA VECTOR CONTROL IN CÔTE D'IVOIRE**Bernard L. Kouassi¹, Constant V. Edi², Emmanuel Tia³, Lucien Y. Konan⁴, Maurice A. Akéré⁵, Alphonsine A. Koffi⁵, Allassane F. Ouattara², Antoine Tanoh Mea⁶, Constant G. Gbalegba¹, Pascal Zinzindohoue⁷, Blaise Kouadio⁷, McKenzie Andre⁷, Seth R. Irish⁸, Jennifer Armistead⁹, Dereje Dengela¹⁰, Ndombour G. Cissé¹, Cecilia Flatley¹⁰, Joseph Chabi¹¹PMI VectorLink Project, Abidjan, Côte D'Ivoire, ²Swiss Center of Scientific Research, Abidjan, Côte D'Ivoire, ³Centre of Veterinary and Medical Entomology, Abidjan, Côte D'Ivoire, ⁴National Institute of Public Hygiene, Abidjan, Côte D'Ivoire, ⁵National Institute of Public Health/ Pierre Richet Institute, Bouaké, Côte D'Ivoire, ⁶National Malaria Control Programme, Abidjan, Côte d'Ivoire, Abidjan, Côte D'Ivoire, ⁷U.S. President's Malaria Initiative, USAID, Abidjan, Côte D'Ivoire, ⁸U.S. President's Malaria Initiative, Entomology Branch, U.S. Centers for Disease Control and Prevention, Atlanta, GA, United States, ⁹U.S. President's Malaria Initiative, USAID, Washington, DC, United States, ¹⁰PMI VectorLink Project, Washington, DC, United States**1439****LABORATORY DEMONSTRATION OF TRANSOVARIAL TRANSMISSION OF RIFT VALLEY FEVER VIRUS IN Culex tarsalis MOSQUITOES**Nicholas A. Bergren, Erin M. Borland, Daniel A. Hartman, Rebekah C. Kading
Colorado State University, Fort Collins, CO, United States**1440****ASSESSING ULTRA-FINE-SCALE FACTORS TO IMPROVE HUMAN WEST NILE VIRUS DISEASE MODELS IN THE CHICAGO AREA**Johnny Uelmen¹, Patrick Irwin², William Brown¹, Surendra Karki¹, Marilyn O'Hara Ruiz¹, Bo Li¹, Rebecca Smith¹¹University of Illinois, Urbana, IL, United States, ²Northwest Mosquito Abatement District, Wheeling, IL, United States**1441****EFFECTS OF HETEROGENEOUS MICROCLIMATE TEMPERATURES ON THE RNA INTERFERENCE PATHWAY OF Aedes Aegypti**Tyler Pohlenz, Byul Hur, Madhav Erraguntla, Mark Lawley, Mustapha Deboun, Jeremy Vela, Chris Fredregill, Martin Reyna, Zach Adelman, Kevin Myles
Texas A&M University, College Station, TX, United States**Scientific Session 95****Filariasis: Epidemiology and Control II**

Meeting Room 14

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

CHAIR

Obiora Eneanya

Washington University, St. Louis, MO, United States

Moses Katabarwa

The Carter Center, Atlanta, GA, United States

1442**FOLLOW UP OF CHILDREN ANTIGEN-POSITIVE FOR LYMPHATIC FILARIASIS IDENTIFIED DURING A TRANSMISSION ASSESSMENT SURVEY IN HAITI**Marisa A. Hast¹, Alain Javel², Eurica Denis², Kira A. Barbre³, Jonas Rigodon⁴, Keri Robinson¹, Katherine Gass³, Christine Dubray¹¹CDC, Atlanta, GA, United States, ²IMA World Health, Port-au-Prince, Haiti, ³Task Force for Global Health, Atlanta, GA, United States, ⁴CDC, Port-au-Prince, HaitiWednesday
November 18

1443

INCREASED BENEFIT OF SEMI-ANNUAL TREATMENT WITH ALBENDAZOLE ALONE TO CLEAR INDIVIDUAL INFECTION WITH *WUCHERERIA BANCROFTI*, WHEN COMPARED WITH ANNUAL TREATMENT: LONGITUDINAL ANALYSIS FROM TWO COHORT DATA FROM CENTRAL AFRICA

Jérémy T. Campillo¹, Naomi P. Awaca-Uvon², Jean-Paul Tambwe², Godé Kuyangisa Simuna², Gary J. Weil³, Michel Boussinesq¹, Cédric B. Chesnais¹, Sébastien D. Pion¹
¹Institut de Recherche pour le Développement, Montpellier, France, ²Ministry of health, Kinshasa, Democratic Republic of the Congo, ³Washington University School of Medicine, St. Louis, MO, United States

1444

ONCHOCERCIASIS TRANSMISSION LIKELY INTERRUPTED IN MUCH OF THE REMAINING ACTIVE ENDEMIC AREA IN THE AMERICAS

Lindsay Rakers¹, Mauricio Sauerbrey², Carlos Botto³, Andreia de Padua Careli Dantas⁴, Oscar Noya-Alarcón³, João Luiz Pereira De Araujo⁴
¹The Carter Center, Atlanta, GA, United States, ²Onchocerciasis Elimination Program for the Americas, Guatemala City, Guatemala, ³CAICET/UCV/CMT, Puerto Ayacucho, Bolivarian Republic of Venezuela, ⁴DEVIT/SVS/MS, Brasília, Brazil

1445

DISPERSAL OF *SIMULIUM* VECTORS AND ITS EFFECT ON ONCHOCERCIASIS ELIMINATION DEMYSTIFIED. LESSONS FROM THE ELIMINATION PROGRAMS

Moses Katabarwa¹, Peace Habomugisha², Zerihun Tadesse³, David Oguttu⁴, Aderajew Mohammed³, Edson Byamukama², Abebual Yilak³, Tewodros Seid³, Kadu Meribo³, Lauri Bernard¹, Emily Griswold¹, Frank O. Richards¹
¹The Carter Center, Atlanta, GA, United States, ²The Carter Center, Kampala, Uganda, ³The Carter Center, Addis Ababa, Ethiopia, ⁴Ministry of Health, Vector Control Division, Kampala, Uganda

1446

A GEOSPATIAL ANALYSIS OF THE IMPACT OF INTERVENTION ON ONCHOCERCIASIS ENDEMICITY IN CÔTE D'IVOIRE

Obiora Eneanya¹, Benjamin G. Koudou², Yeo Souleymane³, Marie-Madeleine Kouakou⁴, Peter U. Fischer¹, Gary J. Weil¹
¹Washington University, St. Louis, MO, United States, ²Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, Abidjan, Côte D'Ivoire, ³Ministry of Public Health and Hygiene, Abidjan, Côte D'Ivoire, ⁴Ministry of Public Health and Hygiene, Abidjan, Côte D'Ivoire

1447

A COMPARISON OF ONCHOCERCIASIS SEROLOGICAL TOOLS AND POTENTIAL APPLICATION FOR PROGRAM USE

Eric Scott Elder¹, Holly Chastain¹, Henry M. Kanyi², Sammy M. Njenga², Joseph Kamgno³, Laston Sitima⁴, Benjamin A. Marfo⁵, Guilherme M. Ogawa¹, Vitaliano A. Cama¹, W. Evan Secor¹, Kimberly Y. Won¹
¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Kenya Medical Research Institute (KEMRI), Nairobi, Kenya, ³Centre for Research on Filariasis and other Tropical Diseases (CRFiMT), Yaounde, Cameroon, ⁴Community Health Sciences Unit (CHSU), Lilongwe, Malawi, ⁵Ghana Health Service, Accra, Ghana

Symposium 96

Realizing the Potential of New Approaches to Lymphedema Management

Meeting Room 15

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Not only is lymphedema among the most prevalent and impactful morbidities caused by the NTDs, but there is also a general perception that there is little hope of avoiding its relentless

progression towards elephantiasis, whether caused by filarial infection, podoconiosis or other etiology. This symposium aims to present data that will dispel this misconception. The goal of this symposium is to highlight approaches and new technologies to facilitate lymphedema management, which through treatment and rigorous personal hygiene can bring dramatic benefits to affected patients. A brief, global overview of NTD-related lymphedema will set the stage for a review of tools for the clinical assessment of lymphedema (including 3D infrared imaging and tonometry) that have transformed our ability to quantify and track changes over time and with treatment. It is essential to recognize how effective treatment can be. This point will be emphasized first through a presentation of studies using lymphoscintigraphy to show that early, sub-clinical lymphatic damage in young children living in lymphatic filariasis-endemic areas of India is reversible after treatment with albendazole and DEC. Then, a review of the promise of hope for the tens of millions already suffering from lymphedema will be presented, emphasizing how new assessment tools provide quantitative documentation of the dramatic effectiveness that intensive personal management can bring. It is clear that effective lymphedema management reduces overt pathology, and even more importantly, reduces stigma and improves quality of life both for patients with podoconiosis and for those with lymphatic filariasis. We have today become much more knowledgeable about how to combat the scourge of lymphedema. What still needs to be learned, however, is how best to export these new tools and understandings to the patients, their care providers, and the medical and public health communities responsible for the management of individuals with lymphedema from any cause.

CHAIR

Philip Budge
Washington University in St. Louis, St. Louis, MO, United States

Suma Krishnasastri
WHO Collaborating Centre for Lymphatic Filariasis Morbidity Management and Disability Prevention, Alappuzha, Kerala, India

1:45 p.m.

NEW TOOLS AND STRATEGIES FOR ASSESSING LYMPHEDEMA IN NTD (AND OTHER) PROGRAMS

Philip Budge
Washington University in St. Louis, St. Louis, MO, United States

2:10 p.m.

REVERSING LYMPHATIC DAMAGE BY EARLY INTERVENTION IN LYMPHATIC FILARIASIS

John Horton
Tropical Projects, Hitchin, United Kingdom

2:35 p.m.

SUCCESSFUL COMMUNITY-BASED MANAGEMENT IN PODOCONIOSIS-RELATED LYMPHEDEMA

Gail Davey
Brighton & Sussex Medical School, Brighton, United Kingdom

3 p.m.

ADVANCING THE SELF-CARE PARADIGM FOR SUCCESSFUL MANAGEMENT OF LF-RELATED LYMPHEDEMA GLOBALLY

Suma Krishnasastri
Govt. TD Medical College, Alappuzha, Kerala, India

Symposium 97

"Next Generation" Genetic Crosses in Malaria, Cryptosporidium and Schistosomes

Meeting Room 16

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

Enormous advances in our knowledge of model organisms have come from inventive use of genetic crosses in combination with deep sequencing, and CRISPR-Cas9 manipulation. For example, in yeast and *Caenorhabditis elegans* genetic crosses, thousands of segregating progeny can be selected for particular phenotypes by flow sorting, and then pools of extreme phenotypes can be deep sequenced, to determine the loci underpinning these traits. These methods are rapid, effective and statistically powerful, but parallel work on important parasitic diseases has lagged behind. This symposium showcases new approaches for conducting large-scale genetic crosses in two important apicomplexan pathogens – *Plasmodium falciparum* and *Cryptosporidium* spp. – leading causes of malaria and childhood diarrhea, as well as schistosomes, the most important of the human parasitic helminths. The symposium will show how the increased efficiency of these "next generation" genetic crosses now enables implementation of efficient bulk segregant approaches for trait mapping, obviating the need for laborious phenotyping and genotyping of individual progeny required for traditional linkage mapping. The central goal of this symposium is to show how we can now leverage these efficient genetic mapping strategies for answering biomedically and clinically important questions in the pathogens responsible for three key parasitic diseases. This symposium will bring together researchers working on different pathogens, but using similar methodologies.

CHAIR

Timothy Anderson

Texas Biomedical Research Institute, San Antonio, TX, United States

1:45 p.m.

MAXIMIZING THE UTILITY OF GENETIC CROSSES: LESSONS FROM MODEL ORGANISMS

Erik Andersen

Northwestern University, Evanston, IL, United States

2:10 p.m.

CRYPTOSPORIDIUM: MEIOSIS IN VITRO

Lisa Funkhouser-Jones

Washington University School of Medicine, St Louis, MO, United States

2:35 p.m.

EFFICIENT GENETIC CROSSES AND BULK SEGREGANT APPROACHES FOR GENETIC MAPPING IN *P. FALCIPARUM*

Sudhir Kumar

Seattle Children's Hospital, Seattle, WA, United States

3 p.m.

MENDEL MEETS SCHISTOSOMES! POWERFUL TRAIT MAPPING APPROACHES USING GENETIC CROSSES

Timothy Anderson

Texas Biomedical Research Institute, San Antonio, TX, United States

Symposium 98

Mitigating the Risk for Henipavirus Pandemics: From Ecology to Vaccines

Meeting Room 17

Wednesday, November 18

1:45 p.m. - 3:30 p.m. U.S. Eastern Time Zone

The natural reservoir of Henipaviruses are old world fruit bats, but because they leverage the highly conserved ephrin B2 surface cell receptor, they are able to infect most any mammal, including humans. Nipah virus and Hendra virus are two closely related Henipaviruses that are pathogenic in humans. In recent Nipah outbreaks in Bangladesh and India 75% of infected people died. Nipah virus can be transmitted person-to-person, though the strains of Nipah virus so far recognized have not been efficiently transmitted person-to-person and so outbreaks have been small (<70 people). There is considerable evidence of genotypic and phenotypic variability among henipaviruses including variability in transmissibility. The World Health Organization has placed Nipah virus on its list of blueprint priority diseases for research and development for public health emergencies because of concerns that the virus could acquire a more efficient capacity for person-to-person transmission. If Nipah virus develops the capacity for efficient person-to-person transmission it would represent the world's most devastating pandemic ever witnessed. Henipavirus is a feared human infection, but its transmission is also a manifestation of planetary health. The way humans manage habitat affects the interaction between bats, agricultural animals and people. Henipavirus research is progressing as researchers learn more about its ecology, the circumstances that lead to bat shedding virus and the situations that bring this virus and proximity with people and their agricultural animals. This knowledge is providing useful insights for developing prevention strategies. The World Health Organization has convened experts and drafted a roadmap for developing biological countermeasures. The Coalition for Epidemic Preparedness Innovations (CEPI) as committed to developing promising vaccine candidates. This symposium will bring together experts in Henipaviruses who will review the latest insights on the ecology of Henipaviruses, the dynamics of the viruses in bats, and the human epidemiology, including person-to-person transmission across countries. Experts will also discuss promising strategies for prevention, including novel ecological interventions.

CHAIR

Emily S. Gurley

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

Stephen Luby

Stanford University, Stanford, CA, United States

1:45 p.m.

THE ECOLOGY OF HENIPAVIRUSES: INSIGHTS FOR PREVENTION

Raina Plowright

Montana State University, Bozeman, MT, United States

Wednesday
November 18

2:05 p.m.

DIFFERENCES IN HENIPAVIRUS TRANSMISSION POTENTIAL

Kyu H. Lee

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

2:25 p.m.

PROGRESS IN VACCINE DEVELOPMENT AGAINST NIPAH VIRUS

Nicholas Jackson

Center for Epidemic Preparedness and Innovation, London, YT, United Kingdom

2:45 p.m.

IMPLEMENTING INTERVENTIONS TO PREVENT NIPAH VIRUS TRANSMISSION IN BANGLADESH

Nazmun Nahar

International Center for Diarrheal Diseases Research, Bangladesh, Dhaka, Bangladesh

Break

Wednesday, November 18

3:30 p.m. - 3:45 p.m. U.S. Eastern Time Zone

Scientific Session 99

Dengue: Transmission and Virus-Host Interactions

Meeting Room 1

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

CHAIR

Rebecca Christofferson

Louisiana State University, Baton Rouge, LA, United States

Peter B. Gallagher

Oxford University Clinical Research Unit, Ho Chi Minh City, Vietnam

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COST-BENEFIT ANALYSIS OF WOLBACHIA TO CONTROL DENGUE IN SUVA, FIJI AND PORT VILA, VANUATU

Donald S. Shepard¹, Dhvani Hariharan¹, Anaseini Ratu², Katherine L. Anders³

¹Brandeis University, Waltham, MA, United States, ²World Mosquito Program, Suva, Fiji, ³Monash University, Melbourne, Australia

1450

TEMPORAL PATTERNS IN SYNCHRONY IN THE DYNAMICS OF DENGUE: THE ROLE OF TEMPERATURE AND IMMUNITY

Bernardo Garcia-Carreras¹, Angkana T. Huang¹, Bingyi Yang¹, Henrik Salje², Mary K. Grabowski³, Sopon Iamsirithaworn⁴, Justin Lessler³, Derek A. Cummings¹

¹University of Florida, Gainesville, FL, United States, ²University of Cambridge, Cambridge, United Kingdom, ³Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ⁴Thailand Ministry of Public Health, Nonthaburi, Thailand

1451

TEMPORALLY INTEGRATED SINGLE CELL RNA SEQUENCING ANALYSIS OF CONTROLLED AND NATURAL DENV-1 INFECTIONS

Adam Waickman¹, Heather Friberg¹, Gregory D. Gromowski¹, Wiriya Rutvisuttinunt¹, Tao Li¹, Hayden Siegfried¹, Kaitlin Victor¹, Caitlin Kuklis¹, Michael K. McCracken¹, Stefan Fernandez², Anon Srikiatkachorn³, Damon Ellison¹, Richard G. Jarman¹, Stephen J. Thomas⁴, Alan L. Rothman³, Timothy Endy⁴, Jeffrey R. Currier¹

¹Walter Reed Army Institute of Research, Silver Spring, MD, United States, ²Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand, ³University of Rhode Island, Providence, RI, United States, ⁴State University of New York, Upstate Medical University, Syracuse, NY, United States

1452

PROFILING OF THE EPITOPE DIVERSITY AND EVOLUTION OF DENGUE BINDING ANTIBODIES BY PEPTIDE MICROARRAY

Francesca Falconi-Agapito¹, Karen Kerkhof¹, Xiomara Merino², Marjan Van Esbroeck³, Michael Talledo², Kevin K. Ariën¹

¹Virology Unit, Institute of Tropical Medicine, Antwerp, Belgium, ²Virology Unit, Instituto de Medicina Tropical Alexander von Humboldt, Lima, Peru, ³Department of Clinical Sciences, National Reference Center for Arboviruses, Institute of Tropical Medicine, Antwerp, Belgium

1453

OBESITY AND THE INCREASED RISK OF SEVERE DENGUE: POSSIBLE PATHOPHYSIOLOGICAL MECHANISMS

Peter B. Gallagher, Nguyet M. Ngyuen, Huynh T. Duyen, Nguyen L. Vuong, Tran T. Vi, Nguyen T. Kieu, Huynh L. Huy, Phung K. Lam, Dong T. Tam, Sophie Yacoub
Oxford University Clinical Research Unit, Ho Chi Minh City, Viet Nam

1454

STRUCTURAL BASIS FOR ANTIBODY-MEDIATED INHIBITION OF FLAVIVIRUS NS1-TRIGGERED ENDOTHELIAL DYSFUNCTION

Scott B. Biering¹, David L. Akey², Marcus P. Wong¹, William Clay Brown², Nicholas TN Lo¹, Henry Puerta-Guardo¹, Chunling Wang¹, Jamie R. Konwerski², Francielle Tramontini Gomes de Sousa¹, Diego A. Espinosa¹, Dustin R. Glasner¹, Jeffrey Li¹, Sophie F. Blanc¹, Stephen J. Elledge³, Michael J. Mina⁴, P. Robert Beatty¹, Janet L. Smith², Eva Harris¹

¹Division of Infectious Diseases & Vaccinology, School of Public Health, University of California, Berkeley, Berkeley, CA, United States, ²Life Sciences Institute, University of Michigan, Ann Arbor, MI, United States, ³Harvard Medical School, Boston, MA, United States, ⁴Harvard School of Public Health, Boston, MA, United States

1455

CYCLODEXTRINS INHIBIT DENGUE VIRUS NONSTRUCTURAL PROTEIN 1-MEDIATED ENDOTHELIAL DYSFUNCTION

Francielle Tramontini Gomes de Sousa¹, Trishna Patel¹, Peter Laing², Tamás Sohajda³, Robert Beatty¹, Eva Harris¹

¹Division of Infectious Diseases & Vaccinology, School of Public Health, University of California, Berkeley, Berkeley, CA, United States, ²Excivion Ltd, Cambridge, United Kingdom, ³CycloLab, Cyclodextrin R&D Laboratory, Budapest, Hungary

Symposium 100

Lessons from West Africa Ebola: The Potential for Community-Based Initiatives in Addressing Security Concerns, Fear and Public Distrust as an Integral Component of Outbreak Response

Meeting Room 2

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

A major issue that has severely hampered the public health response to the current Ebola outbreak in the eastern Democratic Republic of Congo (DRC) involves security threats to Ebola response personnel and facilities. From January to May 2019 there were 174 attacks on Ebola Treatment Units by armed groups in North Kivu. Security issues have led to significant problems and delays in identifying and accessing those with the disease as well as their contacts, resulting in increased incidence. During the 2014 Ebola outbreaks in Sierra Leone and Liberia, a key strategic element of the public health response was to recruit community leaders and residents to be actively involved in many aspects of outbreak response that have conventionally been carried out only by public health experts and outsiders – including case

identification and contact tracing. This approach, referred to as the Community-Based Initiative (CBI) in Liberia, was critical in halting the Ebola epidemic in West Africa. Notably, the initiative was effective in countries where recent civil wars had fostered a social and political climate of government distrust and suspicion – conditions that are mirrored in the present circumstances found in the Democratic Republic of the Congo (DRC). The panelists in this symposium have expertise in social science, politics, vaccinology and epidemiology and were involved in the Ebola responses in Sierra Leone, Liberia, and the DRC in various capacities. They will discuss how community engagement and social mobilization efforts, such as those used by CBI, are integral to disease outbreak response by improving sensitivity to and effective action around imminent security threats based on public distrust and suspicion. In light of recent developments, notably the current COVID-19 public health emergency, the panel will also consider the broader applicability of community-based initiatives and methods on a more global scale for pandemic response more generally.

CHAIR

Harris Ali
York University, Toronto, ON, Canada

Axel T. Lehrer
University of Hawaii, Honolulu, HI, United States

3:45 p.m.

THE COMMUNITY-BASED INITIATIVE IN THE 2014 EBOLA RESPONSE IN LIBERIA

Mosoka Fallah
PREVAIL/NIH, National Public Health Institute of Liberia, Monrovia, Liberia

4:10 p.m.

GETTING ACTION TO LIMIT EBOLA RISKS/TRANSMISSION: LESSONS FROM INFORMAL URBAN SETTLEMENTS IN FREETOWN

Joseph McCarthy
Njala University, Moyamba District, Sierra Leone

4:35 p.m.

MODELING THE EPIDEMIOLOGICAL IMPACT OF A COMMUNITY-BASED INITIATIVE TO ADDRESS RESISTANCE, INSECURITY, AND MOBILITY DURING THE EBOLA OUTBREAK IN THE EASTERN DRC

Laura Skrip
Institute for Disease Modeling, Bellevue, WA, United States

5 p.m.

EBOLA AND COVID-19: THE ROLE OF SOCIAL INFRASTRUCTURE

Harris Ali
York University, Toronto, ON, Canada

Late-Breaker Abstract Session 101

Late-Breakers in Clinical and Applied Sciences

Meeting Room 3

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

This session is specifically designed for brief presentations of new data obtained after the closing date for abstract submission. See Late-Breaker Abstract Presentation Schedule booklet (available online) for the presentation schedule.

CHAIR

Miguel M. Cabada
University of Texas Medical Branch, Galveston, TX, United States

Jason D. Maguire
Pfizer, White Plains, NY, United States

Scientific Session 102

Global Health: Global Health Security and Information, Communications, Technology

Meeting Room 4

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

CHAIR

Stephanie C. Garbern
Brown University, Providence, RI, United States

Andrea Geri Buchwald
University of Colorado School of Public Health, Aurora, CO, United States

1456

HTRACK: A NEW TOOL TO FACILITATE PUBLIC HEALTH FIELD VISITS AND ELECTRONIC DATA CAPTURE

Dania Rodriguez, Laura Adams, Ryff Kyle, Gabriela Paz-Bailey
Centers for Disease Control and Prevention, San Juan, PR, United States

1457

EVALUATION OF A MOBILE HEALTH (MHEALTH) WEARABLE DEVICE SYSTEM FOR SEPSIS MONITORING IN GHANA

Stephanie C. Garbern¹, George Oduro², Christopher Oppong², Stephan W. Wegerich³, Carolyn Baer⁴, Charmagne G. Beckett⁵, Benjamin Espinosa⁶, Adam C. Levine¹, Danielle Clark⁴

¹Warren Alpert Medical School, Brown University, Providence, RI, United States, ²Komfo Anokye Teaching Hospital, Kumasi, Ghana, ³PhysIQ, Chicago, IL, United States, ⁴Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO), Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD, United States, ⁵Naval Medical Research Center, Infectious Diseases Directorate, Silver Spring, MD, United States, ⁶Naval Medical Research Center, Biological Research Directorate, Frederick, MD, United States

1458

GLOBAL VACCINE RISK INDEX A COMPOSITE METRIC TO ASSESS THE RETURN OF MEASLES FROM 21ST CENTURY SOCIAL AND PHYSICAL DETERMINANTS

Dr Peter Hotez¹, Tasmiah Nuzhath², Brian Colwell², Ashish Damania¹

¹Baylor College of Medicine, Houston, TX, United States, ²Texas A&M School of Public Health, College Station, TX, United States

1459

MODELING THE COVID-19 OUTBREAK IN REAL-TIME - BALANCING URGENT PUBLIC-HEALTH NEEDS WITH RESEARCH INTEGRITY

Andrea Geri Buchwald¹, David M. Bortz², Kathryn L. Colborn³, Elizabeth J. Carlton¹, Jonathan M. Samet¹

¹Colorado School of Public Health, Aurora, CO, United States, ²University of Colorado, Boulder, CO, United States, ³University of Colorado, Anschutz, Aurora, CO, United States

CLINEPIDB.ORG: GLOBAL HEALTH DATA SHARING, SEMANTIC HARMONIZATION AND EXPLORATORY DATA ANALYSIS

Brianna Lindsay¹, Cristina Aurrecochea², John Brestelli¹, Brian Brunk¹, Danielle Callan¹, Dave Falke², Steve Fischer¹, Danica Helb¹, Jay Humphrey², John Judkins¹, Jessica C. Kissinger², David S. Roos¹, Sheena Shah Tomko¹, Christian J. Stoeckert Jr¹, Jie Zheng¹

¹University of Pennsylvania, Philadelphia, PA, United States, ²University of Georgia, Athens, GA, United States

Late-Breaker Abstract Session 103

Late-Breakers in Coronavirus

Meeting Room 5

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

This session is specifically designed for brief presentations of new data obtained after the closing date for abstract submission. See Late-Breaker Abstract Presentation Schedule booklet (available online) for the presentation schedule.

CHAIR

Noreen A. Hynes

Johns Hopkins School of Medicine, Baltimore, MD, United States

Katherine R. Dobbs

Case Western Reserve University, Cleveland, OH, United States

Symposium 104

Accelerating New Tools for Radical Cure of vivax Malaria from Clinical and Operational Research to Policy

Meeting Room 6

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Tafenoquine, a single-dose radical cure treatment, and new diagnostics could transform treatment and elimination prospects for *P. vivax* malaria. Widespread use of tafenoquine depends on our ability to identify all cases of *P. vivax* malaria and safely screen patients' glucose-6-phosphate dehydrogenase (G6PD) enzyme activity. The potential of this expanded access will only be realized when accurate, reliable point-of-care (POC) malaria and G6PD testing is concurrently adopted in vivax-endemic settings. This symposium will explore the modeling, clinical, and operational research platforms that have been established to generate the tools and data needed to bridge the gap between current *P. vivax* case management practices and future elimination goals. The symposium has three themes: 1. Advent of new diagnostics to support improved case management. New diagnostic tests for *P. vivax*: The first speaker will present an assessment of different biomarkers for *Plasmodium vivax* infection used as targets of new diagnostics to inform *P. vivax* case management and elimination. A clinical research platform for the validation of novel G6PD tests was established across Brazil, Ethiopia the US. The second speaker will present a pooled analysis of performance and usability data generated using the SD Biosensor STANDARD G6PD test. 2. Potential impact of new tools on *P. vivax* malaria - the third speaker will present the work undertaken by Institut Pasteur and Fiocruz

on a transmission model of the rollout and potential impact of tafenoquine on *P. vivax* in Brazil, adapted from a mathematical model developed for Papua New Guinea. Modeling examined the potential direct benefit to treated patients and indirect benefit by preventing onward transmission, thereby reducing population-level transmission in the entire community. 3. Assessing the operational feasibility of integrating new *P. vivax* products to achieve best clinical practices and elimination goals. TRuST study - the fourth speaker will present the planned approach to assess the operational feasibility of providing appropriate radical cure (tafenoquine or primaquine) after quantitative G6PD testing under field conditions and the practicalities of implementation. TRuST is jointly sponsored by the Ministry of Health and Medicines for Malaria Venture. Pathway for policy adoption of new tools for radical cure in Myanmar - New tools for *P. vivax*, including the POC G6PD diagnostic and tafenoquine, expand the armamentarium for radical cure and have the potential to play a critical role in reaching elimination goals. The last speaker will present on the pathway forward in Myanmar toward policy change and key considerations for future adoption and deployment of the new tools for radical cure.

CHAIR

Jimée Hwang

CDC, Atlanta, GA, United States

Caroline Lynch

Medicines for Malaria Ventures, Geneva, Switzerland

3:45 p.m.

NEW DIAGNOSTIC TESTS FOR P. VIVAX

Allison L. Golden

PATH, Seattle, WA, United States

4 p.m.

A CLINICAL RESEARCH PLATFORM FOR THE VALIDATION OF NOVEL G6PD TESTS WAS ESTABLISHED ACROSS BRAZIL, ETHIOPIA THE US

Daniel Yilma

Jimma University, Jimma, Ethiopia

4:15 p.m.

POTENTIAL IMPACT OF NEW TOOLS ON P. VIVAX MALARIA

Michael White

Institut Pasteur, Paris, France

4:30 p.m.

PLANNED APPROACH TO ASSESS THE OPERATIONAL FEASIBILITY OF PROVIDING APPROPRIATE RADICAL CURE AFTER QUANTITATIVE G6PD TESTING IN BRAZIL

Marcus Lacerda

Fiocruz Amazônia/Tropical Medicine Foundation Dr. Heitor Vieira Dourado, Manaus, Amazonas, Brazil

4:45 p.m.

PATHWAY FOR POLICY ADOPTION OF NEW TOOLS FOR P VIVAX IN MYANMAR

Wint Phyto Than

Ministry of Health and Sports, Nay Pi Taw, Myanmar

Scientific Session 105

West Nile and Other Viruses

Meeting Room 7

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

CHAIR

Laura Kramer

Wadsworth Center, NYSDOH; SUNY, Albany, NY, United States

Marta Piche-Ovares

Universidad de Costa Rica, Heredia, Costa Rica

1463

CORRELATES OF PROTECTION FOR POWASSAN VIRUS IN MOUSE MODELS OF INFECTION

E. Taylor Stone¹, Mariah Hassert¹, Gregory D. Ebel², Alec J. Hirsch³, James D. Brien¹, Amelia K. Pinto¹

¹Saint Louis University, Saint Louis, MO, United States, ²Colorado State University, Ft. Collins, CO, United States, ³Oregon Health & Science University, Portland, OR, United States

1464

EMERGENCE AND SPREAD OF POWASSAN VIRUS IN THE NORTHEASTERN UNITED STATES

Chantal B. Vogels¹, Erica Normandin², Rebecca M. Robich³, Alan P. Dupuis II⁴, Doug E. Brackney⁵, Anderson F. Brito¹, Sarah Lapidus¹, Rebekah McMinn⁶, Scott C. Williams⁵, Charles B. Lubelczyk³, Joseph R. Fauver¹, Heidi Goethert⁷, Jody L. Gangloff-Kaufmann⁸, Pardis C. Sabeti², Laura D. Kramer⁴, Laura B. Goodman⁸, Gregory D. Ebel⁶, Sam R. Telford III⁷, Robert P. Smith³, Alexander T. Ciota⁴, Philip M. Armstrong⁵, Anne Piantadosi⁹, Nathan D. Grubaugh¹

¹Yale School of Public Health, New Haven, CT, United States, ²Broad Institute of MIT and Harvard, Cambridge, MA, United States, ³Maine Medical Center Research Institute, Scarborough, ME, United States, ⁴Wadsworth Center, New York State Department of Health, Slingerlands, NY, United States, ⁵The Connecticut Agricultural Experiment Station, New Haven, CT, United States, ⁶Colorado State University, Fort Collins, CO, United States, ⁷Tufts University, North Grafton, MA, United States, ⁸Cornell University, Ithaca, NY, United States, ⁹Emory Vaccine Center, Atlanta, GA, United States

1465

A NOVEL INSECT-SPECIFIC VIRUS AS A VECTOR FOR DEVELOPING FLAVIVIRUS VACCINES EMPHASIZES NEW POSSIBILITIES FOR HIGH DEGREES OF SAFETY WITHOUT SACRIFICING IMMUNOGENICITY

Danielle LaBrie Porier¹, Sarah N. Wilson¹, Dawn I. Auguste¹, Andrew Leber², James D. Weger-Lucarelli¹, Scott C. Weaver³, Albert J. Auguste¹

¹Virginia Polytechnic Institute and State University, Blacksburg, VA, United States, ²Landos Biopharma Inc., Blacksburg, VA, United States, ³University of Texas Medical Branch, Galveston, TX, United States

1466

OBESSE MICE HAVE A HIGHER MORTALITY RATE AND ALTERED IMMUNE RESPONSES FOLLOWING FLAVIVIRUS INFECTION IN COMPARISON TO WILD TYPE MICE

Elizabeth Geerling, Mariah Hassert, E Taylor Stone, Tara L. Steffen, Amelia K. Pinto
Saint Louis University, St. Louis, MO, United States

1467

WEST NILE VIRUS GENOTYPE DISPLACEMENT IS DRIVEN BY INCREASED INFECTIVITY IN *CULEX* MOSQUITOES AND AVIAN TRANSMISSION EFFICIENCY

Sean M. Bialosuknia¹, Alan P. Dupuis II¹, Steven D. Zink¹, Cheri A. Koetzner¹, Joseph G. Maffei¹, Jennifer C. Owen², Hannah Landwerlen², Laura D. Kramer¹, Alexander T. Ciota¹

¹NYS DOH, Wadsworth Center, Griffin Laboratory, Slingerlands, NY, United States, ²Department of Fisheries and Wildlife, Michigan State University, East Lansing, MI, United States

1468

STRUCTURE BASED ANALYSIS OF ANTIBODY BINDING TO FLAVIVIRUS E-DIMER AS MECHANISM OF POTENT NEUTRALIZATION

Cameron R. Adams¹, Huy Tu², Ellen Young¹, Sean Diehl², Ralph Baric¹, Aravinda de Silva¹, Premkumar Lakshmanane¹

¹University of North Carolina, Chapel Hill, NC, United States, ²University of Vermont, Burlington, VT, United States

1469

ACTIVE CIRCULATION OF WEST NILE VIRUS AND SAINT LOUIS ENCEPHALITIS VIRUS IN TWO DENGUE ENDEMIC REGIONS OF COSTA RICA

Marta Piche-Ovares¹, Mario Romero-Vega¹, Diana Vargas-González², Daniel Barrantes-Murillo¹, Claudio Soto-Garita¹, Alejandro Alfaro-Alarcón², Carlos Jiménez-Sánchez², Eugenia Corrales-Aguilar¹

¹Universidad de Costa Rica, San José, Costa Rica, ²Universidad Nacional, Heredia, Costa Rica

Symposium 106

G6PD Deficiency: Advances in Point of Care Testing

Meeting Room 8

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Malaria has seen a significant decline over the last decades, though to a much greater extent in *P. falciparum* compared to *P. vivax*. In contrast to *P. falciparum*, *P. vivax* forms dormant liver stages (hypnozoites) that reactivate weeks to months after the primary episode causing significant morbidity and mortality among affected populations. Hypnozoites are metabolically inactive, accordingly treatment is difficult. The 8-aminoquinolines primaquine (PQ) and the more recently introduced tafenoquine (TQ) are the only drugs on the market that effectively clear hypnozoites from the human host. While well tolerated in most patients, either drug can cause severe and potentially lethal hemolysis in individuals with low activities of the glucose-6-phosphate dehydrogenase enzyme (G6PD). Identifying patients with low G6PD levels is therefore crucial to ensuring safe treatment. The half-life of PQ is approximately 6 hours, treatment can be aborted if the patient develops a hemolytic crisis, PQ based radical cure is therefore frequently administered in the absence of routine G6PD testing or following screening with qualitative tests that can only identify individuals with very low G6PD activities. In contrast, the half-life of TQ is around 14 days and treatment is contraindicated in patients with low and intermediate G6PD activities; to date these patients can only be diagnosed by a quantitative measurement. The current quantitative reference method to measure G6PD activity, spectrophotometry, is

Wednesday
November 18

complicated, costly and time consuming, not suitable for use at the bed side, but crucial for the evaluation of novel diagnostics. New quantitative and qualitative diagnostics have been developed over the last years that show a performance that may render these assays suitable for routine use at the bed side. This symposium covers essential aspects of quantitative and qualitative G6PD testing in the context of *P. vivax* treatment. The symposium will provide an update on current and future diagnostics, the reliability of the current reference method, field performance of novel point of care diagnostics, a qualitative assessment on the user friendliness of some of these diagnostics and the cost-effectiveness of novel diagnostics in routine care.

CHAIR

Benedikt Ley
Menzies School of Health Research, Casuarina, Australia

Rosalind E. Howes
FIND, Geneva, Switzerland

3:45 p.m. G6PD DEFICIENCY –AN UPDATE ON THE DIAGNOSTIC PIPELINE, GONZALO DOMINGO, PATH

Gonzalo J. Domingo
PATH, Seattle, WA, United States

4:05 p.m. PERFORMANCE OF THE BIOSENSOR UNDER FIELD CONDITIONS IN BANGLADESH

Shafiul Alam
International Center for Diarrheal Disease Research, Bangladesh, Dhaka, Bangladesh

4:25 p.m. QUALITATIVE EVALUATION OF BIOSENSOR USE AND TRAINING

Rosalind E. Howes
FIND, Geneva, Switzerland

4:45 p.m. COST-EFFECTIVENESS ANALYSIS OF SEX-BASED TREATMENT ALGORITHMS FOR *PLASMODIUM VIVAX* MALARIA USING AVAILABLE DIAGNOSTICS TO ACCELERATE ACCESS TO RADICAL CURE

Angela Devine
University of Melbourne / Menzies School of Health Research, Melbourne, Australia

Scientific Session 107

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Malaria - New Molecular and Omic Tools

Meeting Room 9

Wednesday, November 18, 3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Supported with funding from the Burroughs Wellcome Fund

CHAIR

Ian H. Cheeseman
Texas Biomedical Research Institute, San Antonio, TX, United States

Regina Joice Cordy
Wake Forest University, Winston-Salem, NC, United States

1663

HIGH-THROUGHPUT FUNCTIONALIZATION OF THE TOXOPLASMA GONDII PROTEOME

Tyler Smith¹, Gabriella Lopez-Perez², Emily Shortt¹, Sebastian Lourido¹
¹Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology, Cambridge, MA, United States, ²University of Puerto Rico at Mayagüez, Mayagüez, PR, United States

1471

RELATEDNESS AND MUTATION SHAPE THE GENOMIC DIVERSITY OF RECURRENT *PLASMODIUM VIVAX* INFECTION

Aliou Dia¹, Catherine Jett¹, Simon G. Trevino¹, Cindy Chu², Kanlaya Sriprawat¹, Timothy Anderson¹, Francois Nosten², Ian H. Cheeseman¹
¹Texas Biomedical Research Institute, San Antonio, TX, United States, ²Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine Research Building, University of Oxford, Oxford, United Kingdom

(ACMCIP Abstract)

1472

A NOVEL AMPLICON DEEP SEQUENCING TOOL FOR STUDYING *PLASMODIUM VIVAX* INFECTIONS AT THE CLONAL LEVEL

Jason Rosado¹, Shazia Ruybal-Pesántez², Jacob Munro², Jiru Han², Zeinabou Traore¹, Ghania Boularias¹, Michael White¹, Melanie Bahlo², Alyssa Barry³, Dionicia Gamboa⁴, Ivo Mueller¹
¹Institut Pasteur, Paris, France, ²Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia, ³Deakin University, Melbourne, Australia, ⁴Universidad Peruana Cayetano Heredia, Lima, Peru

(ACMCIP Abstract)

1473

OVER 100 INDEPENDENT RECOMBINANT PROGENY FROM A NOVEL *PLASMODIUM FALCIPARUM* EXPERIMENTAL GENETIC CROSS

Ashley Michael Vaughan¹, Sudhir Kumar¹, Xue Li², Katrina Button-Simons³, Spencer Kennedy¹, Ann Reyes², Mackenzie Sievert³, Lisa Checkley³, Meseret Haile¹, Abeer Sayeed⁴, Katelyn Vendrely³, Ian Cheeseman², Tim Anderson², Mike Ferdig³
¹Seattle Children's Research Institute, Seattle, WA, United States, ²Texas Biomedical Research Institute, San Antonio, TX, United States, ³University of Notre Dame, South Bend, IN, United States, ⁴Texas Biomedical Research Institute, Seattle, TX, United States

1474

A METABOLOMICS APPROACH IDENTIFIES SPECIFIC BIOMARKERS OF DISEASE SEVERITY IN HUMAN CASES OF *PLASMODIUM KNOWLESI* MALARIA IN MALAYSIA

Regina Joice Cordy¹, Miriam Lachs², Mariko S. Peterson², Khamisah A. Kadir³, ViLinh Tran², Karan Uppal², Dean P. Jones², Balbir Singh³, Mary R. Galinski²
¹Wake Forest University, Winston-Salem, NC, United States, ²Emory University, Atlanta, GA, United States, ³Universiti Malaysia Sarawak, Kuching, Malaysia

(ACMCIP Abstract)

1475

REGULATION OF *ANOPHELES* ADIPOKINETIC HORMONE SIGNALING IN MALARIA PARASITE SPOROGONY

Vincent O. Nyasemba, Timothy Hamerly, Prachi V. Khare, Borja López-Gutiérrez, Rhoel R. Dinglasan
University of Florida, Gainesville, FL, United States

Symposium 108

The Future is in Our Hands! Diagnostics for AMR

Meeting Room 10

Wednesday, November 18, 3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Years of unrestricted use of antibiotics and other antimicrobial medicines have created a ticking time bomb that threatens all of modern medicine. Without effective antibiotics, routine surgery, childbirth and cancer and diabetes therapy will become high risk. AMR currently kills 70,000 patients a year. By 2050 that figure will become 10 million. Resistant infections require more expensive drugs, long stays in hospitals and will push another 28 million people into poverty. Diagnostics play an important role in patient management to reduce misuse of antibiotics, surveillance of AMR trends and monitoring the effectiveness of antibiotic stewardship strategies. However, there is a scarcity of educational materials for the current and next generation of health providers on the use of diagnostics in fight against AMR. Following a call for public-private partnerships in the global fight against AMR at the World Economic Forum in Davos in 2016, LSHTM developed a massive open online course (MOOC) entitled, "The Role of Diagnostics in the AMR Response," in partnership with Becton, Dickinson and Company. ASLM, ALADDIV and the governments of Philippines and Indonesia joined this partnership to increase access to AMR education and drive workforce development to meet the challenge of AMR globally. The goal of the MOOC is to increase awareness of the role of diagnostics in the AMR response. The MOOC consists of 6 weekly modules addressing topics such as what is AMR and the role of diagnostics can play to reduce mis-use of antibiotics for common clinical syndromes, for screening and surveillance in healthcare associated infections, enteric infections and One Health. The course is free for anyone with an internet connection and an interest in combating AMR. Course material is presented using news stories, reports, film/video, Powerpoint presentations, animations, case studies from different countries and settings, and reference materials for further reading. All materials are downloadable for use as teaching materials. Since it was launched in Sept 2019, the course has reached more than 8,000 people. A post course survey showed that 97% of learners gained new knowledge, 87% have applied what they learned and 91% have shared what they learned with others. In this symposium, speakers will present the AMR situation in their region and the impact that this MOOC has had on increasing knowledge and use of diagnostics in the AMR response.

CHAIR

Noah Fongwen

London School of Hygiene and Tropical Medicine, London, United Kingdom

Rosanna Peeling

London School of Hygiene and Tropical Medicine, London, United Kingdom

3:45 p.m.

ONEHEALTH APPROACH AND AMR DIAGNOSTICS

Ndlovu Nqobile

African Society for Laboratory Medicine, Addis Ababa, Ethiopia

4:10 p.m.

ADVOCATING FOR THE USE OF DIAGNOSTICS TO SAVE ANTIBIOTICS USE

Carlos Gouvea

Latin America Alliance for in-vitro Diagnostics, Sao Paulo, Brazil, Sao Paulo, Brazil

4:35 p.m.

EFFECTIVENESS OF THE MOOC IN EDUCATING A LARGE WORLDWIDE AUDIENCE

Regina Berba

Ministry of Health, Philippines, Manila, Philippines

5 p.m.

THE FUTURE IN OUR HANDS. THE NEXT STEPS.

Rosanna Peeling

London School of Hygiene and Tropical Medicine, London, United Kingdom

Symposium 109

Using the Data You Have: Innovative Methods to Enhance Vector Control Evaluation and Decision-Making

Meeting Room 11

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Insights on the effectiveness of vector control interventions come from many sources like routine data, controlled trials, and modelling. This symposium will present three scenarios across five countries to illustrate how multiple methodologies of assessing impact can help provide information for decision-making. The first presenter will discuss the use of routine data to conduct ongoing, annual evaluations of indoor residual spraying (IRS) impact in Mali. The second presenter will illustrate how routine data was paired with modelling to optimize the timing of multiple interventions. The third presenter will discuss how models can be used to assist in decisions for insecticide-treated net placement and how collecting routine data can help validate and strengthen the models. The final presenter will look broadly across the various methods of using existing data to assess the effectiveness of vector control interventions, identify challenges, and propose opportunities for strengthening these approaches. A discussion at the conclusion will allow for the presenters and others to continue developing ideas on how to use available data for evaluation.

CHAIR

Molly L. Robertson

PATH, Washington, DC, United States

Laurence Slutsker

PATH, Washington, DC, United States

3:45 p.m.

MAKING VECTOR CONTROL IMPACT EVALUATION PART OF THE ROUTINE: A CASE STUDY FROM MALI

Jules Mihigo

US President's Malaria Initiative, Bamako, Mali

4 p.m.

PAIRING ROUTINE DATA WITH MODELING TO INFORM THE TIMING OF IRS AND MASS DRUG ADMINISTRATION: ENVIRONMENTAL AND INTERVENTION-BASED SEASONALITY

Dorothy Echodu

Pilgrim Africa, Kampala, Uganda

4:15 p.m.

USING ENTOMOLOGICAL SURVEILLANCE DATA TO MODEL THE LIKELY IMPACT OF NEW NETS

Ellie Sherrard-Smith

Imperial College London, London, United Kingdom

4:30 p.m.

OPPORTUNITIES AND CONSIDERATIONS FOR USING EXISTING DATA IN VECTOR CONTROL EVALUATIONS

Molly L. Robertson

PATH, Washington, DC, United States

Symposium 110

Genomics for Typhoid Surveillance in South Asia

Meeting Room 12

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Typhoid fever, caused by *Salmonella enterica* serovar Typhi (*Salmonella* Typhi), remains endemic in South Asia and is a significant burden on patients and health systems. Antimicrobial resistance (AMR) in typhoid has been an increasing concern. The recent emergence and clonal expansion of new AMR variants (ceftriaxone resistance in extensively drug resistant (XDR) strains in Pakistan, highly fluoroquinolone-resistant triple mutants in India and Nepal, azithromycin-resistant strains in Bangladesh) highlight the real possibility that *S. Typhi* could acquire resistance to all available oral antibiotics. Genomic surveillance studies can be used to track movement of strains across geographic areas, identify hotspots for emergence of new strains and inform clinical treatment guidelines to respond to changing AMR patterns. In 2019, typhoid conjugate vaccine (TCV) was introduced in Pakistan to respond to the XDR outbreak, and other endemic countries are now facing important decisions regarding its introduction. These studies are also necessary to monitor the impact of vaccine introduction on the evolutionary dynamics of *S. Typhi* strains, particularly to facilitate inter- and intra- country coordination of intervention strategies in South Asia. The session will describe work in the region utilizing genomics data captured from enteric fever surveillance studies to highlight current trends. The speakers will present on work arising out of Bangladesh, Nepal, and Pakistan from the Surveillance for Enteric Fever in Asia Project (SEAP) and from India as part of the Surveillance for Enteric Fever in India Program (SEFI). The presenters will describe the genomic profiles of circulating *S. Typhi* strains, exploring the phylogeographical patterns in Nepal and genomic determinants of antimicrobial resistance, including XDR Typhi in Pakistan. The session will also cover how these data are being used to generate evidence to inform the decision-making process around TCV introduction in Bangladesh.

CHAIR

Samir Saha

Child Health Research Foundation, Dhaka, Bangladesh

Stephen Baker

Cambridge Institute of Therapeutic Immunology & Infectious Disease (CITIID), Cambridge, United Kingdom

3:45 p.m.

GENOMIC PROFILING OF *SALMONELLA* TYPHI: GENERATING EVIDENCE PRIOR TO TCV INTRODUCTION IN BANGLADESH

Saiful Md. Islam Sajib

Child Health Research Foundation, Dhaka, Bangladesh

4:10 p.m.

MOLECULAR STRUCTURE OF CIRCULATING *S. TYPHI* STRAINS FROM NEPAL: EXPLORATION OF GENOMIC DIVERSITY AND ANTIMICROBIAL RESISTANCE PATTERN

Kesia da Silva

Stanford University, Stanford, CA, United States

4:35 p.m.

GENOME WIDE ANALYSIS OF *S. TYPHI* TO UNDERSTAND THE POPULATION STRUCTURE AND ANTIMICROBIAL RESISTANCE PATTERN IN PAKISTAN

Junaid Iqbal

Aga Khan University, Karachi, Pakistan

5 p.m.

TEMPORAL AND SPATIAL GENOMIC ANALYSIS OF *SALMONELLA* TYPHI IN INDIA

Agila Prakasam

Christian Medical College, Vellore, India

Scientific Session 111

Mosquitoes: Molecular Genetics and Genomics

Meeting Room 13

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

CHAIR

Igor V. Sharakhov

Virginia Tech, Blacksburg, VA, United States

Joseph E. O'Tousa

University of Notre Dame, Notre Dame, IN, United States

1477

USING PAI-1 TRANSGENIC MOSQUITOES TO TARGET FIBRINOLYSIS AND MALARIA TRANSMISSION

Tales V. Pascini¹, Yeong Je Jeong¹, Wei Huang², Zama R. Pala¹, Michael Wells³, Juliana M. Sa¹, Christopher Kizito², Thiago Luiz Alves e Silva¹, Deborah Andrews⁴, Thomas Wellems¹, Marcelo Jacobs-Lorena², Joel Vega-Rodriguez¹

¹National Institute of Health (NIH), National Institute of Allergy and Infectious Diseases (NIAID), Rockville, MD, United States, ²Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³Johns Hopkins School of Medicine, Baltimore, MD, United States, ⁴Johns Hopkins University School of Medicine, Baltimore, MD, United States

(ACMCIP Abstract)

1478

DEVELOPMENT OF CONDITIONAL MALE-LETHAL SEXING *ANOPHELES STEPHENSI* LINE FOR PFSPZ PRODUCTION USING THE TET-ON SYSTEM

Ehud Inbar¹, Harrell II Robert², Donald Ward III¹, Robert Alford², Maryam Hosseini¹, Tao Li¹, Sumana Chakravarty¹, O'Brochta A. David², B. Kim Lee Sim¹, Peter F. Billingsley¹, Stephen L. Hoffman¹, Abraham G. Eappen¹

¹Sanaria Inc., Rockville, MD, United States, ²Insect Transformation Facility, Institute for Bioscience and Biotechnology Research, University of Maryland, Rockville, MD, United States

1479

ASYMMETRIC MECHANISMS OF HYBRID MALE STERILITY IN RECIPROCAL CROSSES BETWEEN SPECIES OF THE *ANOPHELES GAMBIAE* COMPLEXJiangtao Liang, Igor V. Sharakhov
Virginia Tech, Blacksburg, VA, United States

1481

POPULATION GENOMICS OF *ANOPHELES MINIMUS* IN CAMBODIABrandy St. Laurent¹, Nick Harding², Kirk Rockett², Eleanor Drury¹, Sonia Goncalves¹, Alistair Miles², Dominic Kwiatkowski¹
¹Wellcome Sanger Institute, Cambridge, United Kingdom, ²Big Data Institute, Oxford, United Kingdom

1482

CONSTRUCTION AND ANALYSIS OF VISUALLY IMPAIRED *Aedes Aegypti* MUTANTSMatthew R. Gregory, Andrew Cameron, Hannah Cunliffe, Aidan Cook, Megan Decker, Brian Dineen, Daniel Guobadia, Patrick Kollman, Jeannie Nash, Caroline Seymour, Calla Sullivan, Joseph Y. Tang, Michelle A. Whaley, Joseph E. O'Tousa
University of Notre Dame, Notre Dame, IN, United States**Scientific Session 112****Filariasis: Molecular Biology, Immunology and Diagnostics**

Meeting Room 14

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

CHAIR

Sasisekhar Bennuru

National Institutes of Health, Bethesda, MD, United States

Sarah E. Greene

Washington University in St Louis, Saint Louis, MO, United States

1483

ONCHOCERCA VOLVULUS: DETECTION OF CIRCULATING CELL FREE DNA IN BODY FLUIDS THROUGH THE DETECTION OF A NOVEL HIGHLY REPETITIVE DNA SEQUENCE

Sasisekhar Bennuru, Chinweoke Osiogwe, Frimpong Kodua, Eric Dahlstrom, Thomas Nutman

National Institutes of Health, Bethesda, MD, United States

1484

DESCRIPTION OF A *BRUGIA MALAYI* MUCIN, BM18019: A MODEL GLYCOPROTEIN TO UNDERSTAND CIRCULATING FILARIAL ANTIGENS

Marla Hertz, Amy Rush, Philip Budge

Washington University in Saint Louis, St Louis, MO, United States

(ACMCIP Abstract)

1485

ASSESSMENT OF SEROLOGICAL RESPONSES TO *WUCHERERIA BANCROFTI* AND *ONCHOCERCA VOLVULUS* DURING POST-TREATMENT SURVEILLANCE FOR LYMPHATIC FILARIASIS, PLATEAU STATE, NIGERIARebecca Castor¹, Gregory S. Noland², Barminas Kahansim³, Kenrick Anorue³, Yohana Sambo³, Abel Eigege³, Solomon E. Adelamo³, Bulus Mancha³, Nils Pilotte⁴, Steven A. Williams⁴, Emily Griswold², Emmanuel S. Miri³, Frank O. Richards Jr.²¹Emory University, Atlanta, GA, United States, ²The Carter Center, Atlanta, GA, United States, ³The Carter Center, Jos, Nigeria, ⁴Smith College, Northampton, MA, United States

1486

A NEW ANTIBODY TEST FOR *WUCHERERIA BANCROFTI* INFECTION THAT IS USEFUL FOR ASSESSING THE IMPACT OF TREATMENTSarah E. Greene, Kurt Curtis, Peter U. Fischer, Gary J. Weil
Washington University in St Louis, Saint Louis, MO, United States
(ACMCIP Abstract)

1487

INTEGRATED SEROPREVALENCE ASSESSMENT OF *WUCHERERIA BANCROFTI* AND *ONCHOCERCA VOLVULUS* IN THREE DISTRICTS CO-ENDEMIC FOR LYMPHATIC FILARIASIS AND ONCHOCERCIASIS IN GAMBELLA REGION, ETHIOPIAMohammed Hassen¹, Aderajew Mohammed¹, Tekola Endeshaw¹, Tewodros Seid¹, Fikre Seife², Mossie Tamiru², Kadu Meribo², Emily Griswold³, Moses Katarbarwa³, Frank Richards³, Zerihun Tadesse¹¹The Carter Center, Addis Ababa, Ethiopia, ²Federal Ministry of Health, Addis Ababa, Ethiopia, ³The Carter Center, Atlanta, GA, United States

1488

EFFICACY OF EMODEPSIDE AGAINST *ONCHOCERCA OCHENGI* IN NATURAL INFECTED CATTLEGermanus S. Bah¹, Daniel Kulke², Nicolas H. Bayang¹, Sebastian Schneckenker³, Ralph Krebber⁴, Henrietta F. Ngangyung⁵, David D. Ekale¹, Youssouf M. Mfopit¹, John D. Graham-Brown⁶, Vincent N. Tanya¹, Martin Glenscheck-Sieberth⁷, Benjamin L. Makepeace⁶¹Institut de Recherche Agricole pour le Développement, Ngaoundéré, Cameroon, ²Bayer Animal Health GmbH, Leverkusen, Germany, ³Bayer AG, Leverkusen, Germany, ⁴Bayer AG - Division Crop Science, Monheim, Germany, ⁵Institut de Recherche Agricole pour le Développement, Mankon, Cameroon, ⁶University of Liverpool, Liverpool, United Kingdom, ⁷Bayer AG - Division Pharmaceuticals, Leverkusen, Germany

1489

SPATIAL TEMPORAL MODELING OF LINKED EPIDEMIOLOGICAL AND GENOMIC DATA OF CHADIAN GUINEA WORMS REVEALS PROGRAMMATIC RELEVANT TRANSMISSION CHARACTERISTICSJessica Ribado¹, Nancy Li¹, Elizabeth Thiele², James Cotton³, Adam Weiss⁴, Hubert Zirimwabagabo⁴, Philippe Tchindebet Ouakou⁵, Tchonfienet Moundai⁵, Guillaume Chabot-Couture¹, Joshua L. Proctor¹¹Institute for Disease Modeling, Bellevue, WA, United States, ²Vassar College, Poughkeepsie, NY, United States, ³Wellcome Sanger Institute, Hinxton, United Kingdom, ⁴The Carter Center, Atlanta, GA, United States, ⁵Ministry of Public Health, N'Djamena, Chad**Symposium 113****Multisectoral Collaboration for Neglected Tropical Diseases (NTDs): Barrier Analyses and Opportunities for Multisector Coordination to Sustain NTD Programming**

Meeting Room 15

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

As countries progress towards the 2030 SDGs targets aimed at sustaining the gains achieved in the fight against NTDs in line with the WHO NTD Roadmap, national programs are focusing on coordination and integration across sectors to achieve long-term objectives of prevention, control, and elimination of NTDs. It is critical to identify and leverage existing service delivery platforms for integration and mainstreaming of NTD programming for sustainability approaches. Research has shown that gains made

from mass drug administration (MDAs) alone cannot be sustained without a substantial level of investment in Education, WASH, MNCH and other relevant sectors. Establishing a responsive multisector coordination mechanism for NTD interventions through solid evidence is a pillar priority to sustain MDA gains and provide an integrated platform for collaborative implementation. USAID's ACT to End NTDs West program supported national programs conduct a barrier analysis in Ghana, Mali, Senegal and Sierra Leone. The analysis examined key structural and infrastructural factors that can motivate or hinder multisectoral collaboration for NTD programming and present tangible opportunities to address them. In addition, the assessment identified existing service delivery platforms that can bridge the communication and collaboration gap for MOH programs such as the School Feeding Program in Sierra Leone, the School Health and Hygiene unit in Ghana, the Sexual Reproductive MCH platform in Senegal, and the Malaria-NTD program in Mali. Across countries, barriers in effective coordination and collaboration included: 1) siloed planning and insufficient joint implementation within and outside MOH sectors to leverage on their existing platform to support NTD programming; 2) Limited NTD advocacy strategy and missed opportunities to raise awareness of NTDs and their impact on public health and economic growth, 3) coordination mechanisms largely driven by donor funding, 4) limited national level coordination of regional programming resulting in inadequate collaboration with other campaigns such as bednet distribution or national immunization days. The findings informed strategic development of multisector coordination approaches to effectively and intentionally engage relevant key sectors. For instance, the Ghana NTDP is revamping the intra-country coordination committee (ICCC) as the multisector coordination mechanism to formalize collaboration across key sectors for NTD interventions. In Mali, Senegal, and Sierra Leone, the national programs, are establishing strategic multisector coordination platforms with targeted and structured sub-committees to reform technical, resource mobilizations, social mobilization, communication and advocacy approaches.

CHAIR

Stephen O. Omuonyidde
World Vision, Washington, DC, United States

Gagik Karapetyan
World Vision, Washington, DC, United States

3:45 p.m.

THE ROLE OF SOCIAL AND BEHAVIOR CHANGE COMMUNICATION IN STRENGTHENING NTD PREVENTION AND CONTROL INTERVENTIONS

Doris Bah
Ministry of Health and Sanitation - Sierra Leone, Freetown, Sierra Leone

4:15 p.m.

THE INTEGRATION OF A MULTISECTORAL APPROACH IN THE REVITALIZATION OF THE ICCC AS THE CROSS-SECTOR PLATFORM FOR LONG SERVICE DELIVERY AND COORDINATION OF NTD ACTIVITIES.

Benjamin Marfo
Ghana Health Services, Accra, Ghana

Symposium 114

Measuring Progress and Challenges for Chagas Disease Control in the Americas

Meeting Room 16

Wednesday, November 18

3:45 p.m. - 5:30 p.m. U.S. Eastern Time Zone

Chagas disease (CD), caused by the protozoan parasite *Trypanosoma cruzi*, is a vector (triatomine)-borne neglected tropical disease (NTD) particularly (but not exclusively) important in the Americas, where measuring progress towards its control is both essential and challenging. Population migration, increased urbanization, and environmental change have all contributed to make CD a disease of planetary relevance, well beyond its original distributional range. The World Health Organization (WHO) recently launched a new NTD roadmap, proposing CD goals to be reached between 2020 and 2030 that include achieving (and verifying where feasible) the interruption of intra-domiciliary (vectorial) transmission in an increasing proportion of the 21 CD-endemic countries in the Americas, as well as the interruption of blood transfusion, organ transplantation, and congenital transmission in endemic and non-endemic countries. Developing and implementing tools to reach, quantify, and verify progress towards the attainment of such targets is, therefore, paramount. This symposium will: describe data platforms that are being developed to collate, curate, and use CD seroprevalence (and other) data to measure temporal and spatial trends of Chagas disease incidence in endemic countries; review progress towards using the above mentioned platform to quantify the burden of disease in selected Latin American countries; describe innovative methods for integrated vector management towards interruption of intra-domiciliary transmission and control of new scenarios of transmission, and discuss issues regarding the epidemiology and control of CD in urban settings and challenges faced in its control and that of its vectors.

CHAIR

Maria-Gloria Basáñez
Imperial College London, London, United Kingdom

Luis G. Castellanos
Pan American Health Organization, Washington, DC, United States

3:45 p.m.

THE DICTUM (DECREASING THE IMPACT OF CHAGAS DISEASE THROUGH MODELLING) PLATFORM: DEVELOPMENT, ADVANCES AND APPLICATIONS TO ESTIMATE CHANGES IN CHAGAS DISEASE INCIDENCE.

Zulma M. Cucunubá
Imperial College London, London, United Kingdom

4:05 p.m.

TOWARDS ESTIMATION OF CHAGAS DISEASE TRANSMISSION AND DISEASE BURDEN: DATA, INTERPRETATION AND UNCERTAINTY.

Julia Ledien
University of Sussex, Brighton, United Kingdom

4:25 p.m.

INTEGRATED VECTOR MANAGEMENT FOR THE CONTROL OF CHAGAS DISEASE VECTORS IN NEW SCENARIOS OF TRANSMISSION

Gabriel J. Parra-Henao

National Institute of Health, Bogotá, Colombia, Bogotá, Colombia

4:45 p.m.

INTEGRATING EVIDENCE, MODELS AND MAPS TO ENHANCE CHAGAS DISEASE VECTOR SURVEILLANCE IN URBAN ENVIRONMENTS

Claudia R. Arevalo-Nieto

Universidad Peruana Cayetano Heredia, Arequipa, Peru

Session 115

ASTMH Annual Business Meeting

Meeting Room 17

Wednesday, November 18

3:45 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

David R. Hill

Quinnipiac University, Hamden, CT, United States

Karen A. Goralesski

American Society of Tropical Medicine and Hygiene, Arlington, VA, United States

Thursday, November 19

ASTMH Information Desk

Lobby

Thursday, November 19

8 a.m. - 6:45 p.m. U.S. Eastern Time Zone

Poster Session Viewing

Poster Hall

Thursday, November 19

Midnight - 6:45 p.m. U.S. Eastern Time Zone

Exhibit Hall

Visit the Exhibit Hall to view the schedule for each exhibit booth and connect with our exhibitors and learn about their products and services.

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TropMed Central

Visit TropMed Central to connect with colleagues and attendees.

Plenary Session 116

Plenary Session V: Race and Social Justice: Tropical Medicine's Troubled Past and Future Challenge

Grand Ballroom

Thursday, November 19

9 a.m. - 10:30 a.m. U.S. Eastern Time Zone

Recent events have brought racial injustice, especially against Blacks, to the forefront of society. In this symposium we explore the history of the field of tropical medicine, with its roots intertwined in colonialism and racism, and reflect on how educational institutions and societies of tropical medicine can move beyond this complex history, eliminate structural racism, and be forces for global health equity and justice.

CHAIR

Jonathan K. Stiles

Morehouse School of Medicine, Atlanta, GA, United States

Julie Jacobson

Bridges to Development, Seattle, WA, United States

9:05 a.m. - 9:45 a.m.

KEYNOTE ADDRESS

Linnie Golightly

Cornell University Weill Medical College, New York, NY, United States

9:45 a.m. - 9:50 a.m.

DISCUSSANT

Amadou A. Sall

Institut Pasteur Dakar, Dakar, Senegal

9:50 a.m. - 9:55 a.m.

DISCUSSANT

Mishal Khan

London School of Hygiene & Tropical Medicine, London, United Kingdom

9:55 a.m. - 10 a.m.

DISCUSSANT

Thomas LaVeist

Tulane University, New Orleans, LA, United States

10 a.m. - 10:30 a.m.

PANEL DISCUSSION

Break

Thursday, November 19

10:30 a.m. - 10:45 a.m. U.S. Eastern Time Zone

Symposium 117

Vaccines against Placental Malaria

Meeting Room 1

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

Malaria infection in pregnancy can lead to the accumulation of parasites in the placenta, which poses a significant threat to both the mother and her fetus. One of the major targets of natural immunity to *P. falciparum* placental malaria is the parasite surface antigen VAR2CSA. As a result, efforts to develop a vaccine to protect pregnant women from placental malaria focus on this antigen. Two vaccines, PRIMVAC and PAMVAC, based on recombinant domains of VAR2CSA, recently underwent randomized double-blind Phase Ia/Ib dose-escalated vaccine trials in Europe and in Africa. Both vaccines were safe and immunogenic, but these trials identified a major challenge to achieving broad vaccine efficacy: the extensive sequence polymorphisms among natural var2csa alleles that hinder vaccine responses to heterologous parasites. This issue is compounded by the recent finding in Benin of a rare variant of *P. falciparum* that particularly infects multigravid women with high anti-VAR2CSA acquired IgG. These VAR2CSA-expressing parasite variants display epitopes in the CSA-binding pocket that are distinct from those of the common variants FCR3 and 3D7, upon which the vaccines are based. These parasites escape the CSA-binding inhibitory effects of the antibodies induced by common variants. The reports from the vaccine trials also highlight key differences in the activities of VAR2CSA antibodies elicited in humans, which appeared lower compared to the pre-clinical immunogenicity studies in rodents. This symposium will present a new nonhuman primate model of placental malaria in Aotus monkeys established to better predict human immune response to VAR2CSA vaccine candidates. Following the last immunization with PAMVAC, PRIMVAC and ID1-ID2a/M1010, formulated in Alhydrogel®, high levels of antigen-specific IgG (with some cross-reactivity among antigens) were observed. Importantly, these antibodies recognized surface-expressed VAR2CSA and blocked CSA-binding of homologous (but not heterologous) parasites, recapitulating the results from the human trials. The final talk will discuss an alternative approach to elicit antibodies to VAR2CSA that focuses on conserved

epitopes in related antigens of different Plasmodium species. The session will present recent data to map an epitope in *P. vivax* PvDBP that elicits antibodies that cross-react with VAR2CSA and block parasite adhesion in vitro. The symposium will also discuss ways to exploit these evolutionarily conserved epitopes in the optimization of VAR2CSA vaccines.

CHAIR

Stephanie K. Yanow

University of Alberta, Edmonton, AB, Canada

Nicaise Ndam

IRD at Noguchi Memorial Institute for Medical Research, Accra, Ghana

10:45 a.m.

PROGRESS TOWARD A PLACENTAL MALARIA VACCINE

Arnaud Chene

INSERM, Paris, France

11:10 a.m.

CLINICAL DEVELOPMENT OF A VAR2CSA-BASED VACCINE FOR PLACENTAL MALARIA: THE PERSISTENT CHALLENGE OF ANTIGENIC POLYMORPHISM

Nicaise Ndam

IRD at Noguchi Memorial Institute for Medical Research, Accra, Ghana

11:35 a.m.

AOTUS MODEL IS SUPERIOR TO RODENT MODELS IN PREDICTING HUMAN IMMUNE RESPONSE TO VAR2CSA VACCINE

Justin Doritchamou

Laboratory of Malaria Immunology & Vaccinology, National Institute of Allergy and Infectious Disease, Bethesda, MD, United States

Noon

A CROSS-SPECIES VACCINE APPROACH TO ELICIT VAR2CSA ANTIBODIES

Stephanie K. Yanow

University of Alberta, Edmonton, AB, Canada

Symposium 118

Persistence and Transmissibility of Malaria Infections – Examples from Different Malaria Endemic Settings

Meeting Room 2

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

This symposium will present results from research projects in 4 African settings which marry the use of detailed molecular characterisation of sexual and asexual parasites with epidemiology. A unique aspect of these studies is that they quantify infectiousness to locally relevant mosquitoes over time and directly compare infectiousness of clinical and asymptomatic cases. Study sites differed in transmission intensity and approaches to detect clinical cases, providing detailed insights in the transmissibility of infections in relation at the time of detection and the local epidemiology. The symposium starts with two observational studies. In Ethiopia, temporal fluctuations in parasite densities, gametocyte production and infectivity were assessed for *P. falciparum* and *P. vivax* infections over 12 months of intensive follow-up. Concurrently, the transmissibility

of passively recruited clinical malaria infections was assessed. In The Gambia, similar data was collected in a longitudinal study that involved repeated cross-sectional surveys and enhanced clinical case detection in all inhabitants of four villages exposed to moderate transmission intensity. These observational studies are complemented by a detailed study on parasite biology in relation to the persistence of infections during the dry season in an area of intense malaria transmission in Mali. Parasite multiplication rates and gametocyte production were examined between chronic asymptomatic infections and clinical malaria cases. This work uncovered strategies the parasite uses to maximize its survival in the human host as well as potential triggers and sensors of gametocyte commitment. The last presentation of the symposium describes the detectability and targetability of infections in relation to gametocyte production and infectivity. In Burkina Faso, 180 compounds were randomized to routine care, enhanced malaria case detection by weekly fever screening and monthly mass screening and treatment. During the intervention over two consecutive seasons, gametocyte production and infectivity to mosquitoes was assessed for all age groups and all parasite densities in these three arms. The general discussion will focus on the implications of results for understanding asexual and sexual parasite biology in relation to human host and environmental characteristics. This will be extended to discuss how these data can be used to better inform targeting of these infections to improve malaria control and elimination.

CHAIR

Christopher Drakeley
London School of Hygiene and Tropical Medicine, London, United Kingdom
Alfred Tiono
Centre National De Recherche Et De Formation Sur L, Ouagadougou, Burkina Faso

10:45 a.m.

THE DYNAMICS AND INFECTIVITY TO MOSQUITOES OF LOW-DENSITY *P. FALCIPARUM* AND *P. VIVAX* INFECTIONS IN LOW TRANSMISSION SETTING IN ETHIOPIA

Fitsum G. Tadesse
Armauer Hansen Research Institute, Addis Ababa, Ethiopia

11:05 a.m.

THE ROLE OF SUBMICROSCOPIC *P. FALCIPARUM* INFECTIONS IN MAINTAINING MALARIA TRANSMISSION IN A LOW TRANSMISSION SETTING OF THE GAMBIA

Abdullahi Ahmad
Medical Research Council Unit, The Gambia., Banjul, Gambia

11:25 a.m.

DRY SEASON SEXUAL COMMITMENT AND GAMETOCYTOGENESIS

Silvia Portugal
Heidelberg University Hospital, Heidelberg, Germany

11:45 a.m.

INVESTIGATING THE IMPACT OF ENHANCED COMMUNITY CASE MANAGEMENT AND MONTHLY SCREENING AND TREATMENT ON THE TRANSMISSIBILITY OF MALARIA INFECTIONS IN BURKINA FASO

Katharine A. Collins
Radboud University Medical Center, Nijmegen, Netherlands

Symposium 119

Cross-Disciplinary Sciences to Understand Malaria Vaccine Immunity

Meeting Room 3

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

Despite enormous investments in global malaria control and elimination programs with existing tools, progress towards malaria control and elimination has stalled in recent years. A recent report from the WHO Strategic Advisory Group on Malaria Eradication clearly pointed out that vaccines are a potentially valuable tool to combat this devastating disease. The most advanced malaria vaccine candidate, RTS,S/AS01, conferred a modest level of efficacy (28-36%) against clinical malaria in children 5-17 months of age at first vaccination, and durability of protection is not optimal. In search of a promising second generation vaccine, many clinical trials of various vaccines have been carried out in adults, children, and/or infants residing in malaria endemic regions. These trials have yielded disparate immunogenicity and vaccine efficacy (VE) against natural exposure results compared to studies of immunogenicity and VE against homologous and heterologous controlled human malaria infection (CHMI) carried out in malaria-naïve, immunized adult volunteers from non-endemic areas. Differential VEs have also been observed among different age groups, among target populations residing in regions with different transmission intensities or parasite population diversity. In parallel, many immunology studies to investigate immune parameters have revealed the multi-faceted features and confounding variables that can drive hypo-responsiveness to malaria vaccines in the field. Innovative approaches and new research strategies are critically needed, therefore, to dissect and understand the complicated nature of protective immunity conferred by various malaria vaccines, and the host and environmental factors that differentially impact on VE. Systems vaccinology approaches have enabled detailed human immune profiling and provided insights into vaccine responsiveness and performance. Concurrently, advances in machine learning have led to new bioinformatics and computational tools that permit data integration and analysis by leveraging biological, clinical, and technical heterogeneity across independent cohorts. This symposium will focus on addressing malaria vaccine and immunology issues using state of the art immunological and systems biology concepts and tools, and discuss how to leverage novel bioinformatic, computational science, quantitative, and data science approaches to investigate complex immunology and vaccinology issues arising in diverse at-risk populations to malaria or other infectious diseases of global health importance.

CHAIR

Annie Mo
NIAID/NIH, Gaithersburg, MD, United States
Jean-Luc Bodmer
BMGF, Seattle, WA, United States

10:45 a.m.

RTS,S VACCINE IMMUNITY AND IMMUNE SYSTEM DEVELOPMENT IN AFRICAN CHILDREN

Carlota Dobano
ISGlobal, Barcelona, Spain

11:05 a.m.

PROGRESS TOWARDS UNDERSTANDING AND HARNESSING THE COMPLEXITY OF PROTECTIVE SPOROZOITE VACCINE IMMUNITY AGAINST MALARIA

Stephen Hoffman
Sanaria Inc., Rockville, MD, United States

11:25 a.m.

DO DIFFERENCES MAKE A DIFFERENCE: USING SYSTEMS IMMUNOLOGY TO DISSECT NATURAL AND ENGINEERED ADJUVANTS

John Tsang
NIAID/NIH, Bethesda, MD, United States

11:45 a.m.

LEVERAGING BIOLOGICAL, CLINICAL AND TECHNICAL HETEROGENEITY IN PUBLIC DATA TO ACCELERATE TRANSLATIONAL MEDICINE

Purvesh Khatri
Stanford University, Stanford, CA, United States

Symposium 120

Translation of Research into Policy and Practice: Using Mathematical Models to Inform Decision Making for Malaria Elimination Strategies

Meeting Room 4

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

Mathematical models are increasingly being used to understand the transmission of infections and to evaluate the potential impact of disease control programs. They can be used to determine optimal control strategies against new or emergent infections such as Zika or against HIV, TB and malaria. Mathematical models also bring a semblance of order to an otherwise messy and dynamic decision-making process that often involves simultaneous cognitive sifting and balancing of information, stimuli, alternative courses of action and multiple stakeholders. They are therefore valuable tools for strategic planning and decision-making and to inform policies in countries. This symposium will focus on the role of mathematical models incorporating climate and other intrinsic and extrinsic factors on malaria transmission and their value in providing the evidence base for decision-making for malaria elimination policy. The symposium will showcase recent examples of contributions mathematical models have made on providing real world evidence for decision making: Four short presentations which draw on data and application of the models in a variety of epidemiological, regional and health infrastructure settings will be made mainly by participants from countries: (i) Incorporating operational efficiency and a health system landscape analysis to determine paths to elimination in Guyana (ii) Estimating the cost of malaria elimination and the investment case for continued funding in Zambia (iii) Building an advocacy strategy based on the outcome of models in South Africa (iv) Using the outcomes

of epidemiological and economic models to develop a domestic resource mobilization strategy in Ghana. These presentations will be followed by a discussion on the role of models in decision-making for malaria elimination and how the evidence generated can be used more effectively to institute policy change.

CHAIR

Rima Shretta
University of Oxford, Oxford, United Kingdom

Lisa White
University of Oxford, Oxford, United Kingdom

10:45 a.m.

INCORPORATING OPERATIONAL EFFICIENCY AND A HEALTH SYSTEM LANDSCAPE ANALYSIS TO DETERMINE PATHS TO ELIMINATION IN GUYANA

Sheetal Prakash Silal
University of Cape Town, Cape Town, South Africa

11 a.m.

BUILDING AN ADVOCACY STRATEGY BASED ON THE OUTCOME OF MODELS IN SOUTH AFRICA

Patrick Moonasar
National Department of Health, Pretoria, South Africa

11:15 a.m.

USING THE OUTCOMES OF EPIDEMIOLOGICAL AND ECONOMIC MODELS TO DEVELOP A DOMESTIC RESOURCE MOBILIZATION STRATEGY IN GHANA

Wahjib Mohamme
National Malaria Control Programme, Accra, Ghana

11:30 a.m.

ESTIMATING THE COST OF MALARIA ELIMINATION AND THE INVESTMENT CASE FOR CONTINUED FUNDING IN ZAMBIA

Elizabeth Chizema-Kawesha
End Malaria Council, Lusaka, Zambia

Symposium 121

Comprehensive Surveillance in the Setting of a Dramatic Decline in Malaria Following Sustained Control Interventions in a Historically High Transmission Area of Uganda: From Mosquito to Human and Back Again

Meeting Room 5

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

Increased investment in efforts to control malaria have resulted in substantial declines in burden in the majority of endemic settings. These declines have been heterogeneous. Where interventions have been successful, a comprehensive study of epidemiologic changes may shed important insights on what contributes to sustained reduction in transmission and what we might hope to see elsewhere in terms of entomology, clinical outcomes, parasite – host dynamics, and human to mosquito transmission. The symposium presents cutting edge comprehensive surveillance data from an area that exemplifies many African settings where intensive control efforts are implemented in the context of intense, ongoing transmission. As part of an international consortium, we have closely followed the decline of malaria in Tororo District,

Uganda, where the annual entomological inoculation rate was > 300 eight years ago and is now close to zero due to highly successful indoor residual spraying of insecticide and universal distribution of long-lasting insecticidal nets. As part of the NIH-funded International Centers of Excellence in Malaria Research (ICEMR), longitudinal cohorts have been enrolled across all age groups to study the epidemiology of malaria in this area in exceptional detail, collecting multiple modalities of data from the same households. This symposium will present 4 aspects of these linked studies followed by a general discussion on how successful control can be sustained and the presented findings and methodologies can support surveillance efforts in other endemic regions. The first presentation will provide insights in changes in the numbers, composition, behavior, infection prevalence, and insecticide susceptibility of vector species. Next, the downstream effects of changes in exposure to infected mosquitoes on human measures of malaria morbidity will be presented. The third presentation will focus on uniquely detailed measures of human infection dynamics at the level of the parasite clone to better understand the underlying biology of infection and immunity. The fourth presentation will follow these infections back into the mosquito population via studies of gametocyte commitment and maturation, an unsurpassed number of mosquito feeding experiments, and detailed assessments of mosquito biting preference by blood meal analysis. Altogether, the results paint a complete picture of what successful control can look like in high burden areas of sub-Saharan Africa, and stimulate thought on how to sustain these gains and go the last mile towards elimination.

CHAIR

Bryan Greenhouse
University of California, San Francisco, San Francisco, CA, United States

Joaniter I. Nankabirwa
Makare University Kampala, Kampala, Uganda

10:45 a.m.

CHANGES IN MALARIA VECTOR BIOLOGY AND BIONOMICS FOLLOWING INTENSIFIED VECTOR CONTROL IN TORORO, UGANDA

Alex K. Musiime
Infectious Diseases Research Collaboration, Kampala, Uganda

11:10 a.m.

MALARIA TRANSMISSION, INFECTION AND DISEASE FOLLOWING SUSTAINED INDOOR RESIDUAL SPRAYING OF INSECTICIDE IN TORORO, UGANDA

Joaniter I. Nankabirwa
Makare University Kampala, Kampala, Uganda

11:35 a.m.

WITHIN-HOST PARASITE DYNAMICS FOLLOWING HIGHLY EFFECTIVE IRS IN NAGONGERA, UGANDA USING LONGITUDINAL AMPLICON DEEP-SEQUENCING

Jessica J. Briggs
UCSF, San Francisco, United States

Noon

THE KINETICS OF GAMETOCYTE PRODUCTION AND HUMAN INFECTIOUSNESS TO MOSQUITOES FOLLOWING MARKED REDUCTIONS IN MALARIA EXPOSURE IN TORORO, UGANDA

Chiara Andolina
Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands

Symposium 122

The RTS,S Malaria Vaccine Pilot Implementation in Africa: Generating Data for Decision-making

Meeting Room 6

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

The RTS,S/AS01 (RTS,S) malaria vaccine was shown to significantly reduce malaria when given to children from 5 months of age in 4 vaccine doses. The incidence of malaria in young children was reduced by 39% over 4 years in a large Phase 3 trial that ended in 2014. The vaccine has received a positive scientific opinion from the European Medicines Agency (EMA), and was reviewed by World Health Organization (WHO) expert advisory bodies, which recommended pilot implementation to answer outstanding questions about the vaccine's public health use. The Malaria Vaccine Implementation Programme (MVIP), coordinated by WHO, comprises the introduction of the vaccine by the ministries of health in Ghana, Kenya, and Malawi, through their respective routine childhood vaccination services, and a concurrent evaluation of implementation experience and evidence from each of the countries. The ministries are introducing the vaccine in a phased manner, in areas that were selected randomly at the programme start, and they will later consider expanding vaccination to other parts of their countries. The accompanying evaluation, known as the Malaria Vaccine Pilot Evaluation (MVPE), is being conducted by independent evaluation partners. The goals are to determine the public health role of the vaccine; generate data on the operational feasibility of administering 4 vaccine doses in the context of routine health service delivery; understand the vaccine's impact on severe malaria and mortality; and establish the safety profile of the vaccine in routine use. This experience is expected to inform policy pathways for future vaccines or medicines primarily targeted for use in lower-resource settings, and the data collected will inform a decision on broader use of the RTS,S vaccine, which could benefit populations at highest risk of dying from malaria. Modeled estimates show the vaccine could avert 1 death for every 200 children vaccinated and that it is cost effective at an estimated cost of 5 – 10 \$ per vaccine dose. In addition to providing an overview of the MVIP and approach to analysis of the evaluation, this symposium will focus on 3 of the essential components of the MVPE: - Sentinel hospital surveillance: used to assess safety signals identified in the Phase 3 trial, including an excess in the number of meningitis cases and the number of cerebral malaria cases, and to collect data on the vaccine's impact on severe malaria and mortality; - Community mortality surveillance: used to resolve a post-hoc finding of an imbalance in female deaths among children receiving the vaccine compared with those who did not; and - Qualitative assessment of vaccine implementation and utilization: used to provide information on the feasibility of reaching children with 4 vaccine doses.

CHAIR

Mary Hamel
World Health Organization, Geneva, Switzerland

Rose Jalang'o
Kenya Ministry of Health, Nairobi, Kenya

10:45 a.m.

OVERVIEW OF THE MVP AND PROGRESS IN THE VACCINE INTRODUCTION

Rose Jalang'o
Kenya Ministry of Health, Nairobi, Kenya

11:05 a.m.

BUILDING ON A CLINICAL INFORMATION NETWORK TO DEVELOP A SENTINEL HOSPITAL SURVEILLANCE SYSTEM IN KENYA

Sam Akech
KEMRI/Wellcome Trust Programme, Nairobi, Kenya

11:25 a.m.

SCALING UP COMMUNITY MORTALITY SURVEILLANCE SYSTEMS IN GHANA

Kwaku Poku Asante
Kintampo Health Research Centre, Brong Ahafo Region, Ghana

11:45 a.m.

METHODOLOGY AND PRELIMINARY FINDINGS OF A LONGITUDINAL QUALITATIVE ASSESSMENT OF VACCINE INTRODUCTION AND IMPLEMENTATION IN MALAWI

Nicola Desmond
Malawi-Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi

12:05 p.m.

MALARIA VACCINE PILOT EVALUATION ANALYSIS APPROACH

Paul John Milligan
London School of Hygiene and Tropical Medicine, London, United Kingdom

Scientific Session 124

Malaria Control: Innovations and Opportunities for Healthcare Systems

Meeting Room 8

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

CHAIR

Kent Kester
Sanofi Pasteur, Swiftwater, PA, United States

Kim C. Williamson
Loyola University Chicago, Chicago, IL, United States

1491

TAILORING MALARIA ROUTINE ACTIVITIES WITHIN THE COVID-19 PANDEMIC: A RISK AND MITIGATION ASSESSMENT OF EIGHT COUNTRIES IN WEST AFRICA

Suzanne Van Hulle¹, Joseph Lewinski¹, Ghislain Nana¹, Chrestien Yameni², Dominique Guinot³, Sylvia Mollet Sangare¹
¹Catholic Relief Services, Baltimore, MD, United States, ²Catholic Relief Services West Africa, Dakar, Senegal, ³Catholic Relief Services Europe, Geneva, Switzerland

1492

OUTREACH TRAINING SUPPORTIVE SUPERVISION IMPROVED THE QUALITY OF MALARIA MICROSCOPY IN THE DEMOCRATIC REPUBLIC OF CONGO

Ange Landela¹, Séraphine Kutumbakana¹, Anselme Manyong¹, Lennie Kyomuhangi², Emanuel Yamo², Dieudonne M. Ngoyi³, Aboubacar Sadou⁴, Godefroid Tshiswaka⁴, Lawrence Barat⁵, Ricki Orford⁵, Eric Mukomena⁶, Pharath Lim²
¹PMI Impact Malaria, Kinshasa, Democratic Republic of the Congo, ²PMI Impact Malaria, MCDI, Silver Spring, MD, United States, ³Institut National de Recherche Biomédicale (INRB), Kinshasa, Democratic Republic of the Congo, ⁴U.S. President's Malaria Initiative, Kinshasa, Democratic Republic of the Congo, ⁵PMI Impact Malaria Project, PSI, Washington, DC, United States, ⁶Programme National de Lutte contre le Paludisme (PNLP), Kinshasa, Democratic Republic of the Congo

1493

STRENGTHENING INTEGRATION OF MALARIA INTO REPRODUCTIVE, MATERNAL, NEONATAL, CHILD, ADOLESCENT HEALTH AND NUTRITION (MALARIA-RMNCAN) IN NIGERIA - MAJOR MILESTONES AND SUCCESSES

Victoria Erinle¹, Chinedu Chukwu¹, Isaac Adejo¹, Tom Hall², Olatayo Abikoye³, Sonachi Ezeiru³, Emmanuel Shekarau⁴, Nnenna Ogbulafor⁴, Bala Muhammed Audu⁴, Olugbenga Mokuolu⁴, Ojonye Ega⁵, Kayode Afolabi⁶, Olumuyiwa Ojo⁷, Lynda Ozor⁷
¹Management Sciences for Health (MSH), Abuja, Nigeria, ²Management Sciences for Health (MSH), Arlington, VA, United States, ³Catholic Relief Services (CRS), Abuja, Nigeria, ⁴National Malaria Elimination Program (NMEP), Abuja, Nigeria, ⁵Ministry of Health, Abuja, Nigeria, ⁶Reproductive Health Unit, Fed. Min. of Health, Abuja, Nigeria, ⁷World Health Organization (WHO), Abuja, Nigeria

1494

USING A MODIFIED CHALLENGE MODEL TO IDENTIFY MALARIA DATA ISSUES & IMPROVE KEY PERFORMANCE INDICATORS IN LIBERIA

Eric Diboulo¹, D. Levi Hinneh², Victor S. Koko², O. Joseph Alade², Patrick Konwloh³, Julius Gilayeneh², Oliver J. Pratt², Luke L. Bawo³, Jessica Kafuko⁴, Agneta Mbithi⁵, Yazoumé Yé⁶
¹ICF International Inc., Monrovia, Liberia, ²National Malaria Control Program (NMCP), Monrovia, Liberia, ³Ministry of Health, Monrovia, Liberia, ⁴U.S. President's Malaria Initiative (PMI), Monrovia, Liberia, ⁵ICF International Inc., Nairobi, Kenya, ⁶ICF International Inc., Rockville, MD, United States

1496

EVIDENCE OF IMPROVED MALARIA CASE MANAGEMENT BY PRIVATE SECTOR PROVIDERS THROUGH THE PROVISION OF SUBSIDIZED RDTs IN MADAGASCAR

Bakoly Nirina Rahaivondrafahitra¹, Mickael Randriamanjaka¹, Mauricette Andriamananjara², Saraha Rabeherisoa², Jacky Raharinjatovo¹, Ilo Andriamanamihaja¹, Aarons Chea³, Christopher Lourenco⁴, Stephen Poyer⁴
¹Population Services International - Madagascar, Antananarivo, Madagascar, ²National Malaria Control Program, Antananarivo, Madagascar, ³Population Services International, Nairobi, Kenya, ⁴Population Services International - Washington, Washington, DC, United States

256

PERFORMANCE OF ELECTRONIC DISEASE SURVEILLANCE SYSTEM IN MADAGASCAR: EVIDENCE FROM COMPARATIVE STUDY AMONG TWO CLUSTERS OF HEALTH DISTRICTS

Maurice Ye¹, Lea Bricette Randriamampionona², Jean-Marie N'Gbichi³, Laurent Kapesa⁴, Jocelyn Razafindrakoto⁴, Armand Solofoniaina Rafalimanantsoa², Mauricette Nambinisoa Andriamananjara⁵, Yazoume Ye³
¹PMI Measure Malaria, ICF Macro Madagascar, Antananarivo, Madagascar, ²Department of Epidemiological Surveillance and Response, Ministry of Public Health, Antananarivo, Madagascar, ³PMI Measure Malaria, ICF, Rockville, MD, United States, ⁴President's Malaria Initiative, Health Population and Nutrition Office, Antananarivo, Madagascar, ⁵National Malaria Control Program, Ministry of Public Health, Antananarivo, Madagascar

Symposium 125

Game Changers and Innovations During the 2018-2020 Ebola Outbreak in Democratic Republic of Congo

Meeting Room 9

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

On August 1, 2018, the Ministry of Health of DRC confirmed an outbreak of Ebola virus disease (EVD) in North Kivu and Ituri provinces in Eastern DRC, an area of armed conflict and high population mobility. As of February 25, 2020, 3444 confirmed and probable cases, including 2264 deaths and 172 healthcare workers, have been reported. The Ebola response in DRC has been affected by longstanding violence by armed groups that has led to injury, death, and displacement of the affected population and health workers. Control measures used in previous Ebola outbreaks, such as community engagement, active surveillance, contact tracing, and infection prevention and control, were adapted to this context. The response has also benefited from the introduction of new effective therapeutics and, for the first time during an outbreak, the use of two vaccines against Ebola Zaire virus. Investigators demonstrated the feasibility of conducting rigorous clinical trials while accessing and working with disillusioned, densely populated and highly mobile communities. The transition from the acute public health response will need to address the infrastructure-poor health system, ongoing conflict, as well as other concurrent outbreaks. The symposium will present innovations and lessons learned, followed by moderated discussion. The first speaker will provide an overview of the 2018-2020 Ebola outbreak epidemiology, and highlight major areas of scientific innovations in the clinic (clinical trial of Ebola therapeutics, novel technologies to reduce nosocomial transmission), laboratory (field laboratories; whole genome sequencing), and community (ring and geographic vaccination; Ebola survivor programs) in the midst of insecurity. The second speaker will describe the evolution of Ebola vaccination implementation in DRC, and the two new vaccines' role in controlling current and future Ebola outbreaks in DRC. The third speaker will present clinical trial findings of new treatments against EVD, and their role in improving clinical outcomes. Areas for continued investigation will be addressed. The last two speakers will jointly present an overview of adaptations of common public health practices such as community engagement, contact tracing, and infection prevention and control employed during the outbreak, plans for incorporating improvements in preparedness into the DRC health system; and how these lessons can be applied to other complex health emergencies. The discussion will aim to advance understanding of best practices in outbreak preparedness and response in insecure settings.

CHAIR

Pratima Raghunathan

Centers for Disease Control and Prevention, Atlanta, GA, United States

Ibrahima Socé Fall

WHO, Geneva, Switzerland

10:45 a.m.

INNOVATIONS IN THE CLINIC, LABORATORY, AND COMMUNITY DURING THE EBOLA OUTBREAK IN NORTH KIVU/ITURI PROVINCES, DRC

Steve Ahuka

Institut National de Recherche Biomédicale, Kinshasa, Democratic Republic of the Congo

11:05 a.m.

THE ROLE OF VACCINES IN EBOLA OUTBREAK RESPONSE

Elisabeth Mukamba

Programme Elargi de Vaccination, Kinshasa, Democratic Republic of the Congo

11:25 a.m.

FINDINGS FROM THE PAMOJA TULINDE MAISHA (PALM) CLINICAL TRIAL OF THERAPEUTICS AND THE EXTENSION PHASE

Placide Mbala-Kingebeni

Institut National de Recherche Biomédicale, Kinshasa, Democratic Republic of the Congo

11:45 a.m.

TRANSITIONING FROM EBOLA RESPONSE IN A COMPLEX ENVIRONMENT – TIME TO REWRITE OUR TEXTBOOKS?

Giséle Mbuyi wa Mulambu

Direction Surveillance Épidémiologique, Kinshasa, Democratic Republic of the Congo

Scientific Session 126

Malaria: Pre-Clinical Drug Development and Clinical Trials

Meeting Room 10

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

CHAIR

Francisco-Javier Gamo

GlaxoSmithKline, Tres Cantos (Madrid), Spain

Carol H. Sibley

University of Washington, Seattle, WA, United States

1497

INHIBITION OF THE *PLASMODIUM FALCIPARUM* ACETYL-COA SYNTHETASE BY MULTIPLE CHEMOTYPES DISRUPTS PROTEIN ACETYLATION AND EPIGENETIC REGULATION IN BLOOD STAGE PARASITES

Robert L. Summers¹, Charisse F. Pasaje², Manu Vanaerschot³, James M. Murithi³, Madeline R. Luth⁴, Justin T. Munro⁵, Pamela Magistrado-Coxen¹, Emily F. Carpenter⁶, Jade Bath³, Joao P. Pisco⁷, Avinash S. Puneekar⁷, Beatriz Baragaña⁷, Ian H. Gilbert⁷, Manuel Llinás⁸, Sabine Otilie⁴, Elizabeth A. Winzeler⁴, Marcus C. Lee⁶, Jacquie C. Niles², David A. Fidock⁹, Amanda K. Lukens¹⁰, Dyann F. Wirth¹

¹Department of Immunology & Infectious Diseases, Harvard T.H. Chan School of Public Health, Boston, MA, United States, ²Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States, ³Dept. of Microbiology & Immunology, Columbia University Irving Medical Center, New York, NY, United States, ⁴Department of Pediatrics, University of California San Diego School of Medicine, La Jolla, CA, United States, ⁵Biochemistry and Molecular Biology, Pennsylvania State University, University Park, PA, United States, ⁶Wellcome Sanger Institute, Hinxton, United Kingdom, ⁷Wellcome Centre for Anti-Infectives Research, Drug Discovery Unit, Division of Biological Chemistry and Drug Discovery, University of Dundee, Dundee, United Kingdom, ⁸Department of Biochemistry and Molecular Biology, Pennsylvania State University, University Park, PA, United States, ⁹Dept. of Microbiology & Immunology & Division of Infectious Diseases, Dept. of Medicine, Columbia University Irving Medical Center, New York, NY, United States, ¹⁰Infectious Disease and Microbiome Program, Broad Institute, Cambridge, MA, United States

(ACMCIP Abstract)

Thursday
November 19

1500

A FIRST IN HUMAN STUDY TO INVESTIGATE THE SAFETY, PHARMACOKINETICS AND ANTIMALARIAL ACTIVITY OF ZY-19489 IN THE INDUCED BLOOD STAGE *PLASMODIUM FALCIPARUM* MALARIA MODEL

Bridget E. Barber¹, Melissa L. Fernandez¹, Hardik B. Patel², Stephen Woolley¹, Azrin N. Abd-Rahman¹, Ilaria Di Resta³, Aline Fuchs³, Harilal V. Patel², Stephan Chalon³, Parmar V. Deven², James S. McCarthy⁴, Kevinkumar Kansagra²
¹QIMR Berghofer Medical Research Institute, Brisbane, Australia, ²Cadila Healthcare Ltd, Ahmedabad, India, ³Medicines for Malaria Venture, Geneva, Switzerland, ⁴QIMR Berghofer Medical Research Institute, Brisbane, Malaysia

1501

EVALUATION OF THE EFFICACY AND SAFETY OF TAFENOQUINE CO-ADMINISTERED WITH DIHYDROARTEMISININ-PIPERAQUINE FOR THE RADICAL CURE (ANTI-RELAPSE) OF *PLASMODIUM VIVAX* MALARIA IN INDONESIA - INSPECTOR STUDY

J. Kevin Baird¹, Inge Sutanto², Amin Soebandrio³, Lenny Ekawati¹, Rintis Noviyanti³, Disala Fernando⁴, Eve Cedar⁵, Alessandro Berni⁵, Katie Rolfe⁵, Sion Jones⁵, Stephan Duparc⁶, Lionel Tan⁵
¹Eijkman Oxford Clinical Research Unit (EOCRU), Jakarta, Indonesia, ²Faculty of Medicine, University of Indonesia, Jakarta, Indonesia, ³Eijkman Institute for Molecular Biology (EIMB), Jakarta, Indonesia, ⁴GlaxoSmithKline, Addenbrookes Hospital, Cambridge, United Kingdom, ⁵GlaxoSmithKline, Stockley Park, Uxbridge, United Kingdom, ⁶Medicines for Malaria Venture, Geneva, Switzerland

1502

A RANDOMIZED, OPEN-LABEL, NON-COMPARATIVE, MULTICENTER STUDY TO ASSESS THE PHARMACOKINETICS, SAFETY, AND EFFICACY OF TAFENOQUINE IN THE TREATMENT OF PEDIATRIC SUBJECTS WITH *PLASMODIUM VIVAX* MALARIA (TEACH STUDY)

Ivan D. Velez¹, Hien Tran², Ana Martin³, Hema Sharma³, Vicki Rousell³, Liz Hardaker³, John Breton³, Terry Ernest⁴, Katie Rolfe³, Maxine Taylor⁴, Stephan Duparc⁵, Justin Green³, Navin Goyal⁶, Lionel Tan³
¹University of Antioquia, Medellin- Antioquia, Colombia, ²Oxford University Clinical Research Unit, Hospital for Tropical Diseases, Ho Chi Minh, Viet Nam, ³GlaxoSmithKline, London, United Kingdom, ⁴GlaxoSmithKline, Ware, United Kingdom, ⁵Medicines for Malaria Venture, Geneva, Switzerland, ⁶GlaxoSmithKline, Upper Providence, PA, United States

Scientific Session 127

Mosquitoes: Insecticide Resistance and Control I

Meeting Room 11

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

CHAIR

Antoine Sanou

Centre National de Recherche et de Formation sur le Paludisme (CNRFP), Ouagadougou, Burkina Faso

Mojca Kristan

London School of Hygiene & Tropical Medicine, London, United Kingdom

1504

POSSIBLE DECREASE IN EFFICACY OF INTERCEPTOR G2 IN AREAS OF HIGHLY RESISTANCE *ANOPHELES GAMBIAE SENSU LATO* POPULATION IN BURKINA FASO

Antoine Sanou¹, Fatoumata Cissé¹, Moussa Wandaogo Guelbéogo¹, N'falé Sagnon¹, Phillip MacCall², Geraldine Foster², Hilary Ranson²
¹Centre National de Recherche et de Formation sur le Paludisme (CNRFP), Ouagadougou, Burkina Faso, ²Liverpool School of Tropical medicine, Liverpool, United Kingdom

1505

ANALYSIS OF A LARGE DATABASE OF INTENSITY BIOASSAYS FOR PHENOTYPIC INSECTICIDE RESISTANCE MONITORING IN MALARIA VECTORS

Mara D. Kont¹, Ben Lambert¹, Jan Kolaczinski², Lucia Fernandez Montoya², Audrey Lenhart³, Hilary Ranson⁴, Rosemary S. Lees⁴, Natalie Lissenden⁴, Catherine L. Moyes⁵, Penelope A. Hancock⁵, Thomas S. Churcher¹
¹Imperial College London, London, United Kingdom, ²World Health Organization, Geneva, Switzerland, ³CDC, Atlanta, GA, United States, ⁴Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ⁵University of Oxford, Oxford, United Kingdom

1507

EVALUATION OF PARTIAL INDOOR RESIDUAL SPRAYING: AN EFFECTIVE AND COST SAVING POTENTIAL ALTERNATIVE TO CONVENTIONAL SPRAYING FOR MALARIA VECTOR CONTROL

Sylvester Coleman¹, Yemane Yihdego², Dereje Dengela², Richard Oxborough², Ben Johns², Lilly Siems², Bradford Lucas², Samuel Dadzie³, Frank Gyamfi¹, Edem Obum¹, Louisa Antwi-Agyei¹, Lena Kolyada¹, Jon Eric Tongren⁴, Sixte Zigirumugabe⁴, Dominic Dery⁴, Christen Fornadel⁵, Kristen George⁵, Allison Belemvire⁵, Jennifer Armistead⁵, Jenny Carlson⁵, Seth Irish⁶, Aklilu Seyoum²
¹PMI VectorLink Project, Abt Associates, Plot 11 Waterson Road, Tamale, Ghana, ²PMI VectorLink Project, Abt Associates, 6130 Executive Blvd, Rockville, 20852, MD, United States, ³Noguchi Memorial Institute for Medical Research, University of Ghana, Legon, Ghana, ⁴U.S. President's Malaria Initiative, U.S. Agency for International Development, Accra, Ghana, ⁵U.S. President's Malaria Initiative, U.S. Agency for International Development, Washington, DC, United States, ⁶U.S. President's Malaria Initiative, Centers for Disease Control and Prevention, Atlanta, GA, United States

1508

ASSESSMENT OF THE RESIDUAL EFFECTIVENESS OF CLOTHIANIDIN FOR THE CONTROL OF PYRETHROID RESISTANT MALARIA VECTORS IN NORTH WESTERN LAKE ZONE REGIONS IN TANZANIA

Karen Nelwin Zablón¹, Charles Kakilla¹, Jackline Martine¹, Eric Lyimo¹, Coleman Kishamawe¹, Doris Mangalu¹, Lucy Bernard¹, Safari M. Kinung'hi¹, Chonge Kitojo², Naomi Serbantez², Eric Reaves³, Adeline Chan³, Charles D. Mwalimu⁴, Ssanyu Nyinondi⁵, Bilali Kabula⁵, Alphaxard Manjurano¹
¹National Institute for Medical Research (NIMR), Mwanza Centre, United Republic of Tanzania, ²US President's Malaria Initiative, United States Agency for International Development, Dar es Salaam, United Republic of Tanzania, ³Centres for Disease Control and Prevention (CDC), Atlanta, GA, United States, ⁴National Malaria Control Program, Ministry of Health, Community Development, Gender, Elderly and Children, Dodoma, United Republic of Tanzania, ⁵RTI International, Dar es Salaam, United Republic of Tanzania

1509

USE OF COLORIMETRIC TESTS AND HPLC-PDA TO DETERMINE THE AMOUNT OF INSECTICIDES MOSQUITOES PICK UP FROM TREATED BED NETS

Mojca Kristan, Jo Lines, Harparkash Kaur

London School of Hygiene & Tropical Medicine, London, United Kingdom

1044

HOUSEHOLD ACCEPTANCE OF YEAST INTERFERING RNA BAITED OVITRAPS IN TRINIDAD

Akilah Stewart¹, Nikhella Winter¹, Jessica Igiede², Rachel M. Wiltshire³, Limb K. Hapairai³, Azad Mohammed¹, David W. Severson², Molly Duman-Scheel³
¹The University of the West Indies at St. Augustine, Trinidad and Tobago, St. Augustine, Trinidad and Tobago, ²The University of Notre Dame, Notre Dame, IN, United States, ³Indiana University School of Medicine, South Bend, IN, United States

Symposium 128

The Impact of Multiple Blood Meals on the Vector-pathogen Interface

Meeting Room 12

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

Hematophagy, the process of consuming and metabolizing blood, is utilized by arthropod vectors for nutrient acquisition and egg production. This reliance on blood necessitates frequent feeding episodes that require the ability to digest and detoxify large volumes of blood. Not surprisingly, pathogens have evolved mechanisms to take advantage of this physiological process where blood-feeding behavior is intricately tied to vector-borne disease transmission. Despite this importance, there is a limited understanding of how blood-feeding influences pathogen outcomes in infected arthropod vectors. Historically, a singular blood meal has been used to introduce pathogens into vector species to study aspects of vector competence in laboratory experiments. However, these experiments have been performed without considerations of the physiological effects of an additional blood meal, which can induce global physiological changes that directly or indirectly impact pathogen infection. Recent work across multiple vector-pathogen systems is beginning to reveal the significance that additional non-infectious blood meals can have on vector-pathogen interactions and disease transmission. This symposium will discuss the impact of multiple blood meals on leishmania parasite development and transmission, malaria parasite adaptation to its mosquito vector, arbovirus transmission and its consequent epidemiological significance, and role of blood-feeding in the vertical transmission of arboviruses. This symposium provides a timely and compelling view of the role of blood-feeding in vector-borne disease transmission, with broad interest across vector and pathogen systems. The goal of the session is to emphasize and demonstrate the importance of repeated blood-feeding behavior as an integral component of laboratory vector-pathogen interaction studies.

CHAIR

Doug E. Brackney

Connecticut Agricultural Experiment Station, New Haven, CT, United States

Ryan C. Smith

Iowa State University, Ames, IA, United States

10:45 a.m.

MULTIPLE BLOODMEALS ARE KEY TO EFFICIENT TRANSMISSION OF LEISHMANIA PARASITES BY VECTOR SAND FLIES

Shaden Kamhawi

NIH, Bethesda, MD, United States

11:05 a.m.

THE ACQUISITION OF MULTIPLE BLOOD MEALS INFLUENCES MALARIA PARASITE IMMUNE EVASION AND ADAPTATION TO ITS MOSQUITO HOST

Ryan C. Smith

Iowa State University, Ames, IA, United States

11:25 a.m.

IMPLICATIONS OF SEQUENTIAL BLOODMEALS ON ARBOVIRUS TRANSMISSION BY MOSQUITOES

Doug E. Brackney

The Connecticut Agricultural Experiment Station, New Haven, CT, United States

Symposium 129

Operationalizing the WHO Guidelines for Onchocerciasis: Experiences and Best Practices

Meeting Room 13

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

Onchocerciasis is a debilitating, blinding disease caused by the parasite *Onchocerca volvulus* and transmitted by the simulium species of black fly. While the disease is endemic to certain parts of the America's and Yemen, more than 95% of the disease burden is in Africa where it has historically had devastating effects on populations and economies. Since 1974, efforts have been underway to curb the effects of the disease first through the Onchocerciasis Control Program (OCP; 1974-2002) and later by the African Program for Onchocerciasis Control (APOC; 1995-2015). While both programs were successful in their own rights, they each utilized differing tools, methodologies and approaches for determining when, where, and for whom interventions were required. For the OCP, the principal focus of the program was on vector management in the Sahelian regions of Africa until the drug ivermectin was introduced in 1987 for treatment of infected individuals. For APOC, the focus was always on the distribution of ivermectin with a broader focus on the more forested areas of Africa. As such, each of these programs had differing goals and indicators of success: for the OCP the effort was to reduce the vector population to a point where it could no longer sustain transmission of the disease while for APOC the focus was on reducing the infection in the human hosts to a point where morbidity was no longer seen. The varying level of interaction of the different national programs with OCP and APOC has resulted in programs that have quite different goals, objectives and indicators. In 2016, WHO published new criteria for stopping mass drug administration and verifying elimination of human onchocerciasis marking a significant step in defining the transition from control to elimination of the disease in Africa. These guidance documents describe the serologic and entomologic threshold requirements needed for making programmatic decisions using newer, more sensitive diagnostic tools such as the OV16 ELISA and O-150 PCR but do not provide guidance on how to move from a historic approach of vector management or disease control to one of elimination of transmission. Onchocerciasis programs in Nigeria, Uganda and Ethiopia have been among the first to operationalize these new guidelines in Africa. As such, the national programs have had to struggle with numerous challenges including analyzing historic data and treatment decisions, understanding onchocerciasis transmission in the context of programs using the same drug, ivermectin, to treat lymphatic filariasis, and in capturing the requisite number of the blackfly vector needed to make programmatic decisions in areas where the vector density has been declining.

CHAIR

Upendo J. Mwingira
RTI International, Washington, DC, United States

Darin Evans
USAID, Washington, DC, United States

10:45 a.m.

UPDATES ON ONCHOCERCIASIS ELIMINATION GUIDELINES AND THE WHO 2030 ROADMAP

Paul Cantey
Center for Disease Control, Atlanta, GA, United States

11:05 a.m.

STOPPING MDA IN UGANDA: WHAT TO DO WHEN THERE ARE NO GUIDELINES AND LESSONS LEARNED FROM THE ELIMINATION OF *SIMULIUM NEAVEI* TRANSMITTED ONCHOCERCIASIS IN THE WAMBABYA-RWANARONGO FOCUS

David Oguttu
MOH Uganda, Kampala, Uganda

11:25 a.m.

STOPPING MDA IN ETHIOPIA: BEST PRACTICES FROM THE FIRST COORDINATED INTERRUPTION OF ONCHOCERCIASIS TRANSMISSION IN THE METEMA-GALABAT CROSS BORDER FOCUS AND THE WUDI GAMZO 'HOTSPOT'

Kadu Meribo Burika
Ministry of Health Ethiopia, Addis Abbaba, Ethiopia

11:45 a.m.

WHEN IS IT SAFE TO STOP MDA? DEFINING TRANSMISSION ZONES IN NIGERIA AND CHALLENGES IN DEMONSTRATION OF INTERRUPTION OF ONCHOCERCIASIS TRANSMISSION IN NORTHERN NIGERIA, WHERE BLACKFLIES CANNOT BE CAUGHT

Sunday Isiyaku
Sightsavers, Kaduna, Nigeria

Symposium 130

Chances and Challenges for the Control and Elimination of Soil-transmitted Helminth Infections

Meeting Room 14

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

Millions of people are infected with soil-transmitted helminths, resulting in anemia, malnutrition, growth stunting, and cognitive deficits. The current control strategy of the World Health Organization to reduce the burden and morbidity of these infections is preventive chemotherapy, i.e. the administration of the two benzimidazoles (albendazole and mebendazole) using single, oral doses to at risk populations, mainly children without prior diagnosis. There is interest in moving beyond control of these infections trying to achieve elimination in some geographic settings. Both benzimidazoles are highly efficacious against *Ascaris lumbricoides*, but only albendazole is efficacious against hookworm, and both drugs are unsatisfactory against *Trichuris trichiura* infections. Moreover, there is a growing concern that the increasing drug selection pressure will result in the emergence of anthelmintic resistance which will gravely compromise the sustainability of preventive chemotherapy programs and threaten elimination efforts. This symposium will present exciting new findings generated in the framework

of three projects funded by the Bill & Melinda Gates Foundation with a focus on soil-transmitted helminthiasis. The session will highlight findings from randomized controlled trials exploring the benefits of increased dosages of albendazole against *T. trichiura* and hookworm infections in preschoolers, school-aged children and adults. Results will be presented from a multi-country study on albendazole-ivermectin against *T. trichiura* and demonstrate that combination chemotherapy is the way forward to effectively treat soil-transmitted helminthiasis. In addition, the challenges of assessing the emergence of anthelmintic resistance will be discussed along with current research to develop and deploy molecular genetic tests.

CHAIR

Jennifer Keiser
Swiss Tropical and Public Health Institute, Basel, Switzerland

Judd Walson
University of Washington, Seattle, United States

10:45 a.m.

WHEN A PROGRAM APPEARS TO FAIL – DETERMINING FAILURE OF COMPLIANCE OR EMERGENCE OF RESISTANCE

Judd Walson
University of Washington, Seattle, WA, United States

11:05 a.m.

MULTI-COHORT RANDOMIZED TRIALS TO EVALUATE THE EFFICACY AND SAFETY OF ASCENDING DOSAGES OF ALBENDAZOLE AGAINST *TRICHURIS TRICHIURA* AND HOOKWORM

Jean Coulibaly
Centre Suisse de Recherches Scientifiques, Abidjan, Côte D'Ivoire

11:25 a.m.

BENEFITS OF COMBINATION CHEMOTHERAPY FOR SOIL-TRANSMITTED HELMINTHIASIS

Jennifer Keiser
Swiss Tropical and Public Health Institute, Basel, Switzerland

11:45 a.m.

MOLECULAR APPROACHES TO SCREEN FOR ANTHELMINTIC DRUG RESISTANCE EMERGENCE IN SOIL TRANSMITTED HELMINTHS

John Gilleard
University of Calgary, Calgary, Canada

Scientific Session 131

Schistosomiasis - Trematodes: Epidemiology and Control

Meeting Room 15

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

CHAIR

Poppy H L Lamberton
University of Glasgow, Glasgow, United Kingdom

Brita Ostermeier
George Washington University, Washington, DC, United States

1511

REVISITING DENSITY DEPENDENCE IN SCHISTOSOMES USING SIBSHIP RECONSTRUCTION

M. Inês Neves, Joanne P. Webster, Martin Walker
Royal Veterinary College, University of London, Hatfield, United Kingdom

1512

MISMATCHES IN THERMAL OPTIMA OF *SCHISTOSOMA MANSONI* AND *BIOMPHALARIA* SPP. LIFE-HISTORY TRAITS SHIFT THE THERMAL OPTIMUM OF HUMAN SCHISTOSOMIASIS TRANSMISSION UNDER DIFFERENT INTERVENTION SCENARIOS

Karena H. Nguyen¹, Philipp H. Boersch-Supan², Valerie J. Harwood³, Jason R. Rohr⁴
¹Emory University, Atlanta, GA, United States, ²British Trust for Ornithology, Thetford, United Kingdom, ³University of South Florida, Tampa, FL, United States, ⁴University of Notre Dame, Notre Dame, IN, United States

1513

DYNAMICS OF PARASITE AGGREGATION UNDER INTENSE CONTROL EFFORTS: INSIGHTS FROM THE ZANZIBAR ELIMINATION OF SCHISTOSOMIASIS TRANSMISSION (ZEST) STUDY

Christopher M. Hoover¹, Stefanie Knopp², Alan Hubbard¹, Joseph A. Lewnard¹, Giulio A. de Leo³, Susanne H. Sokolow³, Fatma Kabole⁴, David Rollinson⁵, Justin V. Remais¹
¹UC Berkeley, Berkeley, CA, United States, ²Swiss Tropical and Public Health Institute, Basel, Switzerland, ³Stanford University, Stanford, CA, United States, ⁴Neglected Disease Program, Zanzibar Ministry of Health, Unguja, United Republic of Tanzania, ⁵Natural History Museum, London, United Kingdom

1514

SCHISTOSOMA MANSONI TRANSMISSION IN UGANDAN HOTSPOT AREAS. WHO IS REINFECTIONING WHOM?

Christina L. Faust¹, Olivia Ericsson², Moses Arinaitwe³, Moses Adriko³, Andrina Nankasi³, Fred Besigye³, Aaron Atuhaire³, Edridah M. Tukahebwa³, Poppy HL Lamberton²
¹Penn State University, State College, PA, United States, ²University of Glasgow, Glasgow, United Kingdom, ³Vector Control Division, Ministry of Health, Kampala, Uganda

1515

SCHISTOSOMA MANSONI INFECTION IN A HARD TO REACH DISTRICT OF MADAGASCAR FOLLOWING FOUR ROUNDS OF MASS DRUG ADMINISTRATION: RESULTS FROM REPEATED ANNUAL CROSS-SECTIONAL STUDIES

Stephen Spencer¹, James Penney¹, Hannah Russell¹, Cortland Linder¹, Caitlin Sheehy¹, Kate Hyde¹, J. R. Stothard², Amaya Bustinduy³, Sheena Cruickshank¹, Emmanuel Andriamasy⁴, Alain Rahetilahy⁵
¹University of Manchester, Manchester, United Kingdom, ²Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ³London School of Hygiene and Tropical Medicine, London, United Kingdom, ⁴Faculté de Médecine, Université d'Antananarivo, Antananarivo, Madagascar, ⁵Ministère de la Santé Publique, Antananarivo, Madagascar

1516

PERSISTENT HOTSPOTS OF *SCHISTOSOMA MANSONI* INFECTIONS AFTER 14 YEARS OF MASS DRUG ADMINISTRATION IN UGANDA: OPERATIONAL OR BIOLOGICAL FAILURES?

Jessica Clark¹, Christina L. Faust², Michelle Clements³, Charlotte M. Gower⁴, Moses Adriko⁵, Moses Arinaitwe⁶, Annet Enzaru⁶, Annet Namukuta⁶, Thomas Crellen⁷, Andrina Nankasi⁸, Candia Rowel⁹, Aida Wamboko⁶, Fred Besigye⁶, Rachel Francoeur¹, Lauren V. Carruthers¹, Narcis B. Kabatereine⁴, Alan Fenwick⁴, Edridah M. Tukahebwa⁶, Joanne P. Webster⁸, Poppy H. L. Lamberton¹
¹University of Glasgow, Glasgow, United Kingdom, ²The Center for Infectious Disease Dynamics, Pennsylvania State University, State College, PA, United States, ³Schistosomiasis Control Initiative, Imperial College, London, United Kingdom, ⁴Imperial College, London, United Kingdom, ⁵Vector Control Division, Ministry of Health, Kampala, Uganda, ⁶Vector Control Division, Ministry of Health, Kampala, Uganda, ⁷Big Data Institute, Oxford, United Kingdom, ⁸University of London, Royal Veterinary College, London, United Kingdom

1517

SCHISTOSOMIASIS, A DATA-DRIVEN ANALYSIS OF SYMPTOMS

Goylette Chami¹, Edridah Tukahebwa², Narcis Kabatereine²
¹University of Oxford, Oxford, United Kingdom, ²Vector Control Division, Ministry of Health, Kampala, Uganda

Scientific Session 132

Water, Sanitation, Hygiene and Environmental Health (WaSH-E) and Behavior

Meeting Room 16

Thursday, November 19

10:45 a.m. - 12:30 p.m. U.S. Eastern Time Zone

CHAIR

Christine Marie George
Johns Hopkins University, Baltimore, MD, United States

Mahbubur Rahman
International Center for Diarrhoeal Diseases Research, Bangladesh (icddr), Dhaka, Bangladesh

1518

EFFECTS OF A WATER, SANITATION AND HYGIENE MOBILE HEALTH PROGRAM ON DIARRHEA AND CHILD GROWTH IN BANGLADESH: A CLUSTER-RANDOMIZED CONTROLLED TRIAL OF THE CHOBIT MOBILE HEALTH PROGRAM

Christine Marie George¹, Shirajum Monira², Fatema Zohura², Elizabeth D. Thomas¹, M Tasdik Hasan², Tahmina Parvin², Khaled Hasan¹, Mahamud-ur Rashid², Nowshin Papri², Aminul Islam², Zillur Rahman², Raisa Rafique², Md. Sazzadul Islam Bhuyian², Ronald Saxton¹, Alain Labrique¹, Kelsey Alland¹, Indrajeet Barman², Fatema Tuz Jubayda², Marzia Sultana², Fatema-Tuz Johura², Lubaba Sharin², Lubaba Sharin², Md. Abul Hasem Khan³, Sanya Tahmina³, Farzana Munmun³, David A. Sack¹, Jamie Perin¹, Munirul Alam²
¹Johns Hopkins University, Baltimore, MD, United States, ²International Center for Diarrheal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh, ³Bangladesh Ministry of Health and Family Welfare, Dhaka, Bangladesh

1520

LEAD IS A POTENT NEUROTOXIN: DEVELOPING AN INTERVENTION TO REDUCE LEAD EXPOSURE AMONG PREGNANT AND LACTATING WOMEN IN BANGLADESH

Mahbubur Rahman¹, Tania Jahir¹, Helen Pitchik², Stephen P. Luby³, Jesmin Sultana¹, AKM Shoab¹, Tarique Md Nurul Huda¹, Md Saiful Islam¹, Farzana Yeasmin¹, Musa Baker¹, Dalia Yeasmin¹, Syeda Nurunnahar¹, Peter J. Winch⁴, Jenna Forsyth³
¹International Center for Diarrheal Diseases Research, Bangladesh (icddr), Dhaka, Bangladesh, ²University of California Berkeley, Berkeley, CA, United States, ³Stanford University, USA, Stanford, CA, United States, ⁴Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

1521

STRATEGIES TO CONNECT LOW-INCOME COMMUNITIES WITH THE PROPOSED SEWERAGE NETWORK OF THE DHAKA SANITATION IMPROVEMENT PROJECT, BANGLADESH

Mahbub Ul Alam¹, James B. Tidwell², Atik Ahsan¹, Ayesha Afrin¹, Sharika Ferdous¹, Fazle Shariar¹, Farhana Akand¹, Supta Sarker¹, Guy Norman³, Mahbubur Rahman¹
¹International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ²Harvard Kennedy School of Government, Cambridge, MA, United States, ³Water & Sanitation for the Urban Poor (WSUP), London, United Kingdom

1522

PATTERNS AND DRIVERS OF SUSTAINED AND GAINED HOUSEHOLD SANITATION ACCESS BETWEEN 2015 AND 2017 AMONG HOUSEHOLDS IN THE TUMIKIA TRIAL IN KWALE COUNTY, KENYA

Hugo Legge¹, Stella Kepha¹, Stefan S. Witek-McManus¹, Katherine E. Halliday¹, Carlos Mcharo², Hajara El-Busaidy³, Redempta Muendo³, Th'uva Safari², Charles S. Mwandawiro², Sultani H. Matendecheo⁴, Rachel L. Pullan¹, William E. Oswald¹
¹London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Eastern and Southern Africa Centre of International Parasite Control, Kenya Medical Research Institute, Nairobi, Kenya, ³Ministry of Health, County Government of Kwale, Kwale, Kenya, ⁴Division of Vector Borne and Neglected Tropical Diseases Unit, Ministry of Health, Nairobi, Kenya

1523

ENDLINE EVALUATION OF A WASH IN SCHOOL PROGRAM FOR ABSENTEEISM, DIARRHEA AND RESPIRATORY INFECTIONS AMONG STUDENTS IN SECONDARY SCHOOLS IN BANGLADESH

Debashish Biswas¹, Abul K. Shoab¹, Mahbub-Ul Alam¹, Mahbubur Rahman¹, Mirza M. Sultana², Mahfuj-ur Rahman², Aftab Opel², Leanne Unicom¹
¹International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ²WaterAid Bangladesh, Dhaka, Bangladesh

1524

HAND HYGIENE DURING CHILDBIRTH: A MIXED-METHODS OBSERVATIONAL STUDY IN CAMBODIA

Robert Dreifelbis¹, Yolisa Nalule¹, Ponnary Pons², Helen Buxton¹, Channa Sam Ol², Alison Macintyre³, Leang Supheap⁴, Ir Por⁴
¹London School of Hygiene and Tropical Medicine, London, United Kingdom, ²WaterAid Cambodia, Phnom Penh, Cambodia, ³WaterAid Australia, Melbourne, Australia, ⁴National Institutes of Public Health, Cambodia, Phnom Penh, Cambodia

Break

Thursday, November 19

12:30 p.m. - 1 p.m. U.S. Eastern Time Zone

Scientific Session 133

Pneumonia, Respiratory Infections and Tuberculosis

Meeting Room 1

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

CHAIR

Natasha Hochberg
 Boston University, Boston, MA, United States

Cristina R. Costales
 Keck School of Medicine of the University of Southern California, Los Angeles, CA, United States

1525

DYSREGULATION OF ANGIOPOIETIN-TIE-2 AXIS IN UGANDAN CHILDREN HOSPITALIZED WITH PNEUMONIA

Ran Zhang¹, Urvi Rai¹, Nafeesah Bte Mohamed Ibrahim¹, Yanni Amazouz¹, Jeremy Soo¹, Andrea L. Conroy², Sophie Namasopo³, Robert O. Opoka⁴, Ravi Barghava¹, Michael T. Hawkes¹
¹University of Alberta, Edmonton, AB, Canada, ²Indiana University, Indianapolis, IN, United States, ³Jinja Regional Referral Hospital, Kampala, Uganda, ⁴Makerere University, Kampala, Uganda

1527

RESPIRATORY VIRUS INFECTIONS FROM THE SENTINEL ENHANCED DENGUE SURVEILLANCE SYSTEM, 2016-2019

Rachel M. Rodriguez-Santiago¹, Robert Rodriguez-Gonzalez¹, Kelmie Torres-Rivera¹, Vanessa Rivera-Amill¹, Luisa I. Alvarado-Domenech¹, Laura Adams²
¹Ponce Health Sciences University, Ponce, PR, United States, ²Dengue Branch, Centers for Disease Control and Prevention Division of Vector-Borne Diseases, San Juan, PR, United States

1528

PREVALENCE, RISK FACTORS AND OUTCOME OF HOSPITAL ACQUIRED PNEUMONIA IN YOUNG BANGLADESHI CHILDREN

Mohammad J. Chisti, Abu S. Shahid, K. M. Shahunja
 International Centre for Diarrhoeal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh

1529

PERFORMANCE EVALUATION OF THE XPERT MTB/RIF ULTRA ASSAY ON POSTMORTEM NASOPHARYNGEAL SPECIMENS TO IDENTIFY SUSPECTED AND UNSUSPECTED TUBERCULOSIS DEATHS AMONG HOSPITALIZED PATIENTS AT AUTOPSY IN NORTHERN TANZANIA

Cristina R. Costales¹, John A. Crump², Alex R. Mremi³, Patrick T. Amsi³, Manuela Carugati⁴, Deng Madut⁴, Ann M. Nelson⁵, Venance P. Maro³, Matt P. Rubach⁴
¹Keck School of Medicine of the University of Southern California, Los Angeles, CA, United States, ²Centre for International Health, University of Otago, Dunedin, New Zealand, ³Kilimanjaro Christian Medical Centre, Moshi, United Republic of Tanzania, ⁴Division of Infectious Diseases and International Health, Duke University, Durham, NC, United States, ⁵Inpala Consulting, Washington, DC, United States

1530

THE POISONED CHALICE: A BIOMIMETIC 'TROJAN HORSE' PLATFORM FOR PRECISION KILLING OF MDR TUBERCULOSIS

Andrew W. Simonson¹, John N. Alumasa¹, Agustey S. Mongia¹, Matthew R. Aronson¹, Michael D. Howe², Bailey Klein¹, Sarah Almarzooqi¹, Adam Bolotsky¹, Aida Ebrahimi¹, Anthony D. Baughn², Kenneth C. Keiler¹, Scott H. Medina¹
¹Pennsylvania State University, University Park, PA, United States, ²University of Minnesota, Minneapolis, MN, United States

1531

CASCADE ANALYSIS OF HOUSEHOLD CONTACT INVESTIGATION FOR TUBERCULOSIS IN CALI, COLOMBIA

Gustavo Diaz¹, Angela M. Victoria², Amanda J. Meyer³, Yessenia Niño⁴, Lucy Luna⁴, Beatriz E. Ferro², J. Lucian Davis⁵
¹Centro Internacional de Entrenamiento e Investigaciones Medicas-CIDEIM & Alianza TB, Cali, Colombia, ²Departamento de Salud Pública y Medicina Comunitaria, Universidad Icesi & Alianza TB, Cali, Colombia, ³Department of Epidemiology of Microbial Diseases, Yale School of Public Health, New Haven, CT, United States, ⁴Secretaría de Salud Pública Municipal de Santiago de Cali-Programa de Control de Micobacterias & Alianza TB, Cali, Colombia, ⁵Department of Epidemiology of Microbial Diseases, Yale School of Public Health & Pulmonary, Critical Care and Sleep Medicine Section, Yale School of Medicine, New Haven, CT, United States

Scientific Session 134

Viral Hemorrhagic Fevers

Meeting Room 2

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

CHAIR

Caitlin Cossaboom
 Centers for Disease Control and Prevention, Atlanta, GA, United States

Eddy Kinganda Lusamaki
 Institut National de Recherche Biomedicale, Kinshasa, Democratic Republic of the Congo

1532

A PHASE I OPEN-LABEL, DOSE-ESCALATION CLINICAL TRIAL TO EVALUATE THE SAFETY, TOLERABILITY AND IMMUNOGENICITY OF THE MARBURG CHIMPANZEE ADENOVIRUS VECTOR VACCINE, VRC-MARADC087-00-VP (CAD3-MARBURG), IN HEALTHY ADULTS

Melinda J. Hamer¹, Julie A. Ake¹, Martin R. Gaudinski², LaSonji A. Holman², Christine E. Lee¹, Alicia Widge², Anne C. Preston¹, Josephine H. Cox², Jack N. Hutter¹, James E. Moon¹, Steven A. Schech³, Victoria Kioko³, Casey Storme³, Paul T. Scott¹, Kayvon Modjarrad¹, Merlin Robb³, Nancy J. Sullivan², Julie E. Ledgerwood²

¹Walter Reed Army Institute of Research, Silver Spring, MD, United States, ²Vaccine Research Center, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States, ³Walter Reed Army Institute of Research; Henry M. Jackson Foundation for the Advancement of Military Medicine, Silver Spring, MD, United States

1533

EVALUATING THE LONG-TERM IMMUNOGENICITY OF ADENOVIRAL AND MVA VECTORED EBOLA VACCINE SCHEDULES AND RESPONSE TO A BOOSTER DOSE OF AD26.ZEBOV

Catherine Clare Smith¹, Rebecca Makinson², Mehreen S. Datoo², Souleymane Mboup³, Birahim P. Ndiaye³, Amy Flaxman², Tandakha Dieye³, Josephine Badiane³, Juliana Ballaminut¹, Jamie Burbage¹, Katja Pfafferot¹, Sarah Kelly¹, Duncan Bellamy², Charlotte Black¹, Rachael Drake-Brockman¹, Parvinder Alely¹, Katrina Pollock⁴, David Lewis⁴, Adrian V. Hill², Katie Ewer², Matthew D. Snape¹

¹Oxford Vaccine Group and NIHR Oxford Biomedical Research Centre, University of Oxford, Oxford, United Kingdom

1534

MERCK RVSVÄG-ZEBOV-GP EBOLA VACCINE: UPDATED SAFETY, IMMUNOGENICITY, AND EFFICACY AND ESTIMATION OF THE CORRELATES OF PROTECTION

Jakub Simon¹, Stephen Kennedy², Barbara Mahon³, Sheri Dubey¹, Rebecca Grant-Klein¹, Ken Liu¹, Jonathan Hartzel¹, Beth-Ann Collier¹, Carolee Welebob¹, Mary Hanson¹, Rebecca Grais⁴

¹Merck & Co., Inc., Kenilworth, NJ, United States, ²Liberian Ministry of Health, Monrovia, Liberia, ³Bill & Melinda Gates Foundation, Seattle, WA, United States, ⁴Epicenter, Paris, France

1535

CHARACTERISTICS OF EBOLA VIRUS DISEASE SURVIVOR BLOOD AND SEMEN IN LIBERIA: SEROLOGY AND RT-PCR

Aaron Kofman¹, Susanne Linderman², Kaihong Su³, Lawrence J. Purpura¹, Elizabeth Ervin⁴, Shelley Brown⁴, Maria Morales-Betoulle⁴, James Graziano⁴, Deborah L. Cannon⁴, John D. Klena⁴, Rodel Desamu-Thorp⁵, John Fankhauser⁶, Romeo Orone⁷, Moses Soka⁸, Uriah Glaybo⁸, Moses Massaquoi⁹, Tolbert Nysenswah⁹, Stuart T. Nichol⁴, Jomah Kollie⁹, Armah Kiawu⁹, Edna Freeman⁹, Giovanni Giah⁹, Henry Tony⁹, Mylene Faikai⁹, Mary Jawara⁹, Kuku Kamara⁹, Samuel Kamara⁹, Benjamin Flowers⁹, Kromah L. Mohammed⁹, David Chiriboga¹⁰, Desmond E. Williams¹¹, Steven H. Hinrichs³, Rafi Ahmed², Benjamin VonHm⁹, Pierre E. Rollin⁴, Mary J. Choi⁴

¹Epidemic Intelligence Service, Viral Special Pathogens Branch, Division of High-Consequence Pathogens and Pathology, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Emory Vaccine Center, Emory University, Atlanta, GA, United States, ³Department of Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE, United States, ⁴Viral Special Pathogens Branch, Division of High-Consequence Pathogens and Pathology, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States, ⁵Office of Public Health Preparedness and Response, Center for Preparedness and Response, Centers for Disease Control and Prevention, Atlanta, GA, United States, ⁶Santa Clara Valley Medical Center, San Jose, CA, United States, ⁷ELWA Hospital, Samaritan's Purse, Monrovia, Liberia, ⁸Ministry of Health, Liberia, Monrovia, Liberia, ⁹Men's Health Screening Program, Monrovia, Liberia, ¹⁰University of Massachusetts Medical School, Worcester, MA, United States, ¹¹Center for Global Health, Centers for Disease Control and Prevention, Atlanta, GA, United States

1536

RHABDOMYOLYSIS, KIDNEY INJURY, AND MORTALITY IN EBOLA VIRUS DISEASE IN EASTERN DEMOCRATIC REPUBLIC OF THE CONGO

Claude Masumbuko Kasereka¹, Zubia Mumtaz¹, Andrea Conroy², Malengera Kambale³, Tsongo Kibendelwa⁴, Didier Mwesha⁵, Michael T. Hawkes¹

¹University of Alberta, Edmonton, AB, Canada, ²Indiana University School of Medicine, Indianapolis, IN, United States, ³Universite Catholique du Gabon, Butembo, Democratic Republic of the Congo, ⁴Universite de Kisangani, Kisangani, Democratic Republic of the Congo, ⁵World Health Organization, Butembo, Democratic Republic of the Congo

1537

RE-EMERGENCE OF CHAPARE HEMORRHAGIC FEVER IN BOLIVIA, 2019

Caitlin Cossaboom¹, Armando Medina², Carla Romero², Maria Morales-Betoulle¹, Grisel Alarcon², Jhemis Molina², Roxana Loayza³, Cinthia Avila³, Sebastian Sasias³, Mirian Cruz³, Eliana Gil³, Gabriela Anez³, Jimmy revollo³, Fernando Morales³, Carlos E. Alvarez³, Jairo Mendez-Rico⁴, Shannon Whitmer¹, Ketan Patel¹, John Klena¹, Stuart Nichol¹, Christina Spiropoulou¹, Mary Choi¹, Trevor Shoemaker¹, Joel Montgomery¹

¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Unidad de Epidemiología, Ministerio de Salud, La Paz, Bolivia, Plurinational State of, ³Centro Nacional de Enfermedades Tropicales, Santa Cruz de la Sierra, Bolivia, Plurinational State of, ⁴Pan American Health Organization, Washington, DC, United States

1538

OPERATIONALIZING GENOMIC EPIDEMIOLOGY DURING THE NORD-KIVU EBOLA OUTBREAK, DEMOCRATIC REPUBLIC OF THE CONGO

Eddy Kinganda Lusamaki¹, Allison Black², Daniel Mukadi¹, James Hadfield³, Placide Mbala Kingebeni¹, Catherine Pratt⁴, Adrienne Aziza Amuri¹, Junior Bulubula¹, Fabrice Mambu¹, Michael Wiley⁴, Steve Ahuka Mundeke¹, Trevor Bedford³, Jean Jacques Tamfum Muyembe¹

¹Institut National de Recherche Biomedicale, Kinshasa, Democratic Republic of the Congo, ²University of Washington, Washington, WA, United States, ³Fred Hutch, Seattle, WA, United States, ⁴University of Nebraska Medical Center, Omaha, NE, United States

Symposium 135**Counting the Dead: Making the Dead Count**

Meeting Room 3

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

Public health was founded on knowing about who dies and why, yet for most of the world, this information is not collected routinely. Over half of global deaths leave no trace in the public record, including the vast majority of deaths in low- and middle-income countries, especially those occurring outside of healthcare facilities. Medical certification of deaths is possible only when most deaths occur in facilities, but most countries are decades from that. The most successful strategy short of medical certification is “verbal autopsy” (VA), which assigns the most likely cause of death based on structured interviews and family members and their narratives within a few months of a death, supplemented by any medical records. The Million Death Study (MDS) covering over 1.3 million randomly selected households in all Indian states, has been operating continuously since 2002 and has logged more than 700,000 deaths with assigned causes. Similar systems are now being established in Sierra Leone, Mozambique, and Ethiopia. VA is most accurate for causes that follow distinctive pathways, e.g., death from snakebite. For conditions with significant symptom overlap—e.g., many acute infections—the attribution is less definitive. This is the case for

malaria, particularly among adults. New measures in addition to VA—in particular, confirmation through a variety of possible biomarkers—are needed to differentiate causes such as malaria, influenza, arboviruses, rickettsiae, meningitis, and bacterial sepsis syndrome. Improved VA can also be adapted for use in outbreak mortality surveillance in the absence of well-developed vital registration systems. In the wake of the 2019 novel coronavirus and the 2015 Ebola outbreak, VA supplements for special conditions are being developed. Cause-of-death information is vital for countries to develop effective public and clinical health measures to avert preventable premature deaths. Gathering this information is feasible and affordable even in poor countries. From the first publication of the maternal mortality estimates in 2006, the MDS has vastly improved the understanding of Indian patterns of death, resulting in more rational priority setting. VA and supplementary data gathering techniques should be adopted in all countries lacking the capacity for widespread medical certification of deaths.

CHAIR

Hellen Gelband
Centre for Global Health Research, University of Toronto, Toronto, ON, Canada

1 p.m.

THE INDIAN MILLION DEATH STUDY: RESULTS AND IMPACTS, 2002-2014, FROM SNAKEBITES TO HEART ATTACKS

Prabhat Jha
Centre for Global Health Research, University of Toronto, Toronto, ON, Canada

1:20 p.m.

SIERRA LEONE'S SAMPLE REGISTRATION SYSTEM FOR MORTALITY: CHALLENGES FOR A LOW-INCOME COUNTRY AND THE SURPRISINGLY INFORMATIVE FIRST WAVE OF RESULTS

Rashid Ansumana
Njala University, Bo, Sierra Leone

1:40 p.m.

IS MALARIA AN IMPORTANT CAUSE OF DEATH AMONG ADULTS? EXISTING EVIDENCE AND ONGOING EFFORTS TO COMBINE STANDARD VA FINDINGS WITH BIOMARKERS AND A TARGETED VA MODULE

Hellen Gelband
Centre for Global Health Research, University of Toronto, Toronto, ON, Canada

2 p.m.

OUTBREAKS AND EPIDEMICS AND ADAPTING STANDARD VA TOOLS TO AID SURVEILLANCE IN REAL TIME: THE CASE OF THE 2019 NOVEL CORONAVIRUS

Isaac I. Bogoch
Toronto General Hospital, Toronto, ON, Canada

Symposium 136

Where Are We in Reaching Zero Leprosy?

Meeting Room 4

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

Leprosy is a disease documented since ancient times. However, progress towards elimination of this persistent and disabling disease has been slow, with more than 200,000 new cases reported every year. Several crucial characteristics of this disease

are posing a challenge to reaching the goal of transmission interruption and elimination, including the long incubation time, diagnostic difficulties, our inability to predict who is at risk, and unavailability of *in vitro* culturing. Furthermore, stigma and discrimination are long-standing barriers to early detection of leprosy and disability prevention. Needless to say that social exclusion contributes to the decrease in quality of life of those affected by the disease. Over recent years, important tools and approaches have become available for leprosy control, including chemoprophylaxis for contacts with a single dose of rifampicin and retrospective active case finding. Additional innovations are currently under study, and dedicated research funding instruments have been established. Global coordination of efforts has been strengthened by the creation of the Global Partnership for Zero Leprosy. As we are approaching the end of the 5-year WHO Strategy for Accelerating towards a Leprosy-free World 2016-2020, it is timely that we look at: 1) Where we are with regard to leprosy elimination? 2) What new tools and interventions have been developed? 3) Where are we heading? A better understanding of these points will help develop the next WHO strategy for leprosy control fully aligned with the NTDs Roadmap 2021-2030, in order for us to reach a leprosy-free world. There are also increased opportunities for leprosy control with the move towards integration with other NTDs, especially the skin-NTDs. Innovative models integrating leprosy care with chronic disease managements that share similar manifestations should also be explored.

CHAIR

Rie R. Yotsu
Nagasaki University, School of Tropical Medicine and Global Health, Nagasaki, Japan
Peter Steinmann
Swiss Tropical and Public Health Institute, Basel, Switzerland

1 p.m.

REVIEW OF THE GLOBAL BURDEN AND WHERE WE ARE IN TERMS OF THE WHO STRATEGY 2016-2020 AND LOOKING BEYOND

Erwin Cooreman
World Health Organization, New Delhi, India

1:15 p.m.

A NEW TOOL FOR CUTTING TRANSMISSION? - CHEMOPROPHYLAXIS WITH SINGLE-DOSE RIFAMPICIN AND RELATED ONGOING RESEARCH

Peter Steinmann
Swiss Tropical and Public Health Institute, Basel, Switzerland

1:30 p.m.

UPDATES ON DIAGNOSIS OF LEPROSY - EARLY DETECTION AND ANTIMICROBIAL RESISTANCE

Emmanuelle Cambau
University Paris Diderot, Paris, France

1:45 p.m.

ZERO LEPROSY PROGRAM IN THE MALDIVES

Sana Saleem
Ministry of Health, Maldives, Maldives, Maldives

2 p.m.**LEPROSY AND INTEGRATION WITH OTHER DISEASES: WHAT ARE THE EXISTING AND NEW OPPORTUNITIES?**

Rie Yotsu

Nagasaki University, School of Tropical Medicine and Global Health, Nagasaki, Japan

Scientific Session 137**Global Health: Maternal, Newborn and Child Health**

Meeting Room 5

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

CHAIR

Michael J. Boivin

Michigan State University, East Lansing, MI, United States

Farzana Islam

International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh

1539**MALNUTRITION IS STRONGLY ASSOCIATED WITH CHILDHOOD MORTALITY IN SUB-SAHARAN AFRICA AND SOUTH ASIA: FINDINGS FROM THE CHILD HEALTH AND MORTALITY PREVENTION SURVEILLANCE (CHAMPS) NETWORK**Kasthuri Sivalogan¹, Priya M. Gupta¹, Ashka Mehta², Nega Assefa³, Shams El Arifeen⁴, Victor Akelo⁵, Quique Bassat⁶, Beth A. Tippet Barr⁵, Emily Gurley⁷, Amara Jambai⁸, Shabir A. Madhi⁹, Lola Madrid Castillo¹⁰, Inacio Mandomando¹¹, Portia C. Mutevedzi⁹, Ikechukwu U. Ogbuanu¹², Dickens Onyango¹³, Anthony Scott¹⁰, Samba Sow¹⁴, Karen Kotloff², Parminder Suchdev¹, Dianna M. Blau¹⁵¹Emory University, Atlanta, GA, United States, ²University of Maryland Baltimore, Baltimore, MD, United States, ³Haramaya University, Harar, Ethiopia, ⁴icddr, Dhaka, Bangladesh, ⁵CDC, Kisumu, Kenya, ⁶ISGlobal, Barcelona, Spain, ⁷John Hopkins University, Baltimore, MD, United States, ⁸Sierra Leone MoHS, Freetown, Sierra Leone, ⁹Wits University, Johannesburg, South Africa, ¹⁰London School of Tropical Medicine & Hygiene, London, United Kingdom, ¹¹Centro de Investigação em Saúde de Manhiça, Manhica, Mozambique, ¹²Crown Agents, Freetown, Sierra Leone, ¹³Kisumu County Ministry of Health, Kisumu, Kenya, ¹⁴Centre Pour les Vaccins en Développement, Bamako, Mali, ¹⁵CDC, Atlanta, GA, United States**1540****EFFORTS TO IMPROVE POSTMORTEM ANTHROPOMETRIC MEASUREMENTS IN CHILDREN UNDER 5 YEARS OF AGE**Priya M. Gupta¹, Victor Akelo², O Yaw Addo³, Kasthuri Sivalogan⁴, Richard Oliech⁵, Dickson Gethi⁵, Beth Tippet Barr⁵, Dianna Blau⁷, Parminder Suchdev³¹Emory University, Nutrition & Health Sciences Program, Atlanta, GA, United States, ²US Centers for Disease Control and Prevention-Kenya, Kisumu and Nairobi, Kenya, ³Emory University, Nutrition & Health Sciences Program, Emory Global Health Institute, US Centers for Disease Control and Prevention, Atlanta, GA, United States, ⁴Emory Global Health Institute, Atlanta, GA, United States, ⁵Kenya Medical Research Institute, Nairobi, Kenya, ⁶Emory University, Nutrition & Health Sciences Program, US Centers for Disease Control and Prevention-Kenya, Kisumu and Nairobi, Kenya, Nairobi, Kenya, ⁷US Centers for Disease Control and Prevention, Atlanta, GA, United States**1541****TRAINING MOTHERS IN THE DR CONGO IN EARLY CHILDHOOD DEVELOPMENT (ECD) TECHNIQUES TO MITIGATE THE RISK OF EARLY CHILDHOOD NEURODEVELOPMENTAL DEFICITS FROM DEPENDENCE ON POORLY PROCESSED TOXIC CASSAVA**Michael J. Boivin¹, Esperance Kashala-Abotnes², Alla Sikorskii¹, Nicole Mashukano³, Marcel L. Kunyru⁴, Daniel Mukeba⁴, Miriam Namirembe⁵, Fiona Bukenya⁶, Daniel Okitundu⁴, Dieudonne Ngoyi Mumba⁶, Desire Tshala-Katumbay⁷¹Michigan State University, East Lansing, MI, United States, ²University of Bergen, Bergen, Norway, ³Programme National de Nutrition (PRONANUT), Kinshasa, Democratic Republic of the Congo, ⁴University of Kinshasa, Kinshasa, Democratic Republic of the Congo, ⁵Global Health Uganda, Kampala, Uganda, ⁶Institute Nationale de Recherche Biomédicale (INRB), Kinshasa, Democratic Republic of the Congo, ⁷Oregon Health and Sciences University, Portland, OR, United States**1542****THE ADDED VALUE OF THE MINIMALLY INVASIVE TISSUE SAMPLING OVER MEDICAL RECORDS AND VERBAL AUTOPSY IN DIAGNOSING THE CAUSE OF DEATH AMONG UNDER-5 CHILDREN AND STILLBIRTHS IN BANGLADESH**Farzana Islam¹, Kyu Han Lee², Atique Iqbal Chowdhury¹, Afruna Rahman¹, Abu Faisal Md Pervez³, Abu Bakkar Siddique¹, Qazi Sadeq-ur Rahman¹, Kazi Munisul Islam¹, Syed Aminul Islam¹, Shovo Debnath¹, Sharmin Sultana¹, Rajib Biswas¹, Faria Ahmed¹, Sabbir Ahmed¹, Muntasir Alam¹, Mustafizur Rahman¹, Sanwarul Bari¹, Shams El Arifeen¹, Emily S. Gurley²¹International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ²John Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³Faridpur Medical College Hospital, Faridpur, Bangladesh**1543****SOCIAL INTEGRATION AMONG PRIMIPAROUS WOMEN IN RURAL BANGLADESH AND ASSOCIATIONS WITH PERINATAL DEATH**Kyu Han Lee¹, Atique I. Chowdhury², Shahana Parveen², Qazi S. Rahman², Mamunur Rashid², Solveig A. Cunningham³, Sanwarul Bari², Shams El Arifeen²¹Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ²International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ³Emory University, Atlanta, GA, United States**1544****ASSESSMENT OF THE REPRODUCTIVE AND SEXUAL HEALTH OF THE ADOLESCENT POPULATION FROM TEN RURAL COMMUNITIES IN THE SIERRA MADRE REGION IN CHIAPAS (MEXICO)**Zeus Aranda Remon, Melania Muñoz Ramírez, Hellen Mata González
Compañeros En Salud (Partners In Health Mexico), Jaltenango de la Paz, Mexico**1545****ORAL REHYDRATION THERAPIES IN SENEGAL, MALI, AND SIERRA LEONE: A SPATIAL ANALYSIS OF CHANGES OVER TIME AND IMPLICATIONS FOR POLICY**Kirsten E. Wiens, Lauren E. Schaeffer, Brigitte F. Blacker, Simon I. Hay, Robert C. Reiner, Jr
Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA, United States**Symposium 138****Ethical and Equitable Digital Global Health - Issues and Opportunities**

Meeting Room 6

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

This symposium brings together “problem owners” and “problem solvers” in a call-response format to discuss 4 key themes in conducting ethical and equitable global health research. The 4 themes are: 1) Trust and accountability in AI-powered digital health tools. Issues faced by field implementers in this topic paired with opportunities: Dynamic: A pipeline to build and implement ethical, equitable and accountable digital health tools. 2) Privacy and local ownership of health data. Issues faced by field implementers in this topic paired with opportunities: Ubuntu digital health through local ownership. 3) Environmentally conscious digital health. Issues faced by field implementers in this topic paired with opportunities: Environmentally conscious digital health. 4) Transparent, data-driven pandemic policymaking. Issues faced by field implementers in this topic paired with opportunities: What if...? the COVID policy simulator.

Thursday
November 19

CHAIR

Mary-Anne Hartley
EPFL, Lausanne, Switzerland

Alexandra Kulinkina
Swiss Tropical and Public Health Institute, Basel, Switzerland

1 p.m.

ETHICAL LIMITATIONS OF MHEALTH TOOLS

Alexandra Kulinkina
Swiss TPH, Basel, Switzerland

1:05 p.m.

DYNAMIC: USING MACHINE LEARNING TO CREATE EQUITABLE DIGITAL HEALTH TOOLS

Mary-Anne Hartley
EPFL (Ecole Polytechnique Fédérale de Lausanne), Lausanne, Switzerland

1:20 p.m.

PRIVACY AND OWNERSHIP OF MEDICAL DATA IN MHEALTH INTERVENTIONS

Lameck Luanda
Ifakara Health Institute, Ifakara, United Republic of Tanzania

1:25 p.m.

ENABLING AI FOR GLOBAL HEALTH THROUGH COLLABORATIVE LEARNING AND MODEL PERSONALIZATION

Felix Grimberg
EPFL, Lausanne, Vaud, Switzerland

1:40 p.m.

ENVIRONMENTAL IMPACT OF MHEALTH INTERVENTIONS

Valérie D'Acremont
Unisante, Lausanne, Switzerland

1:45 p.m.

CUMULATOR: MONITORING ENVIRONMENTALLY CONSCIOUS DIGITAL HEALTH

Tristan Trebaol
EPFL, Lausanne, Switzerland

2 p.m.

PREDICTING UNPREDICTABLE DISEASES

Isaac Lyatuu
Ifakara Health Institute, Dar-es-Salaam, United Republic of Tanzania

2:05 p.m.

"WHAT IF...?": THE GLOBAL COVID POLICY SIMULATOR

Thierry Bossy
EPFL, Lausanne, Switzerland

Symposium 139

Female Genital Mutilation: Ending the Practice

Meeting Room 7

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

It is estimated that 200 million girls and women in more than 30 countries, primarily in Africa and a few countries in the Middle East and Asia, have been subjected to female genital mutilation (FGM). The practice extends to migrant communities in North America and Western Europe. FGM has no health benefits, is a

violation of human rights and is never acceptable. FGM leads to gynecological and obstetric complications, urinary problems, sexual dysfunction and mental health disorders. The economic burden of treating these complications is estimated to be more than 1 billion USD. International efforts to counteract FGM include awareness of the negative effects, legal frameworks to prohibit FGM, and community response. Sustainable Development Goal 5 aims to: 'eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation.' This symposium will address four aspects of FGM: the current epidemiology and practice of FGM, surgical approaches to managing complications of FGM, efforts to abandon FGM through changing social norms, and community empowerment of girls and women to resist the practice.

CHAIR

David R. Hill
Frank H. Netter MD School of Medicine, Quinnipiac University, Hamden, CT, United States

1 p.m.

SURGICAL APPROACHES TO REDUCE THE MEDICAL AND PSYCHOSOCIAL BURDEN OF FEMALE GENITAL MUTILATION

Ivona Percec
University of Pennsylvania School of Medicine, Philadelphia, PA, United States

1:20 p.m.

THE SALEEMA INITIATIVE IN SUDAN: CHANGING SOCIAL NORMS AROUND FEMALE GENITAL MUTILATION

W. Douglas Evans
Milken Institute School of Public Health, George Washington University, Washington, DC, United States

1:40 p.m.

EMPOWERING YOUNG WOMEN AND GIRLS TO RESIST FEMALE GENITAL MUTILATION

Josephine Ndirias
Mukogodo Girls Empowerment Program, Nanyuki, Kenya

Symposium 140

Spatial Intelligence to Optimize Public Health Interventions

Meeting Room 8

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

If disease was uniform across populations, and populations were spread evenly across space, interventions would be easy to plan. But we know this is not the case; more often than not, distribution of disease is heterogeneous and service delivery is challenging, particularly in countries with limited address systems and rural population distribution. The global health community can now access remotely sensed data and satellite imagery to understand distribution of population and built structures. When these tools are smartly combined with algorithms and geotechnology, field-based service delivery of life-saving health campaigns becomes more precise, targeted and impactful. At the nexus of these powerful areas is the field of 'spatial intelligence'. This symposium will share case studies which show how 'spatial intelligence' is pushing the frontier of public health through the

use of geo-technology to ensure equitable health service delivery. Case studies from southern and western Africa will share spatial intelligence approaches to optimise mass drug administration for malaria and neglected tropical disease, indoor residual spraying and seasonal malaria chemoprevention. Perspectives from academic institutions, Ministries of Health and implementing partners will showcase how the field of spatial intelligence is benefitting from a tight integration of these often disparate partners. The first two presenters will highlight the available remotely sensed satellite imagery and use of those sources to build maps of settlements and communities and to apply powerful algorithms to detect important variables for intervention planning. The third and fourth presenters will share results of a powerful new open-source tool which utilizes geo-referenced population and household maps to plan and guide field implementation of malaria-related interventions in Zambia and Nigeria. The discussion will focus on lessons learned through these and other implementations of spatial intelligence, collaboration opportunities to improve planning and deployment of these tools, and areas of growth and exploration.

CHAIR

Anna M. Winters
Akros, Lusaka, Zambia

Roly D. Gosling
University of California San Francisco, San Francisco, CA, United States

1 p.m.

SPATIAL INTELLIGENCE FOR MALARIA ELIMINATION IN SOUTHERN PROVINCE, ZAMBIA

Kafula Silumbe
PATH - MACEPA, Lusaka, Zambia

1:25 p.m.

PILOTING REVEAL FOR USE IN SEASONAL MALARIA CHEMOPREVENTION IN NIGERIA

Olatunde Adesoro
Malaria Consortium, Abuja, Nigeria

1:50 p.m.

HIGH RESOLUTION POPULATION AND SETTLEMENT DATA FOR IMPACTFUL MALARIA INTERVENTIONS IN SUB-SAHARAN AFRICA

Olena Borkovska
Columbia University, Center for International Earth Science Information Network (CIESIN), New York, NY, United States

2:15 p.m.

IMPROVING ACCESS TO DATA SCIENCE AND AI: A GLOBAL HEALTH PRIORITY

Hugh Sturrock
Locational, London, United Kingdom

Scientific Session 141

Kinetoplastida: Diagnosis and Treatment

Meeting Room 9

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

CHAIR

Hira L. Nakhasi
FDA, Silver Spring, MD, United States

Abhay R. Satoskar
Ohio State University, Columbus, OH, United States

1546

DEVELOPMENT A MULTIPLEX BEAD ASSAY FOR DETECTION OF ANTIBODIES AGAINST *TRYPANOSOMA CRUZI* CHRONIC INFECTION

Sukwan Handali, Yong Wang, Olga Stuchlik, Matthew S. Reed, Pavel Svoboda, Hilda N. Rivera, Katie Bowden, Ryan E. Wiegand, Diana L. Martin, Jan Pohl
CDC, Atlanta, GA, United States

1547

REVIEW OF CHAGAS DISEASE DIAGNOSTIC TESTING AT A MAJOR UNIVERSITY HOSPITAL IN CALIFORNIA

Emily A. Kelly, Caryn Bern, Jeffrey D. Whitman
University of California, San Francisco, San Francisco, CA, United States

1548

THE DIAGNOSTIC CAPABILITIES OF AN IN-HOUSE ELISA METHOD IN THE DIAGNOSIS OF CUTANEOUS LEISHMANIASIS CAUSED BY *LEISHMANIA DONOVANI* IN HAMBANTOTA DISTRICT SRI LANKA

Nirmitha L. De Silva¹, V. N. De Silva², A. T. Deerasinghe³, H. Kato⁴, M. Itoh⁵, H. Takagi⁵, M. V. Weerasooriya¹, T. C. Yahathugoda¹
¹Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka, ²Base Hospital Tangalle, Tangalle, Sri Lanka, ³District General Hospital Hambantota, Hambantota, Sri Lanka, ⁴Jichi Medical University, Tochigi, Japan, ⁵Aichi Medical University School of Medicine, Aichi, Japan

1549

PRECLINICAL DRUG CANDIDATES FOR CHAGAS DISEASE TARGETING THE *TRYPANOSOMA CRUZI* METHIONYL-TRNA SYNTHETASE

Frederick S. Buckner, Aisha Mushtaq, John R. Gillespie, Nora R. Molasky, Aleksander C. Lazarski, Zhongsheng Zhang, Wenlin Huang, Sayaka Shibata, Erkan Fan
University of Washington, Seattle, WA, United States

1550

EFLORNITHINE ANTITRYPANOSOMAL EFFECTS ELICITED BY ITS L-STEREOISOMER *IN VITRO*

Mikael Boberg¹, Monica Cal², Marcel Kaiser², Rasmus Jansson-Löfmark³, Pascal Mäser², Michael Ashton¹
¹Unit for Pharmacokinetics and Drug Metabolism, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, ²Parasite Chemotherapy Unit, Department of Medical Parasitology and Infection Biology, Swiss Tropical and Public Health Institute & University of Basel, Basel, Switzerland, ³DMPK, Research and Early Development Cardiovascular, Renal and Metabolism, BioPharmaceuticals R&D, AstraZeneca, Gothenburg, Sweden

Scientific Session 142

American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP): Parasite Biology and Drug Targets

Meeting Room 10

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

Supported with funding from the Burroughs Wellcome Fund

CHAIR

Katrina A. Button-Simons

University of Notre Dame, Notre Dame, IN, United States

Erica Silberstein

CBER/FDA, Silver Spring, MD, United States

1664

THE CRYPTOSPORIDIUM SINGLE-CELL ATLAS REVEALS KEY LIFE CYCLE STAGES AND A COMMITMENT TO MALE AND FEMALE DEVELOPMENT

Katelyn A. Walzer, Jayesh Tandel, Jodi A. Gullicksrud, Stephen Carro, Eoin Whelan, Elise Krespan, Daniel P. Beiting, Boris Striepen

University of Pennsylvania, Philadelphia, PA, United States

1665

THE VSG-EXCLUSION (VEX) COMPLEX ORCHESTRATES VSG ALLELE-EXCLUSIVE INTERACTIONS WITH THE SPLICED-LEADER LOCUS IN TRYPANOSOMES

Joana Correia Faria¹, Vanessa Luzak², Laura S.M. Müller², Benedikt G. Brink², Sebastian Hutchinson¹, Lucy Glover¹, T. Nicolai Siegel², David Horn¹

¹The Wellcome Trust Centre for Anti-Infectives Research, School of Life Sciences, University of Dundee, Dundee, United Kingdom, ²Department of Veterinary Sciences, Experimental Parasitology, Ludwig-Maximilians-Universität München, Planegg-Martinsried, Germany

1553

CONSTRUCTING A PHENOME: INTEGRATED ANALYSIS OF DRUG RESISTANCE, COMPETITIVE GROWTH AND GENE EXPRESSION IN NOVEL *PLASMODIUM FALCIPARUM* GENETIC CROSSES

Katrina A. Button-Simons¹, Sudhir Kumar², Katelyn M. Vendrely¹, Lisa A. Checkley¹, Mackenzie A. Sievert¹, Gabriel J. Foster¹, Catherine Jett³, Xue Li⁴, Douglas A. Shoue¹, Meseret T. Haile², Spencer Y. Kennedy², Ann Reyes⁴, Abeer Sayeed⁵, Marina McDew-White⁴, François H. Nosten⁶, Stefan H. Kappe², Scott J. Emrich⁷, Timothy J. Anderson⁴, Ian H. Cheeseman³, Ashley M. Vaughan², Michael T. Ferdig¹

¹Eck Institute for Global Health, Department of Biological Sciences, University of Notre Dame, St. Joseph, MI, United States, ²Center for Global Infectious Disease Research, Seattle Children's Research Institute, Seattle, WA, United States, ³Host-Pathogen Interactions Program, Texas Biomedical Research Institute, San Antonio, TX, United States, ⁴Disease Intervention and Prevention Program, Texas Biomedical Research Institute, San Antonio, TX, United States, ⁵Host-Pathogen Interactions Program and Disease Intervention and Prevention Program, Texas Biomedical Research Institute, San Antonio, TX, United States, ⁶Shoklo Malaria Research Unit, Mahidol-Oxford Tropical Medicine Research Unit, Mahidol University, Mae Sot, Thailand, ⁷Electrical Engineering and Computer Science, University of Tennessee, Knoxville, TN, United States

1554

UNRAVELING THE STRUCTURE AND FUNCTION OF THE NEMATODE SECRETORY SYSTEM TO IDENTIFY NEW ANTIFILARIAL TARGETS

Paul M. Airs, Zachary W. Heimark, Kendra Gallo, Kathy Vaccaro, Nicolas J. Wheeler, Mostafa Zamanian

University of Wisconsin-Madison, Madison, WI, United States

(ACMCIP Abstract)

1555

HUMAN PLACENTAL TROPHOBLASTS ARE RESISTANT TO *TRYPANOSOMA CRUZI* INFECTION IN A 3D CULTURE MODEL OF THE MATERNAL-FETAL INTERFACE

Erica Silberstein¹, Kwang Sik Kim², David Acosta¹, Alain Debrabant¹

¹CBER/FDA, Silver Spring, MD, United States, ²Johns Hopkins University School of Medicine, Baltimore, MD, United States

(ACMCIP Abstract)

1556

PATHOGEN BOX COMPOUNDS AS POSSIBLE LEADS FOR NEW INTERVENTIONS AGAINST LEISHMANIASIS

Wanday Emmanuel Amlabu, Gordon A. Awandare, Theresa Manful Gwira

West African Center for Cell Biology and Infectious Diseases, WACCBIP, University of Ghana, East Legon, Accra, Ghana

1557

PHOSPHOMANNOMUTASE AS A NOVEL ANTIMALARIAL DRUG TARGET

Philip M. Frasse¹, Daniel Goldberg¹, Audrey R. Odom John²

¹Washington University in Saint Louis, Saint Louis, MO, United States, ²Children's Hospital of Philadelphia, Philadelphia, PA, United States

(ACMCIP Abstract)

Scientific Session 143

Mosquitoes: Insecticide Resistance and Control II

Meeting Room 11

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

CHAIR

Jessy Goupeyou-Youmsi

University of Malawi College of Medicine, Blantyre, Malawi

Louisa Alexandra Messenger

London School of Hygiene and Tropical Medicine, London, United Kingdom

1558

IMPACTS OF IVERMECTIN-TREATED BACKYARD CHICKENS ON *CULEX* MOSQUITOES AND WEST NILE VIRUS TRANSMISSION IN DAVIS, CALIFORNIA

Karen M. Holcomb¹, Chilingh Nguyen², Brian D. Foy², Christopher M. Barker¹

¹Davis Arbovirus Research and Training Lab, Department of Pathology, Microbiology, and Immunology, University of California, Davis, Davis, CA, United States, ²Arthropod-borne and Infectious Diseases Laboratory, Department of Microbiology, Immunology and Pathology, Colorado State University, Fort Collins, CO, United States

1559

IDENTIFICATION OF MALARIA VECTORS AND INSECTICIDE RESISTANT USING MID-INFRARED SPECTROSCOPY THROUGH A PORTABLE QUANTUM CASCADE LASER DEVICE

Mauro Pazmino Betancourth, Francesco Baldini, Heather Ferguson, Klaas Wynne, Lisa Ranford-Cartwright, David Childs

University of Glasgow, Glasgow, United Kingdom

1560

INSECTICIDE RESISTANCE ALTERS THE MICROBIOTA OF *ANOPHELES COLUZZII* FROM AGBOVILLE—A REGION WITH INTENSE PYRETHROID RESISTANCE IN CÔTE D'IVOIRE

Bethanie Pelloquin¹, Mojca Kristan¹, Constant Edi², Anne Meiwald¹, Emma Clark¹, Claire Jeffries¹, Thomas Walker¹, Nsa Dada³, Louisa Messenger¹
¹Faculty of Infectious Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Centre Suisse de Recherche Scientifique en Côte d'Ivoire, Abidjan, Côte D'Ivoire, ³Faculty of Science and Technology, Norwegian University of Life Sciences, Aas, Norway

1561

SELECTION FOR INSECTICIDE RESISTANCE IN *ANOPHELES GAMBIAE* RESULTS IN INCREASED COMPETENCE FOR *PLASMODIUM FALCIPARUM* INFECTIONS

Kelsey L. Adams¹, Emily K. Selland¹, Naresh Singh², Flaminia Catteruccia¹
¹Harvard T.H. Chan School of Public Health, Boston, MA, United States, ²Harvard University, Boston, MA, United States

1562

TRANSCRIPTOME ANALYSIS OF *ANOPHELES GAMBIAE* MOSQUITOES ASSOCIATED WITH RESISTANCE SELECTION WITH THREE DIFFERENT GROUPS OF AGRICULTURAL PESTICIDES

Christabelle Gba Sadia¹, France-Paraudie A. Kouadio¹, Marius G. Zoh², Behi K. Fodjo¹, Benjamin G. Koudou¹, Jean-Marc Bonneville², Stéphane Reynaud², Jean-Philippe David², Chouaibou S. Mouhamadou³
¹Nangui Abrogoua University, Abidjan, Côte D'Ivoire, ²Univ. Grenoble-Alpes, Univ. Savoie Mont Blanc, CNRS, LECA, 38000 Grenoble, France, ³Department of Entomology and Plant Pathology, North Carolina State University, Raleigh, NC, 27695-7508, USA, North Carolina, NC, United States

1563

MODULATION OF MALARIA VECTOR BLOOD-FEEDING SUCCESS IS ASSOCIATED WITH INSECTICIDE-TREATED BED NETS CONTAINING THE PBO RESISTANCE-REDUCING SYNERGIST IN MALAWI

Jessy Goupeyou-Youmsi¹, Lauren M. Cohee², Atusaye Simbeye¹, Chifundo Kadangwe¹, Alfred Matengeni¹, Clarissa Valim³, Miriam K. Laufer², Mark L. Wilson⁴, Edward D. Walker⁵, Charles Mangani¹, Don P. Mathanga¹, Themba Mzilahowa¹
¹University of Malawi College of Medicine, Blantyre, Malawi, ²University of Maryland School of Medicine, Baltimore, MD, United States, ³Boston University, Boston, MA, United States, ⁴University of Michigan School of Public Health, Ann Arbor, MI, United States, ⁵Michigan State University, East Lansing, MI, United States

1564

REDUCED LONG-LASTING INSECTICIDAL NET EFFICACY AND PYRETHROID INSECTICIDE RESISTANCE ARE ASSOCIATED WITH OVER-EXPRESSION OF *CYP6P4*, *CYP6P3* AND *CYP6Z11* IN POPULATIONS OF *ANOPHELES COLUZZII* FROM CÔTE D'IVOIRE

Anne Meiwald¹, Emma Clark¹, Mojca Kristan¹, Constant Edi², Claire L. Jeffries¹, Bethanie Pelloquin¹, Thomas Walker¹, Louisa Alexandra Messenger¹
¹London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Centre Suisse de Recherche Scientifique en Côte d'Ivoire, Abidjan 01, Côte D'Ivoire

Symposium 144**Ahead of the Curve: Challenges and Opportunities for Outbreak Science**

Meeting Room 12

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

From SARS to Ebola to COVID-19, outbreak science has become

increasingly integrated into infectious disease outbreak response. Outbreak science combines mathematical modeling with statistics, data science, clinical research, and laboratory diagnostics to support public health decision-making. These models are then better able to produce timely estimation of important variables including the incubation period, serial interval, and reproductive number, to project final outbreak size and to compare the impact of potential interventions. During the COVID-19 outbreak, outbreak science has been an important component of the public health response. Many of the processes and relationships that make this interdisciplinary work possible were developed in the wake of the West African Ebola outbreak. However, challenges remain surrounding issues of data ownership, international collaboration, communication, and transparency. This symposium is intended as a forum to highlight the progress made and to openly discuss the areas in which improvement remains necessary. Public health practitioners, both modelers and non-modelers, are encouraged to join the conversation with our panel of experts.

CHAIR

Meagan C. Fitzpatrick
 University of Maryland School of Medicine, Baltimore, MD, United States

1 p.m.**IF MODELING IS THE ANSWER, WHAT IS THE QUESTION? MAKING MODELS USEFUL FOR PUBLIC HEALTH PRACTICE**

Rebecca L. Smith
 University of Illinois Urbana-Champaign, Urbana-Champaign, IL, United States

1:15 p.m.**COORDINATING THE COVID-19 MODELING RESPONSE FROM CDC**

Michael A. Johansson
 US Centers for Disease Control and Prevention, Atlanta, GA, United States

1:30 p.m.**HOUSEHOLD TRANSMISSION OF SARS-COV2: THE ROLE OF PRESYMPTOMATIC AND ASYMPTOMATIC INFECTIVITY**

Yang Yang
 University of Florida, Gainesville, FL, United States

1:45 p.m.**OPEN DATA SAVES LIVES: ON THE IMPORTANCE OF OPEN SCIENCE DURING OUTBREAKS**

Samuel V. Scarpino
 Network Science Institute at Northeastern University, Boston, MA, United States

Symposium 145**The Dynamic Global Distribution of *Angiostrongylus cantonensis***

Meeting Room 13

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

Angiostrongyliasis (rat lungworm disease) is a globally emerging, potentially serious nematode infection caused by *Angiostrongylus cantonensis*. Human infection was first documented in Taiwan in 1945 and has been reported from Southeast Asia to China, many of the Pacific Islands and Australia. More recently it has been reported in the southern United States and many countries in the

Caribbean, Indian subcontinent, Central and South America as well as Africa. Rats are the definitive hosts and are infected typically from ingestion of an *A. cantonensis* infected intermediate host (snails or slugs) or paratenic host (e.g. freshwater shrimps, frogs, land crabs and lizards). Numerous birds and mammals, including humans, dogs and primates are accidental hosts and are infected in the same manner as rats. In humans the most predominate presentation of disease is eosinophilic meningitis. Spread of *A. cantonensis* has been driven by human activity, through dispersal of both the definitive and intermediate hosts. Rats have long been associated with human travel and trade and if infected provide a source of *A. cantonensis* in areas where snails occur. Snails are also easily dispersed by human activities, and are transported around the world both intentionally and accidentally by various pathways, notably the agricultural and horticultural industries. As a result of the increased movement of these hosts around the world, eosinophilic meningitis caused by *A. cantonensis* is an emerging infectious disease, increasing in incidence and expanding in geographical range. With global climate change, suitable habitat for the intermediate hosts may increase and those regions with appropriate conditions for parasite transmission to occur could expand. Thus, *A. cantonensis* may expand from being only a tropical concern to one of a more global nature.

CHAIR

Vernon E. Ansdell

University of Hawaii at Manoa, Honolulu, HI, United States

William L. Gosnell

University of Hawaii at Manoa, Honolulu, HI, United States

1 p.m.

GLOBAL EPIDEMIOLOGY OF ANGIOSTRONGYLIASIS IN A CHANGING WORLD

Shan Lv

National Institute of Parasitic Diseases, Shanghai, China

1:25 p.m.

GEOGRAPHIC EXPANSION OF RAT LUNGWORM IN THE UNITED STATES AND THE ROLE OF CLIMATE CHANGE

Heather D. Walden

University of Florida, Gainesville, FL, United States

1:50 p.m.

RAT LUNGWORM INFECTION IN HOST SPECIES ACROSS MICROCLIMATES

Randi L. Rollins

University of Hawaii at Manoa, Honolulu, HI, United States

2:15 p.m.

ACANR3990, GENOME MINING LEADS TO AN IMPROVED RAT LUNGWORM PCR

William Sears

National Institutes of Health, Bethesda, MD, United States

Symposium 146

Deploying Pathogen Genomics Approaches for Disease Control and Public Health: Applications and Challenges in LMICs

Meeting Room 14

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

There is a growing consensus that pathogen genomics - the combination of next-generation DNA sequencing laboratory technologies with advanced bioinformatics analyses - will play an important role in the future of infectious disease control and elimination. To benefit from pathogenic genomics, countries need to build and/or strengthen the capacity for local genomics data generation and analysis in order to produce information of public health value to address operational questions and help guide responses and strategic planning in a timely manner. Recently, genomic methods have been used successfully to elucidate the source, timing, transmission and spread of both epidemic and endemic pathogens. These data can provide insight into indigenous strains circulating within a country or strains imported from other countries, identify emergence and track the spread of drug resistance to guide drug use and treatment policies, and can predict transmission risks and the emergence of new strains. The African Union through the Africa CDC is working with diverse stakeholders to build a consensus for and promote the adoption of a harmonized framework for the implementation of pathogen genomics in Africa. Speakers in this session will present recent findings which have been generated through the ongoing efforts to establish the capacity for pathogen genomics in LMICs. Case applications, challenges and opportunities for establishing the African-lead capacity for pathogen genomics will be discussed.

CHAIR

Deus S. Ishengoma

National Institute for Medical Research, Tanga, United Republic of Tanzania

Jaishree Raman

National Institute of Infectious Diseases, Durban, South Africa

1 p.m.

USING GENOMICS TO SUPPORT DISEASE CONTROL AND ELIMINATION IN AFRICA; SCALING UP PATHOGEN GENOMICS IN AFRICAN PUBLIC HEALTH INSTITUTIONS

Sefonias Tessema

Africa CDC, Addis Ababa, Ethiopia

1:20 p.m.

GENOMIC SURVEILLANCE OF MALARIA IN AFRICA: CURRENT UPDATES, CHALLENGES AND OPPORTUNITIES

Isabella Oyier

KEMRI-Wellcome Trust Research Programme, Kilifi, Kenya

1:40 p.m.

DIAGNOSIS AND SURVEILLANCE OF EPIDEMICS AND EMERGING PATHOGENS: OPPORTUNITIES AND CHALLENGES OF APPLYING PATHOGEN GENOMICS IN RESOURCE LIMITED SETTINGS

Christian Happi

Redeemer's University, Ede, Osun State, Nigeria

2 p.m.

TOWARDS THE STANDARDIZATION OF GENOMIC TOOLS TO SUPPORT DETECTION AND CONTROL OF MDR TUBERCULOSIS

Alan Christoffels

University of the Western Cape, Cape Town, South Africa

Scientific Session 147

Schistosomiasis - Trematodes: Immunology, Pathology, Cellular, Molecular

Meeting Room 15

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

CHAIR

Momar Ndao

McGill University, Montreal, QC, Canada

Lisa Christine Gibbs

University of Utah, Salt Lake City, UT, United States

1565

THE ROLE OF VAGINAL INFLAMMATION IN HIV VULNERABILITY IN ZAMBIAN WOMEN WITH FEMALE GENITAL SCHISTOSOMIASIS

Amy S. Sturt¹, Emily L. Webb¹, Catriona Patterson¹, Comfort R. Phiri², Bellington Vwalika³, Eyrin F. Kjetland⁴, Maina Mudena⁵, Joyce Mapani⁵, Mabel Mutengo⁶, James Chipeta³, Govert J. van Dam⁷, Paul L. Corstjens⁷, Helen Ayles⁸, Richard J. Hayes¹, Grace McComsey⁸, Isaiah Hansingo⁵, Piet Cools⁹, Lisette A. van Lieshout⁷, Suzanna C. Francis¹, Amaya L. Bustinduy¹

¹London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Zambart, Lusaka, Zambia, ³University of Zambia School of Medicine, Lusaka, Zambia, ⁴Oslo University Hospital, Oslo, Norway, ⁵Livingstone Central Hospital, Livingstone, Zambia, ⁶Levy Mwanawasa Medical University, Lusaka, Zambia, ⁷Leiden University Medical Center, Leiden, Netherlands, ⁸Case Western Reserve University, Cleveland, OH, United States, ⁹Ghent University, Ghent, Belgium

1566

ENHANCING CATHEPSIN B RESPONSES OF YS1646 SALMONELLA TYPHIMURIUM VECTORED VACCINATION USING MUCOSAL ADJUVANTS IN A MURINE SCHISTOSOMIASIS MODEL

Adam S. Hassan, Dilhan J. Perera, Brian J. Ward, Momar Ndao

Research Institute of the McGill University Health Centre, Montreal, QC, Canada

(ACMCIP Abstract)

1567

H06-IPSE, A PATHOGEN-SECRETED HOST NUCLEUS-INFILTRATING PROTEIN (INFILTRIN), VARIES IN INTERNALIZATION MECHANISM AND EFFICIENCY BY TARGET CELL TYPE

Olivia K. Lamanna¹, Evaristus Mbanefo¹, Kenji Ishida¹, Franco Falcone², Theodore Jardeztzy³, Luke Pennington³, Michael Hsieh¹

¹Children's National Medical Center, Washington, DC, United States, ²University of Giessen, Gießen, Germany, ³Stanford University, Stanford, CA, United States

(ACMCIP Abstract)

1570

A PILOT INVESTIGATION OF SCHISTOSOME HYBRIDS: A MORPHOLOGICAL CHARACTERIZATION OF SCHISTOSOMA HAEMATOBIIUM EGGS, WITHIN A PUTATIVE HYBRID ZONE IN OGUN STATE, NIGERIA

Uwemedimo Friday Ekpo¹, Adedotun Ayodeji Bayegun¹, Foluke Adebayo Akande¹, Kehinde Olutuyin Ademolu¹, Russell John Stothard²

¹Federal University of Agriculture Abeokuta, Abeokuta, Nigeria, ²Liverpool School of Tropical Medicine, Liverpool, United Kingdom

1571

MAPPING SCHISTOSOMA HAEMATOBIIUM FOR NOVEL INTERVENTIONS AGAINST FEMALE GENITAL SCHISTOSOMIASIS AND ASSOCIATED HIV RISK IN KWAZULU-NATAL, SOUTH AFRICA

Mahala Livingston

Tulane University School of Public Health and Tropical Medicine, New Orleans, LA, United States

Scientific Session 148

Water, Sanitation, Hygiene and Environmental Health (WaSH-E): Transmission and Exposure

Meeting Room 16

Thursday, November 19

1 p.m. - 2:45 p.m. U.S. Eastern Time Zone

CHAIR

Robert Dreibelbis

London School of Hygiene and Tropical Medicine, London, United Kingdom

Nuhu Amin

International Centre for Diarrhoeal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh

1572

WATER, SANITATION, AND ANIMAL-ASSOCIATED RISK FACTORS FOR ENTERIC PATHOGEN EXPOSURE IN THE VACCINE IMPACT ON DIARRHEA IN AFRICA (VIDA) STUDY: THE GAMBIA, KENYA, AND MALI, 2015-2018

David Berendes¹, Graeme Prentice-Mott¹, Kirsten Fagerli¹, Sunkyoung Kim¹, Dilruba Nasrin², Helen Powell³, Irene Kasumba², Sharon Tennant², Anna Roose², M.

Jahangir Hossain⁴, Joquina Chiquita M. Jones⁴, Syed M. Zaman⁴, Richard Omere⁵, John Benjamin Ochieng⁵, Jennifer Verani⁶, Marc-Alain Widdowson⁶, Samba Sow², Dramane Malle⁷, Sanogo Doh⁷, Ciara O'Reilly¹, Jie Liu⁸, James Platts-Mills⁸, Eric Houpt⁸, Karen Kotloff², Eric Mintz¹

¹Division of Foodborne, Waterborne, and Environmental Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Department of Medicine, Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, MD, United States, ³Department of Pediatrics, Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, MD, United States, ⁴Medical Research Council Unit The Gambia at the London School of Hygiene and Tropical Medicine, Banjul, Gambia, ⁵Center for Global Health Research, Kenya Medical Research Institute, Kisumu, Kenya, ⁶Division of Global Health Protection, Centers for Disease Control and Prevention, Nairobi, Kenya, ⁷Center for Vaccine Development-Mali, Bamako, Mali, ⁸University of Virginia, Charlottesville, VA, United States

1573

CAMPYLOBACTER INFECTION AND HOUSEHOLD FACTORS ARE ASSOCIATED WITH CHILDHOOD GROWTH IN URBAN BANGLADESH

J. Johanna Sanchez¹, Md. Ashraful Alam², Christopher B. Stride³, Md. Ahshanul Haque², Subhasish Das², Mustafa Mahfuz², Daniel E. Roth⁴, Peter D. Sly⁵, Kurt Z. Long⁶, Tahmeed Ahmed²

¹University of Queensland/University of Toronto, Toronto, ON, Canada, ²icddr, Dhaka, Bangladesh, ³University of Sheffield, Sheffield, United Kingdom, ⁴Hospital for Sick Children and University of Toronto, Toronto, ON, Canada, ⁵University of Queensland, Brisbane, Australia, ⁶Swiss Tropical and Public Health Institute, Basel, Switzerland

1574

COMPARING GUT BACTERIAL MICROBIOMES AND ANTIMICROBIAL RESISTOMES BETWEEN HUMANS, CHICKENS, AND GOATS IN URBAN AND RURAL BANGLADESH

Jenna Swarthout¹, Erica R. Fuhrmeister¹, Latifah Hamzah², Angela R. Harris³, Emily S. Gurley⁴, Syed M. Satter⁵, Alexandria B. Boehm², Amy J. Pickering¹

¹Tufts University, Medford, MA, United States, ²Stanford University, Stanford, CA, United States, ³North Carolina State University, Raleigh, NC, United States, ⁴Johns Hopkins University, Baltimore, MD, United States, ⁵International Centre for Diarrhoeal Disease Research, Dhaka, Bangladesh

1575

PATHOGEN FLOWS FROM ON-SITE SANITATION SYSTEMS IN LOW-INCOME URBAN NEIGHBORHOODS, DHAKA: A QUANTITATIVE ENVIRONMENTAL ASSESSMENT

Md. Nuhu Amin¹, Pengbo Liu², Tim Foster³, Mahbubur Rahman¹, Md. Rana Miah¹, Golam Bashir Ahmed¹, Mamun Kabir¹, Suraja Raj², Guy Norman⁴, Christine L. Moe², Juliet Willetts³

¹Infectious Diseases Division, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh, ²Center for Global Safe Water, Sanitation, and Hygiene, Emory University, Atlanta, GA, United States, ³Institute for Sustainable Futures, University of Technology Sydney, Sydney, Australia, ⁴Water and Sanitation for the Urban Poor (WSUP), London, United Kingdom

1576

ENVIRONMENTAL TRANSMISSION OF DRUG RESISTANT BACTERIA IN COMMUNITY THROUGH WASTE WATER RUN-OFF IN BANGLADESH- PLANETARY HEALTH EVIDENCE OF ANTIBIOTIC RESISTANCE

Muhammad Asaduzzaman¹, Emily Rousham², Mohammad Aminul Islam³

¹Centre for Global Health, Institute of Health and Society, University of Oslo, Oslo, Norway, ²Centre for Global Health and Human Development, School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, United Kingdom, ³Laboratory Sciences and Services Division, icddr, Dhaka, Bangladesh

1577

IMPACT OF WASH CONDITIONS ON MICROBIAL CONTAMINATION OF THE ENVIRONMENT IN TWO HOSPITALS IN AMHARA, ETHIOPIA

Kristen Carr¹, Kun Zhao², Habib Yakubu¹, Lamesgin Alamineh³, Mulusew Belew³, Abebe Gebremariam⁴, Gizachew Yismaw⁵, John Cranmer⁴, Christine L. Moe¹

¹Center for Global Safe Water, Sanitation, and Health at Emory University, Atlanta, GA, United States, ²Centers for Disease Control and Prevention, Atlanta, GA, United States, ³Emory Ethiopia - Amhara Regional Office, Bahir Dar, Ethiopia, ⁴Emory University-Nell Hodgson Woodruff School of Nursing, Atlanta, GA, United States, ⁵Amhara Public Health Institute, Bahir Dar, Ethiopia

1578

HOME WASH CONDITIONS AND POST-CESAREAN SECTION SURGICAL SITE INFECTION RISKS

Sadoscar Hazikimana¹, Ildephonse Simbananiye², Elizabeth Miranda³, Anne Niyigena¹, Laban Bikorimana¹, Andrea Goodman⁴, Theoneste Nkurunziza⁵, Robert Riviello⁶, Bethany Hedt-Gauthier⁴, Fredrick Kateera¹

¹Partners in Health - Rwanda, Kigali, Rwanda, ²Ministry of Health, Kigali, Rwanda, ³Program in Global Surgery and Social Change, Harvard Medical School, Boston, MA, United States, ⁴Department of Global Health and Social Medicine, Harvard Medical School, Boston, MA, United States, ⁵Technical University of Munich, Munich, Germany, ⁶Center for Surgery and Public Health, Brigham and Women's Hospital, Boston, MA, United States

Break

Thursday, November 19

2:45 p.m. - 3 p.m. U.S. Eastern Time Zone

Scientific Session 149

Clinical Tropical Medicine: Parasites/Toxins and Other Topics

Meeting Room 1

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Maria Do Carmo P. Nunes

Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

Jason D. Maguire

Pfizer, White Plains, NY, United States

1579

ECHOCARDIOGRAPHIC PREDICTORS OF MORTALITY IN PATIENTS WITH CHAGAS DISEASE FROM REMOTE ENDEMIC AREAS: SAMI-TROP COHORT STUDY

Maria Do Carmo P. Nunes¹, Marcelo Maia², Antonio Ribeiro¹, Claudia Oliveira³, Ariela Ferreira², Lea Campos Oliveira⁴, Ana Luiza Bierrenbach⁵, Desireé Haikal², Larissa Martins¹, Clareci Cardoso³, Ester Sabino⁶

¹Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, ²Universidade Estadual de Montes Claros, Montes Claros, Brazil, ³Federal University of São João del-Rei, Divinópolis, Brazil, ⁴Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil, ⁵Hospital Sírio-Libanês, São Paulo, Brazil, ⁶Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil

1580

NAT2 GENETIC VARIATIONS AMONG CHILDREN INFECTED WITH *PLASMODIUM FALCIPARUM* MALARIA IN YAOUNDE, CAMEROON: IMPLICATIONS FOR ANTI-MALARIAL DRUG DOSING, METABOLISM AND RESPONSE

Peter Thelma Ngwa P. Niba¹, Akindeh Mbuh A. Nji¹, Innocent Mbuli I. Ali², Lawrence Fonyonga L. Akam¹, Cedric Hermann C. Dongmo¹, Calvino Tah C. Fomboh¹, Jean Paul J. Chedjou¹, Selly Ngaloumo Abdel S. Aziz¹, Jude D. J. Bigoga¹, Michael M. Alifrangis³, Wilfred Fon W. Mbacham¹

¹University of Yaounde I, Yaounde, Cameroon, ²University of Dschang, Dschang, Cameroon, ³University of Copenhagen, Copenhagen, Denmark

1584

EFFECT OF PROLONGED FLAVIVIRUS RNA SHEDDING IN CHIKUNGUNYA CHRONICITY OF INDIVIDUALS WITH ARBOVIRUS CO-INFECTIONS

Marta G. Cavalcanti, Eduardo Scarlatelli Pimenta, Mauro Jorge Cabral-Castro, Jose Mauro Peralta

Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

1585

HOUSEHOLD CASSAVA FLOUR CYANIDE AND URINARY THIOCYANATE LEVELS ARE PREDICTIVE OF NEUROCOGNITIVE AND MOTOR PROFICIENCY DEFICITS IN SCHOOL-AGE CONGOLESE CHILDREN DEPENDENT ON TOXIC CASSAVA

Michael J. Boivin¹, Musasa Hanshi Hilaire², Alla Sikorskii¹, Nicole Mashukano³, Hilaire Lufuluabo², Tshingamb Ndaya⁴, Gregoire Kamanga², Banea J. Mayambu³, Justin Kombi², Gedeon Bongo⁴, Esperance Kashala-Abotnes⁵, Daniel Okitundu², Dieudonne Ngoyi Mumba⁴, Desire Tshala-Katumbay⁶

¹Michigan State University, East Lansing, MI, United States, ²University of Kinshasa, Kinshasa, Democratic Republic of the Congo, ³Programme National de Nutrition (PRONANUT), Kinshasa, Democratic Republic of the Congo, ⁴Institut National de la Recherche Biomédicale (INRB), Kinshasa, Democratic Republic of the Congo, ⁵University of Bergen, Bergen, Norway, ⁶Oregon Health Sciences University, Portland, OR, United States

1315

UNDERLYING CAUSES OF PERINATAL DEATHS AMONG CASES UNDERGOING MINIMALLY INVASIVE TISSUE SAMPLING IN BANGLADESH

Afruna Rahman¹, Kyu Han Lee², Sanwarul Bari¹, Farzana Islam¹, Mustafizur Rahman¹, Muntasir Alam¹, Tonima Islam Trisa¹, Shams El Arifeen¹, Emily S. Gurley²
¹icddr, Dhaka, Bangladesh, ²John Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

Symposium 150

Crimean-Congo Hemorrhagic Fever, Updates on a Lesser Known Viral Hemorrhagic Fever with Widespread Impact

Meeting Room 2

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Crimean-Congo hemorrhagic fever (CCHF) is a zoonotic infection causing hemorrhagic fever in humans. Although it is less well known than other viral hemorrhagic fevers, it has a broader geographic range and causes a significant amount of devastation in the world including Sub-Saharan Africa, Asia, and the Middle east. Humans get infected after contact with blood of infected animals or following the bite of an infected tick. The World Health Organization has identified CCHF in its blueprint of priority, understudied, emerging infections. This symposium will bring together international experts from some of the most affected areas of the world, to discuss the epidemiology, clinical management, diagnosis, and treatment and preventive modalities on CCHF. The discussion will also include the use of animal models for development of vaccines and therapeutic agents.

CHAIR

Maryam keshtkar Jahromi
National Institute of Health, Rockville, MD, United States

Mark Kortepeter
University of Nebraska College of Public Health, Omaha, NE, United States

3 p.m.

CRIMEAN CONGO HEMORRHAGIC FEVER (CCHF) IN TURKEY (2002-2020), YEARS OF EXPERIENCE IN DIAGNOSIS, TREATMENT AND OUTBREAK INVESTIGATION

Iftihar Koksak
Acibadem University Hospital, Istanbul, Turkey

3:20 p.m.

CRIMEAN-CONGO HEMORRHAGIC FEVER: WHERE WE ARE AND WHERE WE WOULD LIKE TO BE: THE CURRENT CCHF SITUATION IN THE RUSSIAN FEDERATION

Natalia Pshenichnaya
Central Research Institute of Epidemiology, Moscow, Russian Federation

3:40 p.m.

CRIMEAN-CONGO HEMORRHAGIC FEVER VACCINE DEVELOPMENT

Aura R. Garrison
United States Army Medical Research Institute of Infectious Diseases, Frederick, MD, United States

4 p.m.

ANTIBODY-BASED THERAPEUTICS AGAINST CRIMEAN-CONGO HEMORRHAGIC FEVER VIRUS

Joseph W. Golden
United States Army Medical Research Institute of Infectious Diseases, Frederick, MD, United States

Symposium 151

American Committee on Arthropod-Borne Viruses (ACAV) Trainee Panel: Outbreak Response—Focusing on Communication

Meeting Room 3

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

As emerging and reemerging pathogens continue to threaten our global society, as evidenced by the recent COVID-19 pandemic, and the challenge of outbreak response and communication, this event aims to bring together accomplished scientists working at the government and community levels. The session will feature an engaging discussion on the challenges and skills that make for failures and successes in outbreak response—with a special focus on communication.

CHAIR

Amy R. Krystosik
Chan Zuckerberg Initiative, Redwood City, CA, United States

David Morens
National Institutes of Health, Bethesda, MD, United States

PANELISTS

Yodi Alakija
Humanitarian Coordinator, Nigeria, Nigeria

Shabnum Sarfraz
Ministry of Planning, Development and Special Initiatives, Government of Pakistan, Pakistan, Pakistan

Nicole Mbarga
MSF Cameroon, Cameroon, Cameroon

Amina Jama
Save the Children, Somalia, Somalia

Mauricio Espinel
Social Security Hospitals, Ecuador, Ecuador

Ann Powers
CDC, Fort Collins, CO, United States

Daniel G. Bausch
UK Public Health Rapid Support Team, London, United Kingdom

Scientific Session 152

Global Health: Maternal, Newborn, Child Health and Neglected Tropical Diseases

Meeting Room 5

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Caterina A. Fanello
Oxford University, Oxford, United Kingdom

Nicholas L. Roberts
Institute for Health Metrics and Evaluation, Seattle, WA, United States

1586

EFFECTS OF REMOVING USER FEES ON BARRIERS TO CARE AMONG CHILDREN WITH DIARRHEA, FEVER, AND PNEUMONIA IN RURAL MALI

Hailey Zuverink¹, Naimatou Kone², Mohamed Bana Traore², Mahamadou Sogoba², Caroline Whidden², Tracy Lin³, Nancy Padian³, Ari Johnson², Kassoum Kayentao⁴, Jenny Liu³, **Emily Treleaven**¹

¹University of Michigan, Ann Arbor, MI, United States, ²Muso, Bamako, Mali, ³University of California, San Francisco, San Francisco, CA, United States, ⁴Malaria Research and Training Centre, Bamako, Mali

1587

ANTIBIOTIC USE AMONG RESIDENTS IN UGANDA, ZIMBABWE AND MALAWI - A MIXED METHODS STUDY

Clare I. Chandler¹, Justin Dixon¹, Susan Nayiga², Eleanor MacPherson³, Salome Manyau⁴, Christine Nabirye², Mabvuto Chimanya⁵, Sham Lal⁴, Chrissy Roberts¹, Edward Green³, Katharina Kranzer¹, Sarah G. Staedke¹

¹London School of Hygiene & Tropical Medicine, London, United Kingdom, ²Infectious Diseases Research Collaboration, Kampala, Uganda, ³Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ⁴Biomedical Research and Training Institute (BRTI), Harare, Zimbabwe, ⁵Malawi Liverpool Wellcome Trust, Blantyre, Malawi

1588

COMPLIANCE AND SPILLOVER EFFECTS WITH AZITHROMYCIN DISTRIBUTION FOR CHILD SURVIVAL IN NIGER: SECONDARY ANALYSES OF THE MORDOR TRIAL

Kieran S. O'Brien¹, Ahmed M. Arzika², Ramatou Maliki², Farouk Manzo², Alio K. Mamkara², Abdou Amza³, Elodie Lebas¹, Catherine Cook¹, Benjamin Arnold¹, Catherine E. Oldenburg¹, Jeremy D. Keenan¹, Thomas M. Lietman¹

¹University of California, San Francisco, San Francisco, CA, United States, ²The Carter Center, Niamey, Niger, ³Programme Nationale de Sante Oculaire, Niamey, Niger

1589

THE GLOBAL BURDEN OF SNAKEBITES: A MODELING STUDY OF MORTALITY AND NONFATAL HEALTH OUTCOMES

Nicholas L. Roberts, Erin Hamilton, Theo Vos, Spencer James, David Pigott
Institute for Health Metrics and Evaluation, Seattle, WA, United States

1590

PREVALENCE OF SCABIES AND IMPETIGO AMONGST SCHOOL CHILDREN IN TIMOR-LESTE: SCHOOL SURVEYS IN THREE MUNICIPALITIES

Alexander Matthews¹, Brandon Le², Paul Arkell³, Naomi Clarke², Daniel Engelman⁴, Merita Monteiro⁵, Salvador Amaral⁶, Terinda Barros⁷, Joshua Francis⁸, **Susana Vaz Nery**²

¹Royal Darwin Hospital, Darwin, Australia, ²Kirby Institute, Sydney, Australia, ³National Health Laboratory, Timor-Leste, ⁴Murdoch Children's Research Institute, Melbourne, Australia, ⁵Ministry of Health, Dili, Timor-Leste, ⁶Maluk Timor, Dili, Timor-Leste, ⁷Hospital Nacional Guido Valadares, Dili, Timor-Leste, ⁸Menzies School of Health Research, Darwin, Australia

Symposium 153

Clinical Tropical and Travel Medicine: Hot List of Literature

Meeting Room 6

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Clinicians in tropical medicine and travelers' health base their decisions on the knowledge of disease epidemiology, clinical course, diagnostic tools, resistance patterns, and vaccine data. This symposium will highlight recent studies on these aspects of malaria, yellow fever, other travel-associated vaccine

developments, and consideration of SARS-CoV2/COVID-19 with respect to travel medicine. This session is co-organized with the International Society of Travel Medicine (ISTM).

CHAIR

Lin H. Chen

Mount Auburn Hospital and Harvard Medical School, Cambridge, MA, United States

Anne McCarthy

University of Ottawa and Ottawa Hospital, Ottawa, ON, Canada

3 p.m.

MALARIA UPDATES

Andrea K. Boggild

University of Toronto, Toronto, ON, Canada

3:25 p.m.

YELLOW FEVER EPIDEMIOLOGY AND VACCINE ISSUES

Aluisio Cotrim Segurado

University of Sao Paulo, Sao Paulo, Brazil

3:50 p.m.

OTHER TRAVEL-ASSOCIATED VACCINE ISSUES

Elizabeth Barnett

Boston Medical Center, Boston, MA, United States

4:15 p.m.

SARS-COV2 AND COVID19

David O. Freedman

Univ of Alabama Birmingham, Birmingham, AL, United States

Symposium 154

10 years of Joint Global Health Trials: What Lessons Have We Learned from Translating Research to Policy and Practice?

Meeting Room 7

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

The Joint Global Health Trials scheme funds late stage clinical and health interventions addressing the major causes of mortality and morbidity in low- and middle-income countries likely to produce implementable results. For research to have a lasting impact on the health of the public, it needs to inform health policies and practice. This symposium will convene researchers funded by this scheme to highlight successes and challenges of achieving health policy impact and engaging with decision-makers through their work. The symposium is convened by the funders of the scheme. The discussion will bring together 3 case studies of Phase III/IV infectious disease trials on tuberculosis, talaromycosis and meningitis, demonstrating different approaches to achieving policy and practice and drawing on lessons learned. It will include examples of trials that have changed policy, been scaled up or replicated, as well as reflect on challenges of achieving public health impact nationally, regionally and globally. The panel of researchers and research users will reflect on successes and challenges of working at the interface of research and policy and will offer insights and recommendations for others undertaking research to ultimately influence policy and practice.

CHAIR

Sophie Durrans
UK Government Department of Health and Social Care, London, United Kingdom

Mary Hamel
World Health Organization, Geneva, Switzerland

3 p.m.**10 YEARS OF JOINT GLOBAL HEALTH TRIALS: AN OVERVIEW**

Elena Netsi
Wellcome Trust, London, United Kingdom

3:15 p.m.**COMMUNITY RANDOMIZED EVALUATION OF SOCIOECONOMIC INTERVENTION TO PREVENT TB IN PERU: THE IMPORTANCE OF STAKEHOLDER ENGAGEMENT**

Carlton A. Evans
Imperial College London, London, United Kingdom

3:35 p.m.**GETTING RESEARCH INTO USE: REFLECTIONS FROM A RANDOMIZED CONTROLLED TRIAL IN TALARMYCOSIS TREATMENT IN SOUTHEAST ASIA**

Thuy Le
Duke University, Durham, NC, United States

3:55 p.m.**INFORMING GLOBAL POLICY AND PRACTICE: EVALUATION OF A RAPID TEST FOR TUBERCULOUS MENINGITIS IN UGANDA**

David B. Meya
Makerere University Medical School Kampala Uganda, Kampala, Uganda

4:15 p.m.**THE HEALTH POLICY PERSPECTIVE: HOW DO DECISION-MAKERS ENGAGE WITH TRIAL FINDINGS?**

Mary Hamel
World Health Organization, Geneva, Switzerland

Scientific Session 155**Filariasis: Clinical**

Meeting Room 8

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Philip Budge
Washington University in St. Louis, St. Louis, MO, United States

Thishan Channa Yahathugoda
University of Ruhuna, Galle, Sri Lanka

1593**DRUG DEVELOPMENT FOR THE TREATMENT AND CONTROL OF ONCHOCERCIASIS: POPULATION PHARMACOKINETIC AND ADVERSE EVENTS MODELING OF EMODEPSIDE (BAY 44-4400) IN HEALTHY VOLUNTEERS**

Frauke Assmus¹, Richard Hoglund¹, Ivan Scandale², Frédéric Monnot², Sabine Specht², Joel Tarning¹

¹Mahidol-Oxford Tropical Medicine Research Unit, Mahidol University, Bangkok, Thailand, ²Drugs for Neglected Diseases initiative, Geneva, Switzerland

1594**COMPARISON OF FOUR LONGITUDINAL OUTCOME MEASURES FOR LIMB LYMPHEDEMA**

Philip Budge¹, Lalindi De Silva², Michael Weiler³, Sarah Sullivan⁴, Mirani Weerasooriya², Sharmini Gunawardena⁵, Channa Yahathugoda²

¹Washington University in St. Louis, St. Louis, MO, United States, ²University of Ruhuna, Galle, Sri Lanka, ³LymphaTech, Atlanta, GA, United States, ⁴Task Force for Global Health, Atlanta, GA, United States, ⁵Antifilaria Campaign, Colombo, Sri Lanka

1595**THE SAFETY OF TRIPLE DRUG TREATMENT WITH IVERMECTIN, DEC, AND ALBENDAZOLE IN PERSONS WITH ONCHOCERCIASIS**

Nickolas O. Opoku¹, Michael E. Gyasi¹, Eric M. Kanza¹, Augustine R. Hong², Catherine M. Bjerum³, Christopher L. King³, Peter U. Fischer⁴, Gary J. Weil²

¹University of Health and Allied Sciences, Hohoe, Ghana, ²Washington University School of Medicine, St. Louis, MO, United States, ³Case Western Reserve University, Cleveland, OH, United States, ⁴Washington University in St. Louis, St. Louis, MO, United States

1596**DEVELOPMENT AND ASSESSMENT OF THE PSYCHOMETRIC PROPERTIES OF A NEW SCALE (15 ITEM PSB-CL) TO MONITOR THE PSYCHOSOCIAL BURDEN OF CHRONIC LYMPHEDEMA IN FILARIASIS**

Janaka Ruben, Thishan Channa Yahathugoda, Mirani Vasanthamala Weerasooriya, Chandanie Senadheera, K. G. Somasiri, Bilesha Perera
Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka

1597**USING MOBILE DATA COLLECTION TECHNOLOGY TO HELP OVERCOME CHALLENGES DURING MASS DRUG ADMINISTRATION (MDA) IN PORT-DE-PAIX, HAITI**

Alain Javel¹, Eurica Denis¹, Carl Renand Fayette¹, Paul-Emile Dalexis¹, Marc-Aurele Telfort², Ellen Knowles³, Mary Linehan³, Abdel Direny³, Josh West⁴, Benjamin Crookston⁴

¹IMA World Health, Port au Prince, Haiti, ²Ministry of Health and Population, Port au Prince, Haiti, ³IMA World Health, Washington, DC, United States, ⁴Brigham Young University, Provo, UT, United States

1598**APPLYING THE RANAS FRAMEWORK TO ASSESS PSYCHOSOCIAL DRIVERS OF COMPLIANCE WITH MASS DRUG ADMINISTRATION FOR LYMPHATIC FILARIASIS**

Caitlin M. Worrell¹, Christiana Titaley², Ryan Wiegand¹, Filda de Lima², Yuniasih Taihuttu², Tara A. Brant¹, Lita Renata³, Alison Krentel⁴

¹The Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Faculty of Medicine, Pattimura University, Ambon, Indonesia, ³Subdit Filariasis, Ministry of Health, Jakarta, Indonesia, ⁴Bruyère Research Institute, Ottawa, ON, Canada

1599**ASSESSING ANTI-FILARIAL ANTIBODY AS A COMMUNITY INFECTION INDICATOR IN AREAS TREATED WITH DOUBLE- OR TRIPLE-DRUG MASS DRUG ADMINISTRATION IN QUARTIER MORIN, HAITI**

Keri L. Robinson¹, Christine L. Dubray¹, Anita D. Sircar¹, Jean Romuald Ernest², Marisa Hast¹, Ryan Wiegand¹, Jean Frantz Lemoine³, Kimberly Won¹

¹Centers for Disease Control and Prevention, Atlanta, GA, United States, ²Pan American Health Organization, Port-au-Prince, Haiti, ³Ministère de la Santé et de la Population, Port-au-Prince, Haiti

Symposium 156

Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Health in Low- and Middle-Income Countries: The Struggle for Global Health Equity

Meeting Room 9

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

The WHO's constitution, along with many other international human rights treaties, consistently state the "highest attainable standard of health" as a fundamental human right. Yet, the lesbian, gay, bisexual, transgender, and queer (LGBTQ) community continues to face inequities in access to health around the world. In high disease burden settings such as low- and middle-income countries (LMICs), where there is the greatest need for healthcare, marginalization and criminalization of LGBTQ populations result in serious and under-addressed health and human rights disparities. The LGBTQ community faces unique barriers to healthcare including denial of care or substandard care due to stigma, discrimination, and criminalization; avoidance of health services for fear of harassment, breach of confidentiality, forced procedures, violence, criminal charges, and/or incarceration; and inadequate understanding of specific health-care needs of LGBTQ individuals. In LMICs, LGBTQ-specific barriers to health intersect with other social determinants of health (e.g. socioeconomic status, geography, etc.) to compound disparities. Exclusion from the right to health on the basis of sexual orientation significantly contributes to the global burden of disease. LGBTQ individuals carry a disproportionate burden of HIV and other STIs, and increased rates of depression, substance abuse, and suicidal ideation. In the case of HIV, evidence suggests that anti-LGBTQ legislation, under which individuals face systemic marginalization and criminalization, compromises the HIV treatment cascade (e.g. limiting access to prevention, testing, and treatment services). This both violates the fundamental human right to health and undermines global public health objectives like the UNAIDS 90-90-90 targets and the Sustainable Development Goals. In order to address this healthcare gap, a stronger awareness and understanding of the unique barriers to health for LGBTQ communities in LMICs is essential. Increased research, advocacy, and engagement of scientists and policy makers are necessary to address and reduce health disparities for these vulnerable populations. LGBTQ health is an integral and multi-disciplinary part of global health; however, it is infrequently discussed in international global health forums. This symposium will highlight a neglected facet of global health equity and its impact on public health. This symposium will begin a dialogue on the unique challenges and solutions to promote healthcare access for LGBTQ communities in LMICs through the lens of epidemiology, social justice, human rights, and patient care.

CHAIR

Andrea Weckman

University of Toronto, Toronto, ON, Canada

Chandy C. John

Indiana University School of Medicine, Indianapolis, IN, United States

3 p.m.

INTERSECTIONAL STIGMA APPROACHES TO UNDERSTANDING LGBTQ+ HEALTH INEQUITIES ACROSS GLOBAL CONTEXTS

Carmen H. Logie

University of Toronto, Toronto, ON, Canada

3:20 p.m.

LGBTQ RIGHTS AND THE GLOBAL HIV/AIDS EPIDEMIC

Chris Beyrer

Johns Hopkins Bloomberg School of Global Health, Baltimore, MD, United States

3:40 p.m.

LESBIAN, BISEXUAL AND TRANSGENDER WOMEN FROM BRAZIL: QUEER WOMEN'S LIVES MATTER

Monica Malta

University of Toronto, Toronto, ON, Canada

4 p.m.

PARTNERING WITH THE SAME GENDER-LOVING COMMUNITY FOR SEXUAL HEALTH PROMOTION AND HIV PREVENTION IN KENYA

Susan M. Graham

University of Washington, Seattle, WA, United States

Scientific Session 156A

Malaria Elimination: From Potential New Tools to Challenges for National Strategies

Meeting Room 10

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Thom Eisele

Tulane University, New Orleans, LA, United States

Kim Lindblade

CDC, Bangkok, Thailand

784

A SCHOOL SURVEY INDICATES CONDUCIVE SETTINGS FOR MALARIA ELIMINATION IN THE HIGHLANDS PROVINCES OF PAPUA NEW GUINEA

Osama Seidahmed¹, Sharon Jamea², Serah Kurumop², Manuel Hetzel³, William Pomat²

¹Swiss Tropical and Public Health Institute and PNG Institute of Medical Research, Goroka, Papua New Guinea, ²PNG Institute of Medical Research, Goroka, Papua New Guinea, ³Swiss Tropical and Public Health Institute, Basel, Switzerland

1242

GENETIC DIVERSITY AND THE REPRODUCTION OF PLASMODIUM VIVAX IN RIVERINE VILLAGES ALLOCATED TO DIFFERENT TEST-AND-TREAT INTERVENTIONS IN THE PERUVIAN AMAZON

Roberson Ramirez¹, Paulo Manrique², Angel Rosas-Aguirre³, Juan Contreras-Mancilla¹, Jose Barboza¹, Niko Speybroeck³, Alejandro Llanos-Cuentas², Joseph Vinetz⁴, Dionicia Gamboa¹

¹Laboratorio ICEMR-Amazonia, Laboratorios de Investigación y Desarrollo, Facultad de Ciencias y Filosofía, Universidad Peruana Cayetano Heredia, Lima, Peru, ²Instituto de Medicina Tropical Alexander von Humboldt, Universidad Peruana Cayetano Heredia, Lima, Peru, ³Research Institute of Health and Society (IRSS), Université catholique de Louvain, Brussels, Belgium, ⁴Section of Infectious Diseases, Department of Internal Medicine, Yale School of Medicine, New Haven, CT, United States

288

IMPLEMENTING PRIMAQUINE RADICAL CURE IN CAMBODIA: EVALUATING IMPACT ON PLASMODIUM VIVAX INFECTION AND RELAPSE, IDENTIFYING OPERATIONAL ROADBLOCKS AND MAXIMIZING EFFECTIVENESS

Dysoley Lek¹, Yucheng Tsai², Jillian Dunning², Siv Sovannarothe¹, Or Vanthen³, Srey Sin⁴, Kros Sarath⁵, Prak Vonn⁶, Keo Sophaktra⁷, Top Sophorn Narann⁸, Nguon Sokomar⁹, Huy Rekol¹, Evelyn Wong², Michelle Pahl²

¹National Center for Parasitology, Entomology and Malaria Control, Phnom Pehn, Cambodia, ²Clinton Health Access Initiative, Phnom Pehn, Cambodia, ³Provincial Health Department, Ministry of Health, Kampong Speu, Cambodia, ⁴Provincial Health Department, Ministry of Health, Kampong Thom, Cambodia, ⁵Provincial Health Department, Ministry of Health, Siem Reap, Cambodia, ⁶Provincial Health Department, Ministry of Health, Kampong Chhnang, Cambodia, ⁷Provincial Health Department, Ministry of Health, Banteay Meanchey, Cambodia, ⁸Cambodia Elimination Malaria Project, Phnom Pehn, Cambodia

1232

EVALUATING THE COMMUNITY HEALTH WORKER (CHW) NETWORK TO ACHIEVE AND SUSTAIN MALARIA ELIMINATION IN GRACIAS A DIOS, HONDURAS

Manuel Espinoza Garcia¹, Madeline Baird¹, Justin Lana¹, Kim Hanson¹, Sarah Park¹, Lizeth Cartagena², Ana Vallecillo²

¹Clinton Health Access Initiative (CHAI), Tegucigalpa, Honduras, ²Secretary of Health (SESAL), Puerto Lempira, Honduras

Scientific Session 157**Mosquitoes: Biochemistry and Molecular Biology**

Meeting Room 11

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Maria L Simoes

Johns Hopkins University, Baltimore, MD, United States

Guodong Niu

Florida International University, Miami, FL, United States

1600

KNOCKOUT OF IMMUNE GENES IN ANOPHELES STEPHENSI USING CRISPR CAS9 REVEALS THEIR ROLE IN INFECTION PERMISSIVENESS AND REPRODUCTIVE CAPACITY

Ehud Inbar¹, Abraham Eappen¹, Robert Alford², Robert Harrel², William Reid³, Tao Li¹, Sumana Chakaravarty¹, Donald Ward¹, Maryam Hosseini¹, Kim Lee Sim¹, Stephen L. Hoffman¹, Peter F. Billingsley¹

¹Sanaria Inc., Rockville, MD, United States, ²University of Maryland, Rockville, MD, United States, ³University of Missouri, Columbia, MO, United States

1601

CTL4-KNOCKOUT TO SUPPRESS PLASMODIUM TRANSMISSION IN THE VECTOR MOSQUITO

Maria L Simoes, Yuemei Dong, Godfree Mlambo, George Dimopoulos
Johns Hopkins University, Baltimore, MD, United States

(ACMCIP Abstract)

1602

ENGINEERING TRANSGENIC AEDES AEGYPTI RESISTANT TO ARBOVIRUS TRANSMISSION

Adeline E. Williams¹, William R. Reid², Irma Sanchez-Vargas¹, Alexander W. Franz², Malcolm J. Fraser³, Jingyi Lin², Ken E. Olson¹

¹Colorado State University, Fort Collins, CO, United States, ²University of Missouri, Columbia, MO, United States, ³University of Notre Dame, South Bend, IN, United States

1604

HUNTING SEXUAL STAGES OF PLASMODIUM FALCIPARUM PROTEINS TO IDENTIFY TRANSMISSION BLOCKING TARGETS AGAINST MALARIA

Guodong YC Niu

Florida International University, Miami, FL, United States

(ACMCIP Abstract)

1605

GLYCOLYSIS AND BLOOD-MEAL ENHANCED IMMUNITY OF ANOPHELES GAMBIAE MOSQUITOES

Alex S. Moon, Jiannong Xu

New Mexico State University, Las Cruces, NM, United States

1606

REVISING THE PROCESS OF SEX DIFFERENTIATION IN THE ANOPHELES GAMBIAE MOSQUITO USING RNA INTERFERENCE FOR SEXLETHAL AND DOUBLESEX

Mabel L. Taracena¹, Catherine M. Hunt¹, Mark Q. Benedict¹, Pamela M. Pennington², Ellen M. Dotson³

¹CDC Foundation, Atlanta, GA, United States, ²Universidad del Valle de Guatemala, Guatemala City, Guatemala, ³Centers for Disease Control and Prevention, Atlanta, GA, United States

Symposium 158**Of Dogs and Dragons: Understanding Parasite Transmission Ecology and Applying It to the Global Guinea Worm Eradication Program**

Meeting Room 12

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

Drawing from the successful campaign to eradicate smallpox, the Centers for Disease Control and Prevention (CDC) began a Guinea worm eradication initiative in 1980, and in 1986 the World Health Assembly officially called for the elimination of dracunculiasis. The Carter Center then began assisting ministries of health in countries with endemic dracunculiasis to establish community-based surveillance and interventions. In 1986, 3.5 million cases were estimated to have occurred in 20 countries in Africa and Asia. In 2019, there were only 53 reported human Guinea worm cases (>99% reduction) confined to just three countries: Chad, South Sudan, and Angola. Progress towards eradication continues, but several challenges remain, including the recent discovery of *Dracunculus medinensis* (the causative agent of Guinea worm) in domestic dogs and ongoing transmission in conflict and post-conflict settings. In 2019, Chad reported 88% of the 53 human cases and 99% of the 1,939 canine cases worldwide. Sustained transmission among dogs presents a unique challenge for eradication efforts. The Guinea Worm Eradication Program (GWEP) maintains an extensive network of village volunteers and field staff who conduct active, village-based surveillance to identify and contain Guinea worm in both humans and animals. To complement knowledge gained from surveillance efforts, the program supports a robust research agenda to improve understanding of transmission dynamics in dogs. This symposium will first showcase the latest research projects and scientific approaches employed in Chad, ranging from laboratory experiments involving copepods to a randomized controlled trial

for treatment of infected dogs. Next, results of an ecological risk map using remotely sensed imagery and surveillance data will be presented. This map, in conjunction with a serologic assay recently developed by the CDC, will provide insights as to how and where future surveillance and containment efforts should be directed within Chad. Thirdly, speakers will report results from a rigorous analysis of a 2019 outbreak among humans and dogs that draws on population genetics approaches and classic epidemiologic investigation methods. Finally, the symposium will discuss the application of research findings to improve surveillance (i.e., early detection) of and interventions aimed at infected dogs.

CHAIR

Sarah Yerian

The Carter Center, Atlanta, GA, United States

Dieudonne Sankara

World Health Organization, Geneva, Switzerland

3 p.m.

THE DRAGON'S LAIR: RESEARCH INSIGHTS AND THE PURSUIT OF GUINEA WORM ERADICATION

Christopher Cleveland

University of Georgia-College of Veterinary Medicine, Athens, GA, United States

3:20 p.m.

GETTING AHEAD OF SURVEILLANCE: ASSESSING ECOLOGICAL RISK OF GUINEA WORM TRANSMISSION IN UNMONITORED AREAS IN CHAD

Sarah Anne Guagliardo

Centers for Disease Control and Prevention, Atlanta, GA, United States

3:40 p.m.

GUMSHOES AND GENETICISTS: COMBINING CLASSIC EPIDEMIOLOGY AND POPULATION GENETICS TO CHARACTERIZE GUINEA WORM TRANSMISSION EVENTS

Elizabeth A. Thiele

Vassar College, Poughkeepsie, NY, United States

4 p.m.

ENDING THE BATTLE: INNOVATIONS IN SURVEILLANCE AND INTERVENTION DELIVERY AMONG DOGS IN CHAD

Hubert Zirimwabagabo

The Carter Center, Ndjamen, Chad

Symposium 159

Identifying Optimal Ways to Support Countries Achieve the Last Mile in NTD Elimination

Meeting Room 13

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

One of the important factors that is enhancing national disease control and elimination programs in Africa today is the increasing ability, and willingness, of countries to manage and implement their own national programs - to make essential decisions, to professionally manage fiscal support, and similarly to commit local resources and to proclaim their national successes. Undeniably, implementation partners such as NGOs have historically been vital to supporting in country activities and in many instances this remains the case; however, there is an active, and appropriate,

move across global programs to actively strengthen national programs and reduce their dependence on direct external technical and administrative support. This symposium will focus on learning through examples from a leading NTD mass drug administration program, the onchocerciasis elimination program, the factors and the optimal actions that country programs have found advantageous to establishing their professional independence and capability to manage and carry out these programs successfully. Identifying and fully understanding these factors are both important to the long-term development of health systems in countries in Africa and elsewhere. In addition, the impact these activities are an example of the extraordinary impact programs such as the onchocerciasis programs and other mass chemotherapy programs are having on healthcare in developing countries.

CHAIR

Charles D. Mackenzie

Task Force for Global Health, Dimondale, MI, United States

Daniel Boakye

The End Fund, Accra, Ghana

3:20 p.m.

SUPPORTING PARTNERS TO ELIMINATE NTDS - END FUND PERSPECTIVE

Jamie Tallant

END Fund, Atlanta, GA, United States

3:40 p.m.

CHALLENGES FACED BY A NATIONAL PROGRAM - SOUTH SUDAN PERSPECTIVE

Makoy Y. Ilogora

Ministry of Health, Juba, South Sudan

4 p.m.

SUPPORTING LABORATORY NEEDS FOR NTDS - ESPEN PERSPECTIVE

Aime Adjami

ESPEN Laboratory WHO AFRO, Ouagadougou, Burkina Faso

4:20 p.m.

SUPPORTING LABORATORY NEEDS FOR NTDS - MALI PERSPECTIVE

Yaya Couilabaly

International Center for Excellence in Research, Bamako, Mali, Bamako, Mali

Scientific Session 160

Malaria: Immunology

Meeting Room 14

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Linda Reiling

Burnet Institute, Melbourne, Australia

Arlene E. Dent

Case Western Reserve University, Cleveland, OH, United States

1607

IMMUNOLOGIC PROFILES DEFINING CLINICAL STATES IN MALARIA

Maureen Ty¹, Aditya Rao¹, Kathleen Dantzler¹, Lauren De La Parte¹, Felistas Nankya², Kenneth Musinguzi², Isaac Ssewanyana², Rek John², Holden Maecker¹, Margaret Feeney³, Grant Dorsey³, Bryan Greenhouse³, Moses Kanya², PJ Utz¹, Purvesh Khatri¹, Bali Pulendran¹, Prasanna Jagannathan¹

¹Stanford University, Stanford, CA, United States, ²Infectious Diseases Research Collaboration, Kampala, Uganda, ³University of California, San Francisco, CA, United States

1608

IDENTIFYING TARGETS OF FUNCTIONAL ANTIBODIES THAT PROTECT AGAINST MALARIA TO ACCELERATE VACCINE DEVELOPMENT

Linda Reiling¹, Michael T. White², Daniel H. Opi¹, Gaoqian Feng¹, Lirye Kurtovic¹, Freya J. Fowkes¹, Ivo Mueller², James G. Beeson¹

¹Burnet Institute, Melbourne, Australia, ²Institute Pasteur, Paris, France

1609

NATURALLY ACQUIRED HUMAN MONOCLONAL ANTIBODIES BLOCK PLASMODIUM FALCIPARUM TRANSMISSION TO MOSQUITOES

Amanda Fabra Garcia¹, Roos M. de Jong¹, Marta Szabat², Stefanie Vogt², Aoise O'Neill², Stephanie Pfaffen², Sherie Duncan², Veronique Lecault², Carl Hansen², Karina Teelen¹, Rianne Stoter¹, Marga van de Vegte-Bolmer¹, Geert-Jan Van Gemert¹, Judith Bolscher³, Tonnie Huijs³, John Rek⁴, Margaret Feeney⁵, Bryan Greenhouse⁶, Rick King⁷, Randall MacGill⁷, Robert Sauerwein⁸, Teun Bousema¹, Matthijs Jore¹

¹Radboudumc, Nijmegen, Netherlands, ²AbCellera, Vancouver, BC, Canada, ³TropIQ Heath Science, Nijmegen, Netherlands, ⁴Infectious Disease Research Collaboration, Kampala, Uganda, ⁵Department of medicine, University of California San Francisco and department of pediatrics, University of California San Francisco, San Francisco, CA, United States, ⁶Department of medicine, University of California San Francisco, San Francisco, CA, United States, ⁷PATH Malaria Vaccine Initiative, Washington, DC, United States, ⁸Radboudumc and TropIQ Heath Science, Nijmegen, Netherlands

(ACMCIP Abstract)

1610

LILRB1 AND LILRB2 EXPRESSION IN PERIPHERAL BLOOD IMMUNE CELLS AT 18 AND 24 MONTHS OF AGE IN INFANTS BORN FROM MOTHERS WITH PLACENTAL MALARIA

Celia Dechavanne¹, Odilon Nouatin², Rafiou Adamou³, Sofie M. Edslev⁴, Anita Hansen⁵, Ibrahim Sadissou³, Erasmé Gbaguidi³, Jacqueline Milet¹, Gilles Cottrell¹, Laure Gineau¹, Audrey Sabbagh⁶, Achille Massougboji⁷, Kabirou Moutairou², Eduardo A. Donadi⁸, Edgardo D. Carosella⁹, Philippe Moreau⁹, Edmond J. Remarque¹⁰, Michael Theisen¹¹, Nathalie Rouas-Freiss⁹, Andre Garcia¹, Benoit Favie¹², David Courtin¹

¹UMR261 - MERIT - Institut de Recherche pour le Développement (IRD), Paris, France, ²Faculté des Sciences et Techniques (FAST), Cotonou, Benin, ³UMR261 - MERIT - Centre d'Étude et de Recherche sur le Paludisme Associé à la Grossesse et l'Enfance (CERPAGE), Cotonou, Benin, ⁴Department of Bacteria, Parasites, and Fungi - Staten Serum Institute, Copenhagen, Denmark, ⁵Staten Serum Institute, Copenhagen, Denmark, ⁶UMR261 - MERIT - Université de Paris, Paris, France, ⁷Centre d'Étude et de Recherche sur le Paludisme Associé à la Grossesse et l'Enfance (CERPAGE), Cotonou, Benin, ⁸Division of Clinical Immunology, Department of Medicine, School of Medicine of Ribeirão Preto, University of São Paulo, Ribeirão Preto, Brazil, ⁹Commissariat à l'Énergie Atomique Et Aux Énergies Alternatives (CEA), Direction de La Recherche Fondamentale (DRF), Service de Recherche en Hématologie-Immunologie (SRHI), Paris, France, ¹⁰Department of Parasitology - Biomedical Primate Research Centre, Rijswijk, Netherlands, ¹¹Department for Congenital Disorders, Statens Serum Institut, Copenhagen, Denmark, ¹²U1184 - IDMIT Department - Commissariat à l'Énergie Atomique Et Aux Énergies Alternatives (CEA), Direction de La Recherche Fondamentale (DRF), Fontenay-aux-Roses, France

1611

CD8⁺ T CELLS: A PARADIGM SHIFT IN TREATING CEREBRAL MALARIA?

Brittany A. Riggle, Louis H. Miller, Susan K. Pierce
National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD, United States

(ACMCIP Abstract)

1612

CD163 GENE EXPRESSION AND SOLUBLE CD163 LEVELS INCREASE IN MALARIA INFECTED PREGNANT WOMEN

Bartholomew N. Ondigo¹, Ian N. Moore², Sundar Ganesan³, Kevin W. Bock², Paul S. Blank⁴, Almahamoudou Mahamar⁵, Oumar Attaher⁵, Bacary S. Diarra⁵, Youssoufa Sidibe⁵, Jillian Neal⁶, Alassane Dicko⁵, Patrick E. Duffy⁶, Michal Fried⁶

¹Department of Biochemistry and Molecular Biology, Egerton University - Kenya, ²Laboratory of Malaria Immunology and Vaccinology, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States, ³Comparative Medicine Branch, Infectious Disease Pathogenesis Section, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD, United States, ⁴Research Technologies Branch, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States, ⁵Section on Integrative Biophysics, Division of Basic and Translational Biophysics, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD, United States, ⁶Malaria Research & Training Center, Faculty of Medicine, Pharmacy and Dentistry, University of Sciences Techniques and Technologies of Bamako, Bamako, Mali, ⁷Laboratory of Malaria Immunology and Vaccinology, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, United States

(ACMCIP Abstract)

1613

REPEATED CONTROLLED HUMAN MALARIA INFECTION IN AFRICAN ADULTS TO DISSECT NATURALLY-ACQUIRED IMMUNITY

Matthew B. McCall¹, F. Jeannot Zinsou¹, B. Roméo Adégbité¹, Rafiou Adamou¹, Hutch H. Nzenguele¹, Paulin N. Essone¹, Yonas Abebe², B. Kim Lee Sim², Bertrand Lell¹, Séliidji T. Agnandji¹, L.W. Preston Church², Thomas L. Richie², Ayola A. Adegnika¹, Stephen L. Hoffman², Peter G. Kremsner³, Benjamin Mordmüller³

¹Centre de Recherches Médicales de Lambaréné (CERMEL), Lambaréné, Gabon, ²Sanaria Inc., Rockville, MD, United States, ³Institut für Tropenmedizin (ITM), Tübingen, Germany

Scientific Session 161**Schistosomiasis and Other Trematodes: Diagnosis and Treatment**

Meeting Room 15

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Pytsje Hoekstra
Leiden University Medical Center, Leiden, Netherlands

Emily McDonald
Rhode Island Hospital, Providence, RI, United States

1614

SINGLE AND REPEATED PRAZIQUANTEL TREATMENTS SIGNIFICANTLY REDUCE *SCHISTOMA* INFECTION INTENSITY BUT SHOW A POOR CURE RATE AS DEMONSTRATED BY URINE CIRCULATING ANODIC ANTIGEN DIAGNOSTICS: RESULTS FROM THE REPST TRIAL

Pytsje T. Hoekstra¹, Miriam Casacuberta-Partal¹, Rufin K. Assaré², Kigbafori D. Silué², Roula Tsonaka³, Evelien van Kaathoven¹, Claudia J. de Dood⁴, Paul L. Corstjens⁴, Stefanie Knopp⁵, Juerg Utzinger⁵, Jean T. Coulbaly², Lisette van Lieshout¹, Govert J. van Dam¹

¹Department of Parasitology, Leiden University Medical Center, Leiden, Netherlands, ²Centre Suisse de Recherches Scientifiques en Côte d'Ivoire, Abidjan, Côte D'Ivoire, ³Department of Biomedical Data Sciences, Leiden University Medical Center, Leiden, Netherlands, ⁴Department of Cell and Chemical Biology, Leiden University Medical Center, Leiden, Netherlands, ⁵Swiss Tropical and Public Health Institute, Basel, Switzerland

1616

COMPARISON OF POC-CCA WITH KATO-KATZ IN DIAGNOSING *SCHISTOSOMIASIS MANSONI* INFECTION IN A PEDIATRIC L-PRAZIQUANTEL CLINICAL TRIAL

Xiaoyan Yin¹, Brooke Hayward¹, Wilhelmina Bagchus², Oezkan Yalkinoglu², Deon Bezuidenhout², Elly Kourany-Lefoll²

¹EMD Serono, Billerica, MA, United States, ²Merck Healthcare KGaA, Darmstadt, Germany

1617

EVALUATION OF REPORTER PARTICLES TO DEVELOP A POINT-OF-CARE LATERAL FLOW ASSAY TO DIAGNOSE *SCHISTOSOMA* INFECTION

Elías Kabbas-Piñango¹, Arnaud Chalin², Paul L. Corstjens³, Maxime Laroche², Milovan Stankov², Govert J. van Dam³, Jonathan M. Cooper¹, Poppy H. Lamberton¹

¹University of Glasgow, Glasgow, United Kingdom, ²NG Biotech, Guipry-Messac, France, ³Leiden University Medical Center, Leiden, Netherlands

1619

DISCOVERY AND DEVELOPMENT OF HIGHLY POTENT AND EFFICACIOUS IMIDAZOPYRAZINE DERIVATIVES FOR THE TREATMENT AND PREVENTION OF *SCHISTOSOMIASIS*

Shashank Kulkarni

EMD Serono R&D Institute, Billerica, MA, United States

1620

USE OF A TABLET-BASED SYSTEM WITH PORTABLE TRANSDUCERS TO PERFORM ABDOMINAL ULTRASOUNDS IN A FIELD INVESTIGATION OF *SCHISTOSOMIASIS*-RELATED MORBIDITY

Anne Straily¹, Alfred Malit², Dollycate Wanja Njagi², MORBID Ultrasound Team Kenya –³, Emmy Awino Kavere², Ryan E. Wiegand¹, Susan P. Montgomery¹, Alie Eleveld², Alex Mwaki², William E. Secor¹, Maurice R. Odiere⁴

¹Centers for Disease Control and Prevention (CDC), Atlanta, GA, United States, ²Safe Water and AIDS Project, Kisumu, Kenya, ³–, Kisumu, Kenya, ⁴Safe Water and AIDS Project, Kenya Medical Research Institute, Kisumu, Kenya

409

DIAGNOSIS OF *SCHISTOSOMA MANSONI* INFECTIONS IN ASYMPTOMATIC ERITREAN MIGRANTS BY STOOL PCR AND THE DETECTION OF CIRCULATING ANODIC ANTIGEN (CAA) IN URINE AND SERUM

Pytsje Hoekstra¹, Afona Chernet², Claudia J. de Dood³, Eric A. Brien⁴, Paul L. Corstjens³, Beatrice Nickel², Linda J. Wammes⁵, Govert J. van Dam⁴, Andreas Neumayr⁵, Lisette van Lieshout⁴

¹Leiden University Medical Center, Leiden, Netherlands, ²Swiss Tropical and Public Health Institute, Basel, Switzerland, ³Department of Cell and Chemical Biology, Leiden University Medical Center, Leiden, Netherlands, ⁴Department of Parasitology, Leiden University Medical Center, Leiden, Netherlands, ⁵Department of Medical Microbiology, Leiden University Medical Center, Leiden, Netherlands, ⁶Swiss Tropical and Public Health Institute, b, Switzerland

Scientific Session 162

Water, Sanitation, Hygiene and Environmental Health (WaSH-E): Water Access, Quality and Treatment

Meeting Room 16

Thursday, November 19

3 p.m. - 4:45 p.m. U.S. Eastern Time Zone

CHAIR

Emily Bailey

Texas Tech University Health Sciences Center, Lubbock, TX, United States

Amy Pickering

Tufts University, Medford, MA, United States

1621

EFFECT OF DRINKING WATER CHLORINATION ON FECAL CARRIAGE OF CULTURABLE ANTIMICROBIAL RESISTANT BACTERIA IN BANGLADESHI CHILDREN: RESULTS FROM A RANDOMIZED CONTROLLED TRIAL

Maria Camila Montealegre¹, Esther E. Greenwood¹, Lisa Teichmann¹, Maya L. Nadimpalli², Lea Caduff¹, Jenna Swarthout², Tabea Nydegger¹, Mohammad A. Islam³, Val F. Lanza⁴, Stephen P. Luby⁵, Amy J. Pickering², Timothy R. Julian¹

¹Eawag, Dübendorf, Switzerland, ²Tufts University, Medford, MA, United States, ³Washington State University, Pullman, WA, United States, ⁴Hospital Universitario Ramón y Cajal, Madrid, Spain, ⁵Stanford University, Stanford, CA, United States

1622

IMPACT OF DRINKING WATER CHLORINATION ON CHILDREN'S GUT MICROBIOMES IN DHAKA, BANGLADESH

Maya L. Nadimpalli¹, Val F. Lanza², Maria Camila Montealegre³, Lisa Teichmann³, Lea Caduff³, Jenna Swarthout¹, Sonia Sultana⁴, Mohammad Aminul Islam⁵, Stephen P. Luby⁶, Timothy R. Julian³, Amy J. Pickering¹

¹Tufts University, Medford, MA, United States, ²Hospital Universitario Ramón y Cajal, Madrid, Spain, ³Eawag, Dübendorf, Switzerland, ⁴International Centre for Diarrhoeal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh, ⁵Washington State University, Pullman, WA, United States, ⁶Stanford University, Stanford, CA, United States

1623

IDENTIFICATION OF MULTI-DRUG RESISTANT BACTERIA IN PRIMARY DRINKING WATER SOURCES IN SOUTHWEST COASTAL BANGLADESH

Sarker Masud Parvez¹, Davidson H. Hamer², Jean M. van Seventer³, Mohammad Aminul Islam⁴, Mohammad Badrul Amin¹, Nafisa Halim⁵, Jeffrey K. Griffiths⁶, Tremearne Hotz⁵, Mahbubur Rahman¹

¹International Centre for Diarrhoeal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh, ²Section of Infectious Diseases, Department of Medicine, Boston University School of Medicine, Boston, MA, United States, ³Department of Environmental Health, Boston University School of Public Health, Boston, MA, United States, ⁴Paul G. Allen School for Global Animal Health, Washington State University, Pullman, WA, United States, ⁵Department of Global Health, Boston University School of Public Health, Boston, MA, United States, ⁶Department of Public Health & Community Medicine, Tufts University, Boston, MA, United States

1624

ANALYSIS OF HOUSEHOLD ANTIBIOTIC USE AND MULTIDRUG RESISTANT BACTERIAL CONTAMINATION OF DRINKING WATER PONDS IN SOUTHWEST COASTAL BANGLADESH

Jean Maguire van Seventer¹, Tremearne Hotz¹, Sarker M. Parvez², Emily E. van Seventer¹, Mohammad A. Islam³, Mohammed B. Amin², Nafisa Halim¹, Jeffrey K. Griffiths⁴, Davidson H. Hamer¹, Mahbubur Rahman²

¹Boston University School of Public Health, Boston, MA, United States, ²International Centre for Diarrhoeal Disease Research, Bangladesh (icddr), Dhaka, Bangladesh, ³Paul G. Allen School for Global Animal Health, Washington State University, Washington, MA, United States, ⁴Tufts University School of Medicine, Boston, MA, United States

1625**THE ASSOCIATION BETWEEN CLIMATE AND SAFE DRINKING WATER USE: A MULTI-COUNTRY ANALYSIS**Andrea Geri Buchwald¹, Anna Roose², Kristopher B. Karnauskas¹, Karen L. Kotloff², Elizabeth J. Carlton¹¹Colorado School of Public Health, Aurora, CO, United States, ²Center for Vaccine Development and Global Health, Baltimore, MD, United States**1626****KEEPING WATER SAFE IN HUMANITARIAN CRISES: AN EXPLORATORY STUDY ON FACTORS INFLUENCING CHLORINE DECAY IN REFUGEE CAMPS IN SOUTH SUDAN, JORDAN, AND RWANDA**

Syed Imran Ali

Dahdaleh Institute for Global Health Research, York University, Toronto, ON, Canada

1627**FEASIBILITY, ACCEPTABILITY AND SCALABILITY OF THE IMPLEMENTATION OF AN INTEGRATED WASH, NUTRITION, PREVENTION OF LEAD CONTAMINATION, AND CHILD STIMULATION THROUGH THE GOVERNMENT HEALTH SYSTEM IN BANGLADESH**Farzana Yeasmin¹, Mahbubur Rahman¹, Tania Jahir¹, Fahmida Akter¹, Mohammad Ruhul Amin¹, Jyoti Bhushan Das¹, Stephen P Luby², Peter J Winch³¹International Centre for Diarrhoeal Diseases Research (icddr), Dhaka, Bangladesh, ²Stanford University, California, CA, United States, ³Johns Hopkins University, Baltimore, MD, United States**Break**

Thursday, November 19

4:45 p.m. - 5 p.m. U.S. Eastern Time Zone

Symposium 163**Responding to the Challenge of Vector Borne Diseases in the Context of Urban Expansion**

Meeting Room 1

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

According to the United Nations, 68% of the world's population will live in urban areas by 2050. As much as 90% of this urban growth is expected to be in the African and Asian continents, meaning an increase of around 2.5 billion people. Urban sprawl, the unrestricted growth of housing, roads and commercial development with little or no urban planning, poses not only numerous negative environmental challenges but also raises the spectre of emerging health threats. New megacities can be the perfect environment for vector borne diseases to develop and spread, and in fact, many vectors that used to cause traditional rural infections are adapting to the urban environment, creating new challenges for both the local and the global community. This symposium will bring together a wide range of actors to discuss the challenges posed by urban expansion and how they interfere with vector borne diseases, with a focus on malaria. An overview of the differences between rural and urban malaria and the challenges this poses will be the starting point of a presentation on the impact that urbanization may have on malaria, the different ways in which we can approach housing modifications in the context of increasing urbanization, the concept of microstratification in urban areas and the research priorities and

needs to adapt interventions to the urban context. These will lead to a final discussion around how to respond to the challenge of vector borne diseases in the context of urban expansion.

CHAIR

Regina Rabinovich

MESA Alliance, Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain

Lee Hall

National Institute of Allergy and Infectious Diseases, Bethesda, MD, United States

5 p.m.**THE POTENTIAL IMPACT OF URBANIZATION ON MALARIA PROGRAMS IN AFRICA**

Peter W. Gething

Curtin University, Perth, Australia

5:20 p.m.**IMPROVING HOUSING AND THE BUILT ENVIRONMENT FOR VECTOR CONTROL IN AFRICA**

Lucy Tusting

London School of Hygiene and Tropical Medicine, London, United Kingdom

5:40 p.m.**THE FUTURE OF URBAN MALARIA CONTROL - EARLY THOUGHTS**

Abdisalan M. Noor

Global Malaria Program, World Health Organization, Geneva, Switzerland

Symposium 164**Integrating Functional, Population Genomic and Transcriptomic Data to Decipher Antimalarial Drug Resistance and Guide Drug Discovery**

Meeting Room 2

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

Resistance to antimalarial drugs, and in particular to the artemisinin derivatives and their partner drugs, threatens recent progress toward regional malaria elimination and eventual global malaria eradication. The advent of technologies allowing genome-wide sequencing and genotyping at epidemiological scales has facilitated the use of population genomics and transcriptomics to identify regions of the parasite genome or gene expression patterns associated with both clinical and in vitro drug resistance phenotypes. Indeed, over the past decade, such studies have aided in identification of molecular markers of resistance and the genetic architecture of resistant parasites and have provided insights into the underlying mechanisms of resistance. While these studies have identified multiple genomic regions and differentially expressed genes associated with resistance phenotypes, the function and biological relevance of these genes has not always been clear. Recent advances in forward-genetic approaches are providing insight into the function of many *Plasmodium* genes as it relates to several phenotypes, including drug resistance. Some of these genes may be involved in the drug-resistance mechanisms themselves or may contribute to improved parasite fitness, allowing the parasite to overcome fitness costs stemming from resistance mutations. In this symposium, we will integrate findings from previous population genomic and transcriptomic studies with recent genome-scale experimental genetics screens in an effort to

further characterize genes associated with artemisinin resistance and to explore how this knowledge can inform rational drug discovery. The first speaker will present a synthesis of population genomic studies of resistance to artemisinin derivatives and/or their partner drugs, with a focus on genomic regions identified in multiple studies for which a favored mutation/gene has not been identified. The second speaker will discuss population-level transcriptomic and expression quantitative trait loci (eQTL) analyses in the context of a transition from a soft to a hard sweep of artemisinin resistance in the eastern Greater Mekong Subregion. The third speaker will discuss how recent functional studies have revealed the relationship between clinical drug resistance and ancient plant-like survival mechanisms co-opted from the apicoplast's algal progenitor and how these observations corroborate previous population-level studies. The final speaker will discuss how findings from genomic, transcriptomic, and functional studies can be leveraged to identify drug resistance pathways, select new drug targets, and guide the discovery and development of novel antimalarial drugs to counter resistance.

CHAIR

Shannon Takala Harrison
University of Maryland School of Medicine, Baltimore, MD, United States

John H. Adams
University of South Florida, Tampa, FL, United States

5 p.m.

SYNTHESIS OF POPULATION GENOMIC STUDIES OF RESISTANCE TO ARTEMISININ DERIVATIVES AND THEIR PARTNER DRUGS

Shannon Takala Harrison
University of Maryland School of Medicine, Baltimore, MD, United States

5:25 p.m.

***P. FALCIPARUM* POPULATION TRANSCRIPTOMICS IN THE CONTEXT OF EVOLVING MULTIDRUG RESISTANCE IN THE GREATER MEKONG SUBREGION**

Zbynek Bozdech
Nanyang Technological University, Singapore, Singapore

5:50 p.m.

ARTEMISININ RESISTANCE IS ENABLED BY PLASTID-DERIVED SURVIVAL MECHANISMS

Jenna Oberstaller
University of South Florida, Tampa, FL, United States

6:15 p.m.

RATIONAL DISCOVERY OF NEW ANTIMALARIALS TO REVERSE RESISTANCE

Stanley C. Xie
University of Melbourne, Melbourne, Australia

Symposium 166

Current Knowledge of Mosquito-Stage Malaria Parasite Biology: Implications for Developing a Robust *in vitro* Culturing System

Meeting Room 5

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

The *in vitro* culturing of mosquito-stage malaria parasites has been

demonstrated by several laboratories. Their work encompasses the progression from gametes to infective sporozoites while documenting the conditions and factors required for success, but further research is needed to establish a more robust and potentially high-throughput *in vitro* culture system. With such a system in hand, fundamental aspects of parasite biology would be more amenable to the innovative tools currently being used to interrogate other stages of the malaria parasite life cycle. Additionally, much like liver-stage development, the mosquito-stage represents a bottleneck where relatively few oocysts develop to form many thousands of sporozoites. In the context of malaria elimination, the ability to target the parasite within the mosquito in order to block transmission is an attractive proposition. The symposium aims to provide current knowledge of parasite strategies and biological requirements within the vector, from gametes in the bloodmeal to transmission of mature sporozoites.

CHAIR

Adriana Costero-Saint Denis
National Institutes of Health, Rockville, MD, United States
Flaminia Catteruccia
Harvard School of Public Health, Boston, MA, United States

5 p.m.

HOST FACTORS IN THE BLOODMEAL AS REGULATORS OF VECTOR-PARASITE INTERACTIONS AND TRANSMISSION IN MALARIA

Shirley Luckhart
University of Idaho, Moscow, ID, United States

5:20 p.m.

OOKINETE-TO-OOCYST TRANSITION: A MOST VALUABLE TARGET

Marcelo Jacobs-Lorena
Johns Hopkins School of Public Health, Baltimore, MD, United States

5:40 p.m.

TAKE IT AND MAKE IT: OOCYST DEVELOPMENT REQUIRES NUTRIENT UPTAKE AND DE NOVO BIOSYNTHESIS

Ashley M. Vaughan
Seattle Children's Research Institute, Seattle, WA, United States

6 p.m.

SPOROZOITES: MOVING FROM MOSQUITO TO MAMMALIAN HOST

Photini Sinnis
Johns Hopkins University, Baltimore, MD, United States

Symposium 167

Tracking the Threat of pfhrp2/3 Gene Deletions and Future Alternatives to HRP2-Based Malaria Diagnosis

Meeting Room 6

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

The symposium begins with tracking the global distribution and prevalence of pfhrp2/3 gene deletions. Pfhrp2/3 deletions are being reported from a growing number of countries. Immediate scale-up in surveillance efforts is needed to support policy decision-making. This presentation will summarize the current

status of pfhrp2/3 deletions globally, trends after replacement with non-HRP2 RDTs, and anticipated trends with continued HRP2 RDT use. The second speaker will discuss high throughput screening for malaria antigen in human blood – experiences from multiple countries. Laboratory assays have recently been developed to allow for the multiplex detection of malaria antigens in human biospecimens. With the optimization of this assay for blood dried on filter paper, the large-scale and economical collection of specimens and antigen data from a population allows for a comprehensive picture of antigen carriage in the populace. Persons positive for pan-Plasmodium antigens, but negative for the HRP2 and HRP3 antigens can be further interrogated by molecular assays to determine the presence of non-falciparum malaria or *P. falciparum* not producing the HRP2 and HRP3 antigens. The third speaker will discuss the evolving approach to pfhrp2/3 deletion characterization. Surveillance for pfhrp2/3-deleted parasites is challenging due to the difficulty of proving the absence of genes using PCR. Newly developed molecular assays and next-generation sequencing approaches provide opportunities to overcome these difficulties, streamline laboratory workflows, and gain new insights into the biology of these parasites. A novel deep sequencing approach that enables high-resolution mapping of deletion regions using field samples and other advances in molecular methods for pfhrp2/3 deletion surveillance will be discussed. The last speaker will discuss promising alternatives to HRP2 based rapid tests – options, performance and affordability. Improved diagnostic tools are needed for the diagnosis of falciparum malaria. Recently, Global Good / Intellectual Ventures and Access Bio Incorporated have created prototype lactate dehydrogenase (LDH) tests for *P. falciparum* and *P. vivax* with the intent to create two new products: a *P. falciparum* single-line lateral flow assay and a *P. falciparum* / *P. vivax* LDH combination test. A diagnostic accuracy trial is underway at Universidad Peruana Cayetano Heredia in Peru. Initial performance of these prototypes and their applicability in field settings affected by pfhrp2/3 deletions will be discussed.

CHAIR

Qin Cheng

Australian Defence Force Malaria and Infectious Disease Institute, Brisbane, Australia

Jonathan B. Parr

University of North Carolina, Chapel Hill, NC, United States

5 p.m.

TRACKING THE GLOBAL DISTRIBUTION AND PREVALENCE OF PFHRP2/3 GENE DELETIONS

Jane A. Cunningham

World Health Organization, Geneva, Switzerland

5:25 p.m.

HIGH THROUGHPUT SCREENING FOR MALARIA ANTIGEN IN HUMAN BLOOD – EXPERIENCES FROM MULTIPLE COUNTRIES

Eric Rogier

Centers for Disease Control and Prevention, Berkeley Lake, GA, United States

5:50 p.m.

THE EVOLVING APPROACH TO PFHRP2/3 DELETION CHARACTERIZATION

Jonathan B. Parr

University of North Carolina, Chapel Hill, NC, United States

6:15 p.m.

PROMISING ALTERNATIVES TO HRP2 BASED RAPID TESTS – OPTIONS, PERFORMANCE AND AFFORDABILITY

Dionicia Gamboa

Universidad Peruana Cayetano Heredia, Lima, Peru

Scientific Session 168

Malaria: Developing and Evaluating LLINs

Meeting Room 7

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

CHAIR

Corine A. Ngufor

London School of Hygiene and Tropical Medicine, London, United Kingdom

Joseph D. Challenger

Imperial College London, London, United Kingdom

1628

DECREASED BIOEFFICACY OF LONG-LASTING INSECTICIDAL NETS AND THE RESURGENCE OF MALARIA IN PAPUA NEW GUINEA

Rebecca J. Vinit¹, Lincoln Timinao¹, Nakei Bubun¹, Michelle Katusele¹, Leanne J. Robinson², Peter Kaman¹, Muker Sakur¹, Leo S. Makita³, Lisa Reimer⁴, Louis D. Schofield⁵, Ivo Mueller⁶, William Pomat¹, Moses Laman¹, Tim Freeman⁷, **Stephan Karl⁵**

¹Papua New Guinea Institute of Medical Research, Madang, Papua New Guinea, ²Burnet Institute, Melbourne, Australia, ³Papua New Guinea National Department of Health, Port Moresby, Papua New Guinea, ⁴Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ⁵Australian Institute of Tropical Health and Medicine, James Cook University, Cairns, Australia, ⁶Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia, ⁷Rotarians Against Malaria Papua New Guinea, Port Moresby, Papua New Guinea

1629

SLIPPING THROUGH THE NET: RELATIVE IMPACTS OF OWNERSHIP, RETENTION, AND USE ON INSECTICIDE-TREATED NET COVERAGE IN SUB-SAHARAN AFRICA

Amelia Bertozzi-Villa¹, Peter W. Gething², Caitlin Bever¹, Samir Bhatt³

¹Institute for Disease Modeling, Bellevue, WA, United States, ²Telethon Kids Institute, Perth, Australia, ³Imperial College, London, United Kingdom

1630

EFFICACY OF TWO NEXT GENERATION LONG-LASTING MOSQUITO BED NETS (INTERCEPTOR® G2 AND ROYAL GUARD®) AGAINST PYRETHROID RESISTANT MALARIA VECTORS IN SOUTHERN BENIN; AN EXPERIMENTAL HUT EVALUATION

Corine A. Ngufor

London School of Hygiene and Tropical Medicine, London, United Kingdom

1631

ASSESSING THE NON-INFERIORITY OF NOVEL INSECTICIDE-TREATED NETS IN EXPERIMENTAL HUT TRIALS

Joseph D. Challenger¹, Rebecca K. Nash¹, Mark Rowland², Corine Ngufor², Raphael N'Guessan³, Antoine Sanou⁴, Fatoumata Cissé⁴, Richard M. Oxborough⁵, Sarah J. Moore⁵, Thomas S. Churcher¹

¹Imperial College London, London, United Kingdom, ²London School of Hygiene and Tropical Medicine, London, United Kingdom, ³Institut Pierre Richet, Bouaké, Côte D'Ivoire, ⁴Centre National de Recherche et de Formation sur le Paludisme, Ouagadougou, Burkina Faso, ⁵PMI-VectorLink Project, Rockville, MD, United States, ⁶Ifakara Health Institute, Bagamoyo, United Republic of Tanzania

1632

BEHAVIORAL BIOASSAYS TO IMPROVE BEDNET EVALUATION IN THE LABORATORY AND FIELD

Geraldine M. Foster¹, Agnes Matope¹, Amy Guy¹, Mischa Emery¹, Keith Steen¹, Katherine Gleave¹, Jeff Jones¹, David T. Towers², Hilary Ranson¹, Philip J. McCall¹
¹Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ²University of Warwick, Warwick, United Kingdom

1633

COMMUNITY PERCEPTION OF THE USE OF NEXT-GENERATION INSECTICIDE-TREATED BEDNETS IN RURAL AREAS IN THE HEALTH DISTRICTS OF BANFORA, ORODARA AND GAOUA IN BURKINA FASO: BASELINE DATA

Moubassira Kagone¹, Abdoulaye Traore¹, Federica Guglielmo², Adama Traore¹, Samuel Poda¹, Aboubacar Fofana¹, Kenzie Tynuv³, Moussa Guelbeogo¹, N'Fale Sagnon¹, Christelle Gogue³, Adama Gansané¹, Molly Robertson³
¹Centre National de Recherche et de Formation sur le Paludisme, Ouagadougou, Burkina Faso, ²Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ³PATH, Washington, DC, United States

1634

A PILOT STUDY TO EVALUATE THE EFFECT OF NEXT-GENERATION INSECTICIDE-TREATED BEDNETS ON MALARIA MORBIDITY IN THREE HEALTH DISTRICTS IN BURKINA FASO: PRELIMINARY RESULTS OF THE BASELINE CROSS-SECTIONAL SURVEY

David Kangoye¹, Christelle Gogue², Siaka Debe¹, René Kinda¹, Adama Ganou¹, Casimir Tarama¹, Harouna Sore¹, Cheick S. Compaore³, N'Fale Sagnon¹, Moussa Guelbeogo¹, Molly Robertson², Adama Gansané¹
¹Centre National de Recherche et de Formation sur le Paludisme, Ouagadougou, Burkina Faso, ²PATH, Washington, DC, United States, ³Programme National de Lutte contre le Paludisme, Ouagadougou, Burkina Faso

Scientific Session 169

Malaria: New Approaches to Improve the Diagnosis of Malaria

Meeting Room 8

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

CHAIR

Susanta K. Ghosh
National Institute of Malaria Research, Bangalore, India

Seda Yerlikaya
FIND, Geneva, Switzerland

1635

MULTI-CENTRIC FIELD EVALUATION OF A DIGITAL MALARIA MICROSCOPY DEVICE BASED ON MACHINE-LEARNING: EASYSKAN GO - A PRELIMINARY ANALYSIS

Debashish Das¹, Ranitha Vongprommek², Thanawat Assawariyathipat², Ketsanee Srinamon³, Kalynn Kennon¹, Kasia Stepniewska¹, Aniruddha Ghose⁴, Abdullah Abu Sayed⁴, Rebecca Netto⁵, Andre Siqueira⁵, Serge R Yerbanga⁶, Jean Bosco Ouédraogo⁶, James Callery³, Rupam Tripura³, Felix Koukouikila Koussounda⁷, Francine Ntouni⁷, John Michael Ongecha⁸, Bernhards Ogutu⁸, Jutta Marfurt⁹, Benedikt Ley⁹, Amadou Seck¹⁰, Magatte Ndiaye¹⁰, Laypaw Archasuksan¹¹, Stephane Proux¹¹, Sam L Nsobia¹², Philip J. Rosenthal¹³, Matthew Horning¹⁴, Shawn K McGuire¹⁴, Couroush Mehanian¹⁴, Stephen Burkot¹⁴, Christine Bachman¹⁴, Richard N. Price⁹, Arjen Dondorp¹⁵, Philippe J Guérin¹⁵, Mehul Dhorda¹⁵
¹Infectious Diseases Data Observatory (IDDO) & WorldWide Antimalarial Resistance Network (WWARN), Oxford, United Kingdom, ²Infectious Diseases Data Observatory (IDDO) & WorldWide Antimalarial Resistance Network (WWARN), Asia-Pacific Regional Centre, Bangkok, Thailand, ³Mahidol-Oxford Tropical Medicine Research Unit, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand, ⁴Chittagong Medical College Hospital (CMCH), Chittagong, Bangladesh, ⁵Oswaldo Cruz Foundation (Fiocruz), Rio de Janeiro, Brazil, ⁶Institut des Sciences et Techniques (INSTech), Bobo-Dioulasso, Burkina

Faso, ⁷Fondation Congolaise pour la Recherche Médicale (FCRM), Brazzaville, Republic of the Congo, ⁸Kenya Medical Research Institute (KEMRI), Nairobi, Kenya, ⁹Global and Tropical Health Division, Menzies School of Health Research, Charles Darwin University, Darwin, Australia, ¹⁰Faculty of Medicine, University Cheikh Anta Diop (UCAD), Dakar, Senegal, ¹¹Shoklo Malaria Research Unit, Mahidol-Oxford Tropical Medicine Research Unit, Faculty of Tropical Medicine, Mahidol University, Mae Sot, Thailand, ¹²Department of Pathology, College of Health Science, Makerere University, Kampala, Uganda, ¹³University of California, San Francisco, San Francisco, CA, United States, ¹⁴Intellectual Ventures' Global Good Fund, Bellevue, WA, United States, ¹⁵Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, United Kingdom

1636

A NEW BIOINFORMATIC PIPELINE FOR IDENTIFYING DIAGNOSTIC-RESISTANT *PLASMODIUM FALCIPARUM* WITH *HRP2/3* DELETIONS USING LONG-READ SEQUENCING TECHNOLOGY

Camille E. Morgan¹, Jonathan B. Parr², Kara A. Moser², Chris M. Hennelly², Jonathan J. Juliano², Corbin D. Jones³, Jeremy R. Wang⁴
¹Department of Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States, ²Institute for Global Health and Infectious Diseases, University of North Carolina Chapel Hill, Chapel Hill, NC, United States, ³Department of Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States, ⁴Department of Genetics, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

1637

FIGHTING MALARIA, ONE IMAGE AT A TIME: THE DESIGN AND PRELIMINARY VALIDATION OF A LOW-COST FIELD TOOL FOR THE RAPID AND ACCURATE MORPHOLOGICAL IDENTIFICATION OF MALARIA VECTORS

Sophia Diaz¹, Monet Slinowsky¹, Kiley Gersch¹, Ebenezer Armah¹, Karina Frank¹, Zachary Buono¹, Tristan Ford¹, Adam Goodwin², Margaret Glancey¹, Soumyadiptra Acharya¹
¹Johns Hopkins University, Baltimore, MD, United States, ²VecTech, LLC, Baltimore, MD, United States

1638

STRUCTURE-SWITCHING APTAMER SENSORS FOR THE SPECIFIC DETECTION OF PIPERAQUINE AND MEFLOQUINE

Erin S. Coonahan¹, Kyung-Ae Yang², Maarten De Vos³, Stevan Pecic⁴, Joel Tarning⁵, Thomas E. Wellems¹, John F. Andersen¹, Carole A. Long¹
¹Laboratory of Malaria and Vector Research, NIAID, NIH, Rockville, MD, United States, ²Department of Medicine, Columbia University, New York, NY, United States, ³Institute of Biomedical Engineering, University of Oxford, Oxford, United Kingdom, ⁴Department of Chemistry and Biochemistry, California State University Fullerton, Fullerton, CA, United States, ⁵Clinical Pharmacology, Mahidol Oxford Tropical Medicine Research Unit, Bangkok, Thailand

1640

DEVELOPMENT OF THE 1ST WORLD HEALTH ORGANIZATION INTERNATIONAL STANDARD FOR *PLASMODIUM VIVAX* ANTIGENS

Charles Olomu¹, Lynne M. Harris¹, **Seda Yerlikaya**², Peter Rigsby¹, Eleanor Atkinson¹, Adéla Nacer¹, Xavier Ding², Paul W. Bowyer¹, the Collaborative Study Group²
¹National Institute for Biological Standards and Control (NIBSC), Blanche Lane, South Mimms, Hertfordshire, United Kingdom, ²FIND, Geneva, Switzerland

1641

DEVELOPING A SEROLOGICAL RAPID TEST FOR AN UNMET DIAGNOSTIC NICHE: THE *PLASMODIUM VIVAX* HYPNOZOITE

Rosalind E. Howes¹, Anya Gregg², Matthias Harbers³, Andrew Lover⁴, Agatha Mia Puspitasari⁵, Rintis Noviyanti⁵, Jutta Marfurt⁶, Ric Price⁶, Sabine Dittrich¹, Marta Fernandez Suarez¹, Xavier C. Ding¹
¹Foundation for Innovative New Diagnostics (FIND), Geneva, Switzerland, ²Mologic, Bedford Technology Park, United Kingdom, ³CellFree Sciences Co. Ltd., Yokohama, Japan, ⁴Dept of Biostatistics and Epidemiology, School of Public Health and Health Sciences, University of Massachusetts- Amherst, Amherst, MA, United States, ⁵Eijkman Institute for Molecular Biology, Jakarta, Indonesia, ⁶Menzies School of Health Research, Darwin, Australia¹⁴⁰⁴

Scientific Session 170

Integrated Control Measures for Neglected Tropical Diseases

Meeting Room 9

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

CHAIR

Malwina Carrion

Boston University College of Health and Rehabilitation Sciences: Sargent College, Boston, MA, United States

Michael French

RTI International, Washington D.C., DC, United States

1642

REASONS FOR INSUFFICIENT PREVENTIVE CHEMOTHERAPY COVERAGE FOR NEGLECTED TROPICAL DISEASES, A MULTI-COUNTRY ANALYSIS

Sabrina Eyob¹, Alexander H. Jones¹, Margaret Baker¹, Alfred Mubangizi²

¹RTI International, Washington, DC, United States, ²Vector Control Division, Ministry of Health, Kampala, Uganda

1643

USING PARTICIPATORY METHODS TO IMPROVE NTDS PROGRAMME OUTCOMES IN NIGERIA AND TO INFORM INTERVENTION DESIGN

Martins Imhansoloeva¹, Laura Dean², Ruth Dixon³, Margo Greenwood³, Shahreen Chowdhury², Catherine Kajang¹, Celestine Njoku⁴, Sunday Isiyaku¹

¹Sightsavers Nigeria, Abuja, Nigeria, ²Liverpool School of Tropical Medicine, Liverpool, United Kingdom, ³Sightsavers UK, Haywards Heath, United Kingdom, ⁴Federal Ministry of Health, Abuja, Nigeria

1644

BROKERED DESIGN: A NOVEL METHOD FOR DESIGNING (AND RE-DESIGNING) NTD ELIMINATION PROGRAMS

Lee T. Wilkers¹, Luccene Desir², Gregory S. Noland², James V. Lavery¹

¹Rollins School of Public Health, Emory University, Atlanta, GA, United States, ²The Carter Center, Atlanta, GA, United States

1645

INFORMATION SHARING AND SUPPLY CHAIN PERFORMANCE: EVIDENCE FROM THE NEGLECTED TROPICAL DISEASES PREVENTIVE CHEMOTHERAPY SUPPLY CHAIN

Elena Kasparis¹, Yufei Huang², William Lin¹, Christos Vasilakis¹

¹University of Bath, Bath, United Kingdom, ²Trinity College Dublin, Dublin, Ireland

1646

EFFORTS TOWARDS STRENGTHENING THE INTEGRATION OF SUPPLY CHAIN OF NEGLECTED TROPICAL DISEASE MEDICINES INTO THE ELECTRONIC LOGISTICS MANAGEMENT INFORMATION SYSTEM IN TANZANIA

Frank Komakoma¹, Upendo Mwingira², Jeremiah Ngondi², Daudi Msasi³, William Reuben³, Nabila Hemed³, Godfrey Kingalu³, Kerry Dobbies⁴, Elisabeth Wilskie⁵, Abdallah Ngenya⁶, Oscar Kaitaba⁶, George Kabona⁶

¹IMA World Health, Dar es Salaam, United Republic of Tanzania, ²RTI International, Washington, DC, United States, ³Pharmaceutical Services Unit-MoHCDGEC, Dodoma, United Republic of Tanzania, ⁴IMA World Health, Washington, DC, United States, ⁵PATH, Dar es Salaam, United Republic of Tanzania, ⁶MoHCDGEC, Dar es Salaam, United Republic of Tanzania

1647

LOCAL TIPS, GLOBAL IMPACT: COMMUNITY-DRIVEN SOLUTIONS FOR NEGLECTED TROPICAL DISEASES (NTDS) IN SUB-SAHARAN AFRICA (SSA): A CASE STUDY OF KENYA

Elizabeth Akinyi Ochola¹, Diana M. Karanja², Susan J. Elliott³

¹Kenya Medical Research Institute/ University of Waterloo, Kisumu, Kenya, ²Kenya Medical Research Institute, Kisumu, Kenya, ³University of Waterloo, Waterloo, ON, Canada

1648

MATHEMATICAL MODELING OF THE INTERRUPTION OF THE TRANSMISSION OF SOIL TRANSMITTED HELMINTHS INFECTIONS IN KENYA

Collins Okoyo¹, Graham Medley², Charles Mwandawiro¹, Nelson Owuor³

¹Kenya Medical Research Institute, Nairobi, Kenya, ²London School of Hygiene and Tropical Medicine, London, United Kingdom, ³University of Nairobi, Nairobi, Kenya

Scientific Session 171

Malaria: Vaccines

Meeting Room 10

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

CHAIR

Urszula Krzych

Walter Reed Army Institute of Research, Silver Spring, MD, United States

Moriya Tsuji

Columbia University Medical Center, New York, NY, United States

1649

LOOKING AHEAD IN MALARIA: R21/MATRIX-M, AN EXCITING NEW VACCINE CANDIDATE

Mehreen S. Datto¹, Meera Madhavan¹, Duncan Bellamy¹, Megan Baker¹, Fernando Ramos-Lopez¹, Amy Flaxman¹, Nick J. Edwards¹, Daniel Jenkin¹, Hazel Morrison¹, Rebecca Makinson¹, Jeremy Aboagye¹, Ian Poulton¹, Nguyen Tran¹, Alison Lawrie¹, Anna Goodman², Katrina Pollock³, Andrew Blagborough⁴, Jake Baum⁵, Saul Faust⁶, Brian Angus⁷, Umesh Shaligram⁸, Katie J. Ewer¹, Adrian V. Hill¹

¹Jenner Institute, University of Oxford, Oxford, United Kingdom, ²Department of Infectious Diseases, Guy's & St Thomas' NHS Foundation, London, United Kingdom, ³NIHR Imperial Clinical Research Facility, Imperial College, London, United Kingdom, ⁴University of Cambridge, Cambridge, United Kingdom, ⁵Department of Life Sciences, Imperial College, London, United Kingdom, ⁶NIHR Wellcome Trust Clinical Research Facility, University of Southampton, Southampton, United Kingdom, ⁷Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom, ⁸Serum Institute of India, Pune, India

1651

GENOME, PROTEOME, AND IMMUNONE DATA EXPLAIN WHY CONTROLLED HUMAN MALARIA INFECTION WITH SPOROZOITES OF THE PF7G8 CLONE OF *PLASMODIUM FALCIPARUM* IS A RIGOROUS PREDICTOR OF THE EFFICACY OF THE PFNF54-BASED PFSPZ VACCINE IN AFRICA

Joana C. Silva¹, Ankit Dwivedi¹, Kara A. Moser¹, Mahamadou S. Sissoko², Judith E. Epstein³, Sara Healy⁴, Kirsten E. Lyke¹, Benjamin Mordmueller⁵, Tao Li⁶, Tooba Murshedkar⁶, Peter Kremsner⁵, Patrick E. Duffy⁴, Thomas Richie⁶, B. Kim Lee Sim⁶, Stephen L. Hoffman⁶

¹University of Maryland School of Medicine, Baltimore, MD, United States, ²University of Science, Techniques and Technologies of Bamako, Bamako, Mali, ³Naval Medical Research Center, Silver Spring, MD, United States, ⁴National Institutes of Health, Bethesda, MD, United States, ⁵University of Tübingen, Tübingen, Germany, ⁶Sanaria, Inc., Rockville, MD, United States

1652

A FOUR-TIERED HIGH-THROUGHPUT APPROACH IDENTIFIES TWO NOVEL TRANSMISSION BLOCKING VACCINE CANDIDATES WITH POTENT TRANSMISSION REDUCING ACTIVITY

Miranda S. Oakley¹, Nitin Verma¹, Abhai K. Tripathi², Hong Zheng¹, Edward Essuman¹, Ankit Puri¹, Richard A. Skelton¹, Scott Meredith¹, Kazuyo Takeda¹, Victoria Majam¹, Godfree Mlambo², Kazutoyo Miura³, Carole A. Long³, Sanjai Kumar¹
¹FDA, Silver Spring, MD, United States, ²Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, ³NIAID, Rockville, MD, United States

(ACMCIP Abstract)

1653

STRUCTURAL DELINEATION OF NEUTRALIZING EPITOPE ON MALARIA ANTIGEN PFS230D1

Wai Kwan Tang¹, Camila H. Coelho¹, Martin Burkhardt¹, Olga Muratova¹, Nichole D. Salinas¹, Reiter Karine¹, MacDonald J. Nicholas¹, Nguyen Vu¹, Herrera Raul¹, Richard Shimp¹, David L. Narum¹, Jacob D. Galson², Thiago Luiz Alves E Silva¹, Miranda Byrne-Steele³, Wenjing Pan³, Xiaohong Hou³, Brittany Brown³, Mary Eisenhower³, Jian Han³, Joel Vega-Rodriguez¹, Johannes Truck⁴, Justin J. Taylor⁵, Issaka Sagara⁶, Jonathan P. Renn¹, Duffy E. Patrick¹, Niraj H. Tolia¹
¹National Institutes of Health, Bethesda, MD, United States, ²University children's hospital, Zurich, Switzerland, ³iRepertoire Inc, Huntsville, AL, United States, ⁴University of Zurich, Zurich, Switzerland, ⁵Fred Hutchinson Cancer Research Center, Seattle, WA, United States, ⁶University of Sciences, Bamako, Mali

1654

STRUCTURAL BASIS FOR PLACENTAL SEQUESTRATION OF P. FALCIPARUM BY VAR2CSA

Rui Ma, Tengfei Lian, Rick Huang, Jonathan P. Renn, Jennifer D. Petersen, Joshua Zimmerberg, Jiansen Jiang, Patrick E. Duffy, Niraj H. Tolia
National Institute of Health, Bethesda, MD, United States

1655

IMMUNOFOCUSING THE HUMORAL RESPONSE TO FUNCTIONAL EPITOPES OF THE ANAPN1 MALARIA TRANSMISSION-BLOCKING VACCINE ANTIGEN POTENTIATES EFFICACY

Nicole Bender¹, Prachi Khare¹, Juan Martinez², Rebecca Tweedel¹, Vincent Nyasembe¹, Abhai Tripathi³, Dustin Miller⁴, Timothy Hamerly¹, Eric Vela², Ronald Cobb², Matthias Harbers⁵, Rhoel Dinglasan¹
¹University of Florida, Gainesville, FL, United States, ²Ology Bioservices Inc, Alachua, FL, United States, ³Johns Hopkins University, Baltimore, MD, United States, ⁴Centers for Disease Control, Atlanta, GA, United States, ⁵CellFree Sciences Co., Ltd., Yokohama, Japan

Symposium 172

Arbovirus Vectors in Brazil: Recent Advances

Meeting Room 11

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

Brazil continues to be the epicenter of arboviral disease outbreaks in the Americas. While dengue has been a persistent serious disease, recent rises in chikungunya and yellow fever as well as the notorious Zika outbreak in 2014-15 demonstrate the diversity of arboviruses in Brazil and the central role this country plays in understanding arboviruses in the New World. We will discuss advances in understanding and controlling Brazilian vectors, focusing on *Aedes aegypti* and including *Aedes albopictus*.

CHAIR

Jeffrey Powell
Yale University, New Haven, CT, United States

5 p.m.

GENETICS OF INSECTICIDE RESISTANCE IN *Aedes aegypti* FROM BRAZIL

Ademir Martins
Instituto Oswaldo Cruz-FIOCRUZ, Rio de Janeiro, Brazil

5:20 p.m.

GENOME-WIDE ASSOCIATION STUDIES REVEAL LOCI ASSOCIATED WITH PYRETHROID AND DENV1 RESISTANCE IN MOSQUITOES

Luciano Cosme
Yale University, New Haven, CT, United States

5:40 p.m.

WOLBACHIA AS A TOOL FOR ARBOVIRUS CONTROL IN BRAZIL

Luciano Moreira
FioCruz Minas, Belo Horizonte, Brazil

6 p.m.

CHALLENGES FACING *Aedes* SURVEILLANCE AND CONTROL IN THE AMERICAS: HOW EXPERIENCES FROM BRAZIL CAN IMPROVE REGIONAL APPROACHES

Audrey Lenhart
CDC, Atlanta, GA, United States

Symposium 173

Frontiers in Immunologic Evaluation of Filovirus Vaccines

Meeting Room 12

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

The need for a safe and effective vaccine to filoviruses remains a global health imperative as evidenced by the two largest outbreaks of Ebola virus disease in the last decade occurring in West Africa and most recently in the Democratic Republic of Congo. The Walter Reed Army Institute of Research (WRAIR), which has executed clinical trials of three major Ebola vaccine candidates, is sponsoring a proposed symposium entitled "Frontiers in Immunologic Evaluation of Filovirus Vaccines." The symposium will highlight novel approaches to interrogating immune responses elicited by major filovirus vaccine candidates. The session will specifically provide a forum for the presentation of the latest data on the humoral, cellular, and innate immune responses to filovirus vaccines, including responses among HIV infected individuals. The focus will be on immune responses to leading filovirus vaccine candidates including those based on the rVSV, cAd3, and Ad26/MVA viral vector platforms.

CHAIR

Julie Ake
Walter Reed Army Institute of Research, Silver Spring, MD, United States
Melanie McCauley
Henry Jackson Foundation, Bethesda, MD, United States

5 p.m.

SYSTEMS SEROLOGY ANALYSIS OF HIV AND FILOVIRUS RESPONSE

Morgane Rolland
Henry M. Jackson Foundation, Bethesda, MD, United States

5:20 p.m.**THE RVSV-ZEBOV (ERVEBO) VACCINE: A DEEPER EXPLORATION OF HUMORAL, CELLULAR, AND INNATE IMMUNITY**

Kayvon Modjarrad

*Walter Reed Army Institute of Research, Silver Spring, MD, United States***5:40 p.m.****INDUCTION OF PROTECTIVE ANTIBODY RESPONSES BY CHAD3-BASED VACCINATION**

John Misasi

*National Institute of Allergy and Infectious Diseases, Bethesda, MD, United States***6 p.m.****CHARACTERISATION OF THE HUMAN B CELL RESPONSE FOLLOWING AD26-ZEBOV, MVA-BN-FILO VACCINE REGIMENS**

Elizabeth Clutterbuck

*University of Oxford, Oxford, United Kingdom***6:20 p.m.****INNATE AND ANTIBODY DEPENDENT ACTIVATION OF NATURAL KILLER CELLS AFTER HETEROLOGOUS 2 DOSE AD26.ZEBOV/ MVA-BN-FILO VACCINE**

Martin Goodier

London School of Hygiene and Tropical Medicine, London, United Kingdom

Symposium 174

Building Out Vector-borne Diseases in Sub-Saharan Africa

*Meeting Room 13***Thursday, November 19****5 p.m. - 6:45 p.m. U.S. Eastern Time Zone**

Over 80% of the world's population is threatened by at least one disease transmitted by insects or ticks, with 50% threatened by two or more. These diseases represent 17% of the global burden of infectious diseases and kill over 700,000 people each year, with much of the impact occurring amongst the poorest of the poor in sub-Saharan Africa. In sub-Saharan Africa, most transmission of mosquito-transmitted diseases, such as malaria or dengue, occurs within or around houses. Preventing mosquito house entry and reducing mosquito production around the home would help reduce the transmission of these diseases. Based on recent research, key recommendations are made for reducing the threat of mosquito-transmitted diseases through changes to the built environment. The mnemonic, DELIVER, recommends the following best practices: (1) Doors should be screened, self-closing and without surrounding gaps, (2) Eaves, the space between the wall and roof, should be closed or screened, (3) houses should be Lifted above the ground, (4) Insecticide-treated nets should be used when sleeping in houses at night, (5) rooms should be Ventilated, with at least two large screened windows on opposite sides of the room, (6) Environmental management should be conducted regularly inside and around the home and (7) Roofs should be solid, rather than thatch. This symposium will describe in more detail the DELIVER recommendations and the science underpinning them. The session features three novel projects using different means to build out mosquitoes: one exploring a transdisciplinary intervention to contribute to reducing mosquitoes in peri-urban areas of Jimma Town, Ethiopia through the spatial improvement of Integrated Housing Development Program housing structures and

settlements, a second tests whether a community-based recycling program can engage aspiring business people to turn trash into profit in Kwale County, Kenya and at the same time remove plastic containers, tires, and other rubbish which are potential mosquito breeding sites, the third is to design and test mosquito repellent chairs and eaves ribbons to reduce both outdoor biting and entry into houses by malaria mosquitoes in Ulanga District, Tanzania. Such changes also provide many collateral benefits including reducing the use of insecticides, helping to reduce plastic waste in our communities and building homes that are healthier and more comfortable in general. Control of mosquito-transmitted diseases through improvements to the built environment has the potential to be more sustainable than other typical vector control interventions, particularly if the community and other stakeholders are engaged in the design and implementation of solutions.

CHAIR

Fiona C. Shenton

Durham University, Durham, United Kingdom

Steve W. Lindsay

*Durham University, Durham, United Kingdom***5 p.m.****RECOMMENDATIONS FOR BUILDING OUT MOSQUITO-TRANSMITTED DISEASES IN SUB-SAHARAN AFRICA: THE DELIVER MNEMONIC**

Steve W. Lindsay

*Durham University, Durham, United Kingdom***5:25 p.m.****CREATING MOSQUITO-FREE OUTDOOR SPACES USING TRANSLUTHRIN-TREATED CHAIRS AND RIBBONS**

John Paliga Masalu

*Ifakara Health Institute, Ifakara, United Republic of Tanzania***5:50 p.m.****TRASH TO TREASURE: COLLECTING TRASH FOR PROFIT TO REDUCE VECTOR BREEDING SITES IN KWALE COUNTY, KENYA**

Desiree Labeaud

Stanford University, Stanford, CA, United States

Symposium 175

The Skin: Where the Planet and Your Body Meet

*Meeting Room 14***Thursday, November 19****5 p.m. - 6:45 p.m. U.S. Eastern Time Zone**

The skin is the organ system perhaps most vulnerable to the health consequences of climate change. These effects are best communicated in a systems-based manner, essentially the way an ecologist discusses symbiosis and biogeography. This symposium presents several paradigms to emphasize these points: how changing patterns of temperature, precipitation, seasonality, and other climate variables influence populations of pathogens, vectors, and reservoirs/hosts; the effects of floods and other water-associated disasters (natural and man-made) on migrating human populations; and the role of soil geochemistry & microbiology on human health. Each paradigm is presented from a dermatologic perspective. After all, the skin is where the body and the environment meet.

CHAIR

Scott A. Norton
George Washington University School of Medicine & Health Sciences, Washington, DC, United States

Sarah J. Coates
Academic Model Providing Access to Healthcare (AMPATH), Eldoret, Kenya

5 p.m. **PODOCONIOSIS, ARSENICAL KERATOSES, AND OTHER GEOCHEMICAL DERMATOSES**

Wendemagegn Enbiale
Bahir Dar University, College of Medicine and Health Sciences, Bahir Dar, Kenya

5:25 p.m. **CHANGES IN ECTOPARASITE-ASSOCIATED DISEASES IN TIMES OF ENVIRONMENTAL TURMOIL**

Aileen Y. Chang
University of California, San Francisco, San Francisco, CA, United States

5:50 p.m. **CLIMATE CHANGE AND HUMAN HEALTH IN AFRICA: A DERMATOLOGIC PERSPECTIVE**

Sarah J. Coates
Academic Model Providing Access to Healthcare (AMPATH), Eldoret, Kenya

Symposium 176

Schistosomiasis and Climate Change

Meeting Room 15

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

The precise impact of climate change on schistosomiasis, a parasitic disease of poverty affecting more than 200 million people mainly in tropical and subtropical countries, is still largely unknown. The intermediate snail hosts of schistosome parasites have limited thermoregulation ability and, therefore, their reproduction, survival, and dispersal in the environment can be influenced even by small changes in temperature. As a consequence, projected climate change, along with the associated variation in temperature extremes and precipitation, could alter the distribution and abundance of the intermediate snail hosts and, as a consequence, the spatial and temporal distribution of the disease. In addition, the effects of climate change are expected to combine with those due to other global change drivers of disease. In fact, social-ecological systems are major drivers of the transmission of schistosomiasis, and hence, these must be considered when attempting to identify the specific impact of climate change. In particular, water resources development and water management infrastructures, such as dams and irrigation schemes, alter water availability in the face of climate change and rising temperatures, and deeper colder waters can provide a refuge for the snails despite temperature extremes. Development of artificial reservoirs, slowly flowing waters, use of agrochemicals, and changes in salinity are all factors that boost aquatic vegetation growth that is conducive to snail proliferation. Dams can also cause the extirpation of migratory freshwater species, such as prawns of the genus *Macrobrachium*, as well as fish, that are voracious predators of the snails that amply schistosomiasis. Profiling risk of disease caused by the combined effects of climate and changing patterns of land and water use is a key challenge

facing humanity in the near future. In this symposium, speakers will discuss state of the art approaches to investigate the effects of future climate and land-use change on schistosomiasis, current evidence as well as projections of potential changes in schistosomiasis distribution, and the knowledge gaps that need to be addressed for the effective control of schistosomiasis transmission in the 21st century.

CHAIR

Giulio De Leo
Stanford University, Pacific Grove, CA, United States

Jürg Utzinger
Swiss Tropical and Public Health Institute, Basel, Switzerland

5 p.m. **SCHISTOSOMES, SNAILS AND CLIMATE CHANGE: CURRENT TRENDS AND FUTURE EXPECTATIONS**

Anna-Sofie Stensgaard
University of Copenhagen, Copenhagen, Denmark

5:20 p.m. **POTENTIAL IMPACT OF CLIMATE CHANGE ON SCHISTOSOMIASIS: A GLOBAL ASSESSMENT ATTEMPT AND ADAPTATION CASE STUDY IN CHINA**

Guo-Jing Yang
Hainan Medical University, Haikou, China

5:40 p.m. **NOT “JUST” CLIMATE CHANGE: OTHER GLOBAL CHANGE DRIVERS OF SCHISTOSOMIASIS TRANSMISSION**

Susanne H. Sokolow
Stanford University, Pacific Grove, CA, United States

Symposium 177

Revitalizing Informal Settlements and their Environments (RISE)

Meeting Room 16

Thursday, November 19

5 p.m. - 6:45 p.m. U.S. Eastern Time Zone

An estimated 1 billion people live in slum conditions, representing nearly a third of urban populations. Rapid urbanization, particularly in informal settlements, poses serious risks to fragile land and water systems and to human health and wellbeing. Poor water supplies and sanitation, combined with inadequate drainage and flood management exacerbated by climate change, expose vulnerable populations to diseases associated with fecal-oral transmission, respiratory insults and water-related disease vectors. They also threaten the environment, including vital food supplies and natural habitat. This symposium describes and presents initial results of an innovative solution to the special water and sanitation challenges of informal settlements in low-income settings. The project, which is being undertaken in 24 settlements in Indonesia and Fiji, employs a “water sensitive cities” approach that integrates ecologically and economically sustainable water infrastructure like constructed wetlands, bio-filtration gardens, stormwater harvesting, and local sanitation systems based on “smart” new septic tanks, into buildings and landscapes. Among the keys to the success of the intervention is an authentic co-design process that engages community members in identifying the main sources

of environmental contamination and developing an integrated and sustainable solution, transforming water infrastructure, water management and sanitation practices while improving resilience to flooding. A rigorous evaluation of the project employs a randomized controlled trial design to assess the impact of the intervention on fecal contamination of the environment and on the health and wellbeing of local residents. Among the outcomes are enteric inflammation and carriage of drug-resistant gene markers, and increased diversity of the gastrointestinal microbiome. The symposium presents the background and context for the study as well as the initial results from the pilot intervention in Batua, Makassar. It includes a multi-disciplined panel comprised of lead investigators from the Wellcome Trust-funded RISE study. Throughout their presentations, the panel will address the policy implications of the intervention, including the economic and political barriers and drivers to successfully scaling up of the intervention.

CHAIR

Thomas Clasen
Emory University, Rollins School of Public Health, Atlanta, GA, United States

5 p.m.

RISE - ASSESSMENT OF THE ENVIRONMENT AND HUMAN HEALTH IMPACT

Stephen Luby
Stanford University, Stanford, CA, United States

5:25 p.m.

RISE - USING GREEN TECHNOLOGY FOR WATER SANITATION MANAGEMENT

Diego Ramirez-Lovering
Monash University- Monash Art Design and Architecture, Caulfield, Australia

5:50 p.m.

RISE - PERSPECTIVES OF PROGRESSING RISE STUDY IN SUVA FIJI.

Amelia Turagabeci
Fiji National University, Tamavua, Suva, Suva, Fiji

6:15 p.m.

RISE - PILOTING RISE INTERVENTION IN MAKASSAR INDONESIA.

Ruzka Taruc
Hasanuddin University, Makassar, South Sulawesi, Indonesia, Indonesia

ASTMH 69th Annual Meeting Adjourns

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