

## **1. ZIKA: SUSAN HILLS, MBBS, MTH**

### **General**

Yuan L, Huang XY, Liu ZY, et al. A single mutation in the prM protein of Zika virus contributes to fetal microcephaly. *Science* 2017; Sep 28.

### **Transmission and presentation of Zika virus infection**

Paz-Bailey G, Rosenberg ES, Doyle K, et al. Persistence of Zika virus in body fluids - Preliminary report. *N Engl J Med* 2017; Feb 14

Moreira J, Peixoto TM, Siqueira AM, Lamas CC. Sexually acquired Zika virus: a systematic review. *Clin Microbiol Infect* 2017; 23:296-305

Salinas JL, Walteros DM, Styczynski A, et al. Zika virus disease-associated Guillain-Barré syndrome-Barranquilla, Colombia 2015-2016. *J Neurol Sci* 2017; 381:272-277.

Krow-Lucal ER, Novosad SA, Dunn AC, et al. Zika virus infection in a patient with no known risk factors, Utah, USA, 2016. *Emerg Infect Dis* 2017; 23:1260-1267.

### **Congenital infection**

Zin AA, Tsui I, Rossetto J, et al. Screening criteria for ophthalmic manifestations of congenital Zika virus infection. *JAMA Pediatr* 2017; 171:847-854.

### **Management and guidelines**

Adebanjo T, Godfred-Cato S, Viens L, et al. Update: Interim guidance for the diagnosis, evaluation, and management of infants with possible congenital Zika virus infection - United States, October 2017. *MMWR Morb Mortal Wkly Rep* 2017; 66:1089-1099.

Oduyebo T, Polen KD, Walke HT, et al. Update: Interim Guidance for Health Care Providers Caring for Pregnant Women with Possible Zika Virus Exposure - United States (Including U.S. Territories), July 2017. *MMWR Morb Mortal Wkly Rep* 2017; 66:781-793.

Eppes C, Rac M, Dunn J, et al. Testing for Zika virus infection in pregnancy: key concepts to deal with an emerging epidemic. *Am J Obstet Gynecol* 2017; 216:209-225

### **Vaccine development**

Fernandez E, Diamond MS. Vaccination strategies against Zika virus. *Curr Opin Virol* 2017; 23:59-67

Thomas SJ. Zika Virus Vaccines - A Full Field and Looking for the Closers. *N Engl J Med* 2017; 376:1883-1886.

## **2. MALARIA: JOHANNA DAILY, MD, MS**

### **Epidemiology**

#### **Travelers Malaria**

Malaria Surveillance — United States, 2014. Mace KE, Arguin PM. **MMWR** Surveill Summ 2017; vol 66; No.12. *Increasing prevalence of malaria in US. Epidemiology o the 1,724 cases reported in 2014 presented.. Table of CDC websites and phone numbers for health care professionals to obtain advice on malaria prophylaxis, diagnosis and treatment recommendations.*

**On Taking a Different Route: An Unlikely Case of Malaria by Nosocomial Transmission** Gruell H, Hamacher L, Jennissen V, Tuchscherer A, Ostendorf N, Löffler T, Hallek M, Kochanek M, Tannich E, Böll B, Fätkenheuer G. *Clin Infect Dis*. 2017 Oct 15;65(8):1404-1406. *Puzzling case of hospital acquired malaria.*

**The prevalence of *Plasmodium falciparum* in sub-Saharan Africa since 1900.** Snow RW, Sartorius B, Kyalo D, Maina J, Amratia P, Mundia CW, Bejon P, Noor AM. *Nature*. 2017 Oct 11. doi: 10.1038/nature24059. *Quantitative analysis of malaria transmission cycles in Africa over 115 years finds that surges or declines in transmission cannot easily be explained by single factors such as weather, interventions or economics. Some regions have not had reductions in malaria transmission, despite implementation of malaria control programs.*

#### **Zoonotic malaria**

**Outbreak of human malaria caused by *Plasmodium simium* in the Atlantic Forest in Rio de Janeiro: a molecular epidemiological investigation.** Brasil P, Zalis MG, de Pina-Costa A, Siqueira AM, Júnior CB, Silva S, Areas ALL, Pelajo-Machado M, de Alvarenga DAM, da Silva Santelli ACF, Albuquerque HG, Cravo P, Santos de Abreu FV, Peterka CL, Zanini GM, Suárez Mutis MC, Pissinatti A, Lourenço-de-Oliveira R, de Brito CFA, de Fátima Ferreira-da-Cruz M, Culleton R, Daniel-Ribeiro CT. *Lancet Glob Health*. 2017 Oct;5(10):e1038-e1046. *An increase in malaria cases in the Atlantic Forest of Rio de Janeiro led to an investigation to determine whether cases were *P. vivax* (imported) or *P. simium* (locally acquired from non-human primates). Molecular typing demonstrates emergence of *P. simium* infecting humans in this region.*

#### **Worldwide Artemisinin Resistance**

**Emergence of Indigenous Artemisinin-Resistant *Plasmodium falciparum* in Africa.** Lu F, Culleton R, Zhang M, Ramaprasad A, von Seidlein L, Zhou H, Zhu G, Tang J, Liu Y, Wang W, Cao Y, Xu S, Gu Y, Li J, Zhang C, Gao Q, Menard D, Pain A, Yang H, Zhang Q, Cao J. *N Engl J Med*. 2017 Mar 9;376(10):991. *Single case report of ART resistant parasite acquired in Africa.*

#### **Clinical Management**

**Malaria Prevention Strategies: Adherence among Boston Area Travelers Visiting Malaria-Endemic Countries** Stoney RJ, Chen LH, Jentes ES, Wilson ME, Han PV, Benoit CM, MacLeod WB, Hamer DH, Barnett ED; Boston Area Travel Medicine Network. *Am J Trop Med Hyg*. 2016 Jan;94(1):136-42 *Prospective study of adults traveling to malaria-endemic countries who were prescribed malaria chemoprophylaxis during a pre-travel consultation at three travel clinics in the Boston area and who completed three or more surveys. Good adherence was achieved. Main reasons for declining to take prescribed chemoprophylaxis were peer advice, low perceived risk, and not seeing mosquitoes.*

**High Rate of Treatment Failures in Nonimmune Travelers Treated With Artemether-Lumefantrine for Uncomplicated *Plasmodium falciparum* Malaria in Sweden: Retrospective Comparative Analysis of Effectiveness and Case Series.** Sondén K, Wyss K, Jovel I, Vieira da Silva A, Pohanka A, Asghar M, Homann MV, Gustafsson LL, Hellgren U, Färnert A. *Clin Infect Dis*. 2017 Jan 15;64(2):199-206. *Reports a high frequency of late AL treatment failures in adult travelers treated for uncomplicated *P. falciparum* malaria in Sweden. Among 95 patients treated with AL for uncomplicated episodes, 5 (5.2 %) had late treatment failures classified as recrudescence by molecular studies. In contrast, no failure was found with the previously used first-line treatment MQ.*

**Malaria 2017: Update on the Clinical Literature and Management.** Daily JP. *Curr Infect Dis Rep*. 2017 Aug;19(8):28. *Review of selected clinical literature 2015-2017 covering US epidemiology, world wide drug resistance, clinical management issues and prevention. Based on ASTMH review of clinical literature sessions.*

#### **Malaria Control and Prevention**

**Effectiveness of Seasonal Malaria Chemoprevention in Children under Ten Years of Age in Senegal: A Stepped-Wedge Cluster-Randomised Trial.** Cissé B, Ba EH, Sokhna C, NDiaye JL, Gomis JF, Dial Y, Pitt C, NDiaye M, Cairns M, Faye E, NDiaye M, Lo A, Tine R, Faye S, Faye B, Sy O, Konate L, Kouevijdin E, Flach C, Faye O, Trape JF, Sutherland C, Fall FB, Thior PM, Faye OK, Greenwood B, Gaye O, Milligan P. *PLoS Med*. 2016 Nov 22;13(11):e1002175. *WHO recommends seasonal malaria chemoprevention for children < 6 years during transmission season. This large study (780,000 treatments over 3 years) found that chemoprevention (1-10yrs of age) with SP-AQ found a reduction of*

60% (95% CI 54%–64%,  $p < 0.001$ ) in the incidence of malaria cases, a reduction in the incidence rate of severe disease of 45% (95% CI 5%–68%,  $p = 0.031$ ) and reduction in incidence in children and adults too old to receive SMC was reduced by 26% (95% CI 18%–33%,  $p < 0.001$ ). Thus in some areas, expanding the age range for SMC could have a substantial impact on the malaria burden and could contribute to reducing malaria transmission.

**Seven-Year Efficacy of RTS,S/AS01 Malaria Vaccine among Young African Children** Olotu A, Fegan G, Wambua J, Nyangweso G, Leach A, Lievens M, Kaslow DC, Njuguna P, Marsh K, Bejon P. *N Engl J Med.* 2016 Jun 30;374(26):2519-29. 7 years of follow-up in children who had been randomly assigned, at 5 to 17 months of age, to receive three doses of either the RTS,S/AS01 vaccine or a rabies (control) vaccine. The vaccine efficacy, to prevent mild clinical malaria was 4.4% (95% confidence interval [CI], -17.0 to 21.9;  $P=0.66$ ) in the intention-to-treat analysis. Vaccine efficacy waned over time with negative efficacy during the fifth year among children with high exposure to malaria parasites (intention-to-treat analysis: -43.5%; 95% CI, -100.3 to -2.8 [ $P=0.03$ ]). Malaria cases are averted by the vaccine, but protection wains over time and protection from asexual stages is not developed. Larger studies to test vaccine effectiveness under real world settings are underway.

### 3. **YELLOW FEVER: J. ERIN STAPLES, MD, PHD**

#### **Reviews**

- Barrett ADT. Yellow fever live attenuated vaccine: A very successful live attenuated vaccine but still we have problems controlling the disease. *Vaccine.* 2017; 35(44): 5951-5955.
- Collins ND, Barrett ADT. Live attenuated yellow fever 17D vaccine: a legacy vaccine still controlling outbreaks in modern day. *Curr Infect Dis Rep.* 2017; 19: 14.

#### **Epidemiology**

- World Health Organization. Yellow fever in Africa and the Americas, 2016. *Wkly Epidemiol Rec.* 442-452. 2017; 92(32): 442-52.
- Couto-Lima D, Madec Y, Bersot MI, Campos SS, Motta MA, et al. Potential risk of re-emergence of urban transmission of Yellow Fever virus in Brazil facilitated by competent Aedes populations. *Sci Rep.* 2017; 7(1): 4848.
- Pan American Health Organization. Epidemiological Alerts and Updates. Available at: [http://www.paho.org/hq/index.php?option=com\\_content&view=article&id=1239&Itemid=2291&lang=en](http://www.paho.org/hq/index.php?option=com_content&view=article&id=1239&Itemid=2291&lang=en). Provides most updated information on yellow fever disease cases and outbreaks in the Americas.
- World Health Organization. Disease Outbreak News: Yellow fever. Available at: [http://www.who.int/csr/don/archive/disease/yellow\\_fever/en/](http://www.who.int/csr/don/archive/disease/yellow_fever/en/). Provides updated information regarding outbreaks of yellow fever around the world.

#### **Clinical features**

*Selected articles that describe in detail the clinical features of travel associated yellow fever disease cases.*

- Newman AP, Becraft R, Dean AB, Hull R, Backenson B, et al. Notes from the field: Fatal yellow fever in a traveler returning from Peru - New York, 2016. *MMWR Morb Mortal Wkly Rep.* 2017; 66(34): 914-915.
- Wouthuyzen-Bakker M, Knoester M, van den Berg AP, Geurtsvan Kessel CH, Koopmans MP, et al. Yellow fever in a traveller returning from Suriname to the Netherlands, March 2017. *Euro Surveill.* 2017; 22(11). pii: 30488.
- Chen Z, Liu L, Lv Y, Zhang W, Li J, Zhang Y, et al. A fatal yellow fever virus infection in China: description and lessons. *Emerg Microbes Infect.* 2016 Jul 13;5(7):e69.

#### **Diagnosis**

*Selected articles that examine alternative body fluids or diagnostics assays that might have utility in diagnosis of yellow fever.*

- Barbosa CM, Di Paola N, Cunha MP, Rodrigues-Jesus MJ, Araujo DB, et al. Yellow fever virus in urine and semen of convalescent patient, Brazil. *Emerg Infect Dis.* 2018 Jan 15;24(1). ePub.
- Reusken CBEM, Knoester M, GeurtsvanKessel C, Koopmans M, Knapen DG, et al. Urine as sample type for molecular diagnosis of natural yellow fever virus infections. *J Clin Microbiol.* 2017; 55: 3294-3296.
- Fischer C, Torres MC, Patel P, Moreira-Soto A, Gould EA, et al. Lineage-specific real-time RT-PCR for yellow fever virus outbreak surveillance, Brazil. *Emerg Infect Dis.* 2017; 23(11). ePub.

### **Vaccine**

#### Availability

*Selected articles that review or provide specific information on yellow fever vaccine availability*

- Chen LH, Hamer DH. Vaccination challenges in confronting the resurgent threat from yellow fever. *JAMA.* 2017 Oct 5. ePub.
- Monath TP, Woodall JP, Gubler DJ, Yuill TM, Mackenzie JS, et al. Yellow fever vaccine supply: a possible solution. *Lancet.* 2016; 387(10028): 1599-1600.
- Barrett AD. Yellow fever in Angola and beyond--the problem of vaccine supply and demand. *N Engl J Med.* 2016; 375(4): 301-303.
- Gershman MD, Angelo KM, Ritchey J, Greenberg DP, Muhammad RD, et al. Addressing a yellow fever vaccine shortage - United States, 2016-2017. *MMWR Morb Mortal Wkly Rep.* 2017; 66(17): 457-459.
- Gershman MD, Sotir MJ. Update: Temporary total depletion of U.S. licensed yellow fever vaccine for civilian travelers addressed by investigational new drug use of imported Stamaril vaccine. *MMWR Morb Mortal Wkly Rep.* 2017; 66(29): 780.

#### Use

*Selected articles that relate to yellow fever vaccine policy, KAP (knowledge attitude, and practice), co-administration, and immunogenicity*

- World Health Organization. Yellow fever vaccine: WHO position on the use of fractional doses – June 2017. *Wkly Epidemiol Rec.* 2017; 92:345-350.
- Jarrahian C, Myers D, Creelman B, Saxon E, Zehrung D. Vaccine vial stopper performance for fractional dose delivery of vaccines. *Hum Vaccin Immunother.* 2017; 13(7): 1666-1668.
- Koivogui A, Carburnar A, Imounga LM, Laruade C, Laube S. Vaccination against yellow fever in French Guiana: The impact of educational level, negative beliefs and attitude towards vaccination. *Travel Med Infect Dis.* 2017;15: 37-44.
- Marlow MA, Pambasange MA, Francisco C, Receado OD, Soares MJ, et al. Notes from the field: knowledge, attitudes, and practices regarding yellow fever vaccination among men during an outbreak - Luanda, Angola, 2016. *MMWR Morb Mortal Wkly Rep.* 2017; 66(4): 117-118.
- Mejia CR, Centeno E, Cruz B, Cvetkovic-Vega A, Delgado E, Rodriguez-Morales AJ. Pre-travel advice concerning vector-borne diseases received by travelers prior to visiting Cuzco, Peru. *J Infect Public Health.* 2016; 9(4): 458-64.

- Zhang M, Zhang J, Hao Y, Fan Z, Li L, et al. Vaccination knowledge, attitude and practice among Chinese travelers who visit travel clinics in Preparation for international travel. *J Travel Med.* 2016; 23(6).
- Goujon C, Gougeon ML, Tondeur L, Poirier B, Seffer V, et al. CHRONOVAC VOYAGEUR: A study of the immune response to yellow fever vaccine among infants previously immunized against measles. *Vaccine.* 2017; 35(45): 6166-6171.
- Clarke E, Saidu Y, Adetifa JU, Adigweme I, Hydera MB, et al. Safety and immunogenicity of inactivated poliovirus vaccine when given with measles-rubella combined vaccine and yellow fever vaccine and when given via different administration routes: a phase 4, randomised, non-inferiority trial in The Gambia. *Lancet Glob Health.* 2016; 4(8): e534-547.
- López P, Lanata CF, Zambrano B, Cortés M, Andrade T, et al. Immunogenicity and safety of yellow fever vaccine (Stamaril) when administered concomitantly with a tetravalent dengue vaccine candidate in healthy toddlers at 12-13 months of age in Colombia and Peru: a randomized trial. *Pediatr Infect Dis J.* 2016; 35(10): 1140-1147.
- Miyaji KT, Avelino-Silva VI, Simões M, Freire MD, Medeiros CR, et al. Prevalence and titers of yellow fever virus neutralizing antibodies in previously vaccinated adults. *Rev Inst Med Trop Sao Paulo.* 2017 Apr 3;59:e2.
- Kongsgaard M, Bassi MR, Rasmussen M, Skjødt K, Thybo S, et al. Adaptive immune responses to booster vaccination against yellow fever virus are much reduced compared to those after primary vaccination. *Sci Rep.* 2017; 7(1): 662.
- Wieten RW, Jonker EF, van Leeuwen EM, Remmerswaal EB, Ten Berge IJ, et al. A single 17D yellow fever vaccination provides lifelong immunity; characterization of yellow-fever-specific neutralizing antibody and T-cell responses after vaccination. *PLoS One.* 2016; 11(3): e0149871.
- Wieten RW, Goorhuis A, Jonker EFF, de Bree GJ, de Visser AW, et al. 17D yellow fever vaccine elicits comparable long-term immune responses in healthy individuals and immune-compromised patients. *J Infect.* 2016; 72(6): 713-722.

#### Vaccine Adverse Events

*Selected articles that note relatively novel adverse events associated with yellow fever vaccine*

- Wauters RH, Hernandez CL, Petersen MM. An atypical local vesicular reaction to the yellow fever vaccine. *Vaccines (Basel).* 2017; 5(3).
- Rosch RE, Farquhar M, Gringras P, Pal DK. Narcolepsy following yellow fever vaccination: a case report. *Front Neurol.* 2016; 7: 130.

#### **Prevention**

*Articles that review WHO/PAHO plan to decrease the burden of yellow fever disease globally and note utility of certain personal protective measures*

- World Health Organization. Eliminate Yellow fever Epidemics (EYE): a global strategy, 2017–2026. *Wkly Epidemiol Rec.* 2017; 92(16): 193-204.
- Rodriguez SD, Chung HN, Gonzales KK, Vulcan J, Li Y, et al. Efficacy of some wearable devices compared with spray-on insect repellents for the yellow fever mosquito, *Aedes aegypti* (L.) (Diptera: Culicidae). *J Insect Sci.* 2017; 17(1): 1-6.

#### **4. BOBBI PRITT, MD, MSC, DTMH**

##### **Nucleic Acid Amplification Tests**

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- Cartridge assays - Singleplex
  - **Bahr et al. Diagnostic accuracy of Xpert MTB/RIF Ultra for tuberculous meningitis in HIV-infected adults: a prospective cohort study. *Lancet Infect Dis* 2017; ePub 9/14/17**
  - Related:
    - Khonga M, Nicol MP. Xpert MTB/RIF Ultra: a gamechanger for tuberculous meningitis? *Lancet Infect Dis* 2017; ePub 9/14/17
    - Chakravorty et al. The New Xpert MTB/RIF Ultra: Improving Detection of Mycobacterium tuberculosis and Resistance to Rifampin in an Assay Suitable for Point-of-Care Testing. *MBio* 2017;8(4):e00812-17.
    - World Health Organization. Xpert MTB/RIF WHO Policies: [http://www.who.int/tb/laboratory/xpert\\_launchupdate/en/](http://www.who.int/tb/laboratory/xpert_launchupdate/en/)
- Cartridge assays - Multiplex
  - **Leber et al. Multicenter Evaluation of BioFire FilmArray Meningitis/Encephalitis Panel for Detection of Bacteria, Viruses, and Yeast in Cerebrospinal Fluid Specimens. *J Clin Microbiol* 2016;54(9):2251-2261.**
  - **Brendish et al. Routine Molecular Point-of-Care Testing for Respiratory Viruses in Adults presenting to Hospital with Acute Respiratory Illness (ResPOC): a Pragmatic, Open-Label, Randomised Controlled Trial. *Lancet Respir Med* 2017;5:401-411.**

#### Next Generation Sequencing (NGS)

- Targeted Approach
  - **Shrestha NK et al. Heart Valve Culture and Sequencing to Identify the Infective Endocarditis Pathogen in Surgically Treated Patients. *Ann Thorac Surg* 2015;99:33-7**
- Unbiased Approach
  - **Sardi SI et al. Coinfections of Zika and Chikungunya Viruses in Bahia, Brazil, Identified by Metagenomic Next-Generation Sequencing. *J Clin Microbiol* 2016;54(9):2348-2353.**
  - **Schlaberg R et al. Validation of Metagenomic Next-Generation Sequencing Tests for Universal Pathogen Detection. *Arch Pathol Lab Med* 2017;141(6):776-86.**
  - **Pendleton KM et al. Rapid Pathogen Identification in Bacterial Pneumonia Using Real-time Metagenomics. *Am J Respir Crit Care Med* 2017. ePub May 5.**
  - **Votintseva AA et al. Same-Day Diagnostic and Surveillance Data for Tuberculosis via Whole Genome Sequencing of Direct Respiratory Samples. *J Clin Microbiol* 2017;55(5):1285-1298.**
  - Related:

- Wilson MR. Actionable Diagnosis of Neuroleptospirosis by Next-Generation Sequencing. *NEJM* 2014; 370:2408-2417.
- Naccache SN et al. Diagnosis of Neuroinvasive Astrovirus Infection in an Immunocompromised Adult with Encephalitis by Unbiased Next-Generation Sequencing. *Clin Infect Dis* 2015;60(6):919-23.
- Simner PJ et al. Understanding the Promised and Hurdles of Metagenomic Next-Generation Sequencing as a Diagnostic Tool for Infectious Diseases. *Clin Infect Dis* 2017: ePub October 12.

#### **Proteomics and Metabolomics**

- **Molins CR. Et al. Development of a Metabolic Biosignature for Detection of Early Lyme Disease. *CID* 2015;60:1767-1775**