


## Human mobility and health

Joint International Tropical Medicine Meeting  
Faculty of Tropical Medicine  
Mahidol University  
Bangkok, Thailand  
December 7, 2016



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Travel and Tropical Medicine Center, St Paul, Minnesota  
President, American Society of Tropical Medicine and Hygiene

## In honor of our King



With love and gratitude, our remembrance of our greatest King Bhumibol Adulyadej.

## ASTMH in Thailand

- ASTMH members partnering with Mahidol University Faculty of Tropical Medicine in Bangkok for many decades
- Many research collaborations with ASTMH members in the region
- Partnerships with CDC GeoSentinel Sites in Chiang Mai and Bangkok
- Educational exchanges
- Asian Clinical Tropical Medicine Course
- Honored to be invited to JITMM



## Human mobility and health


- Demographics of human migration
- Examples of diseases moving with migrants
- History of modern refugee crisis
- Offer care for refugees as a case example of best practices in migrant health
- Imagining our future in migration medicine



Photo Credit:  
Albany Daily Star  
June 6, 2016

## Conclusions

- Human mobility, infectious diseases and health are inextricably connected
- Travelers, refugees and other migrants are important groups to target for infectious disease surveillance, screening and treatment
- Doing so pro-actively is better for patients, countries and the world community



## Human mobility and health: the globalization of health care, biomedical research and education

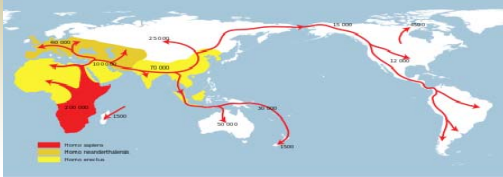
- High technology healthcare is going global (India, Thailand, South Africa)
- Populations at risk for "developed world diseases" are now distributed worldwide
- Migration brings L/LMIC individuals to neighboring countries and refugees worldwide.
- Global health equity requires a global focus.





## Human mobility

- Human migration has occurred as long as humans have been on the planet – first left Africa > 60 million years ago

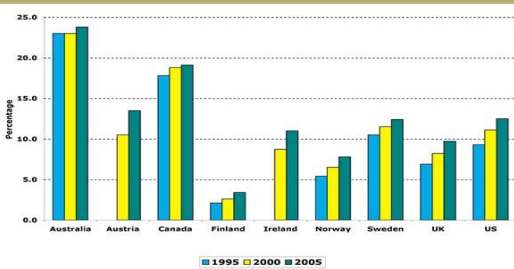


## Humans and mobility

- More than 200 million people are migrants – they have lived outside their country of birth for more than one year
  - 3% of the world's population
  - 5<sup>th</sup> most populated country in the world
- In US:
  - ~13% of population are 1st generation foreign born
  - Estimated 45.8 million were born outside the US



## Foreign born as a % of total population



## International tourists hit record 1.2 billion in 2015, says UNWTO

By Karta Cripps, CNN  
Updated 8:00 PM ET, Tue January 19, 2016

### 2015 International Tourist Arrivals



## Globalization of infectious and chronic diseases: the impact of migration and movement on Thailand

- Tourist travelers – 29.9 M in 2015
- 7.9M Chinese (27%)
- Migrant workers – 1.4-4 M from Myanmar alone
- Medical tourism – 2.5 M in 2013 (\$4.31 Billion USD)
- Human trafficking - migrant workers, sex trade
- Thai people traveling internationally – 6 M in 2014
- These same issues occur worldwide



## Thailand: Top twenty arrival countries for tourists

Rank	Country or Territory	2015	2014	2013	2012	2011	2010
1	China	7,986,136	6,841,772	7,282,266	6,201,153	5,584,577	4,534,236
2	Malaysia*	7,534,791	4,636,266	4,637,335	2,786,960	1,721,247	1,122,219
3	Japan	3,423,397	2,613,418	3,041,097	2,554,397	2,500,280	2,058,956
4	South Korea	1,381,890	1,267,896	1,586,425	1,373,716	1,277,893	993,674
5	India	1,372,888	1,122,346	1,295,342	1,263,619	1,198,283	889,445
6	India	1,233,138	1,053,963	976,639	975,969	891,950	715,345
7	United Kingdom	1,069,149	932,603	1,050,889	1,013,308	914,971	760,371
8	Singapore*	946,919	907,877	905,024	873,053	844,972	810,727
9	Thailand	937,311	844,133	955,468	831,215	692,364	603,038
10	United States	584,085	1,006,430	1,145,565	1,116,064	1,094,187	1,044,878
11	Australia	867,320	763,520	823,486	768,638	681,745	611,792
12	Australia	805,940	831,854	900,480	930,241	829,855	688,046
13	Germany	760,604	715,240	737,658	682,419	610,133	606,874
14	Vietnam*	751,291	558,415	725,057	616,670	496,769	380,368
15	France	691,097	630,373	611,562	576,106	515,272	461,670
16	Hong Kong	669,186	483,131	568,335	473,666	411,834	316,476
17	Taiwan	552,624	394,149	502,176	394,475	394,225	369,220
18	Cameroon*	487,487	505,339	481,595	423,642	265,903	146,274
19	Indonesia*	465,235	497,562	584,251	447,820	370,795	286,372
20	Philippines*	321,863	324,865	341,396	364,661	373,856	355,214

Source: UNWTO World Tourism Barometer



## Human mobility and health

- Demographics of human migration
- Examples of diseases moving with migrants**
- History of modern refugee crisis
- Offer refugees as a case example of best practices in migrant health
- Imagining our future in migration medicine



## Globalization of infectious and chronic diseases: the impact of migration and movement



"There are no local diseases"

Professor Joseph Ogong, Medical Geographer, interviewed on CNN regarding SARS 5/10/03

## In Minnesota health care, the global is local:

- 81% of TB is in the foreign born
- 10% of HIV cases are in African born (<1% of population)
- Of the malarial cases with country of origin reported (31/48), 84% were foreign born

MDH Disease Control Newsletter  
Vo 39, No1, Aug 2011

**Ebola fears hit close to home**

Minnesota's Liberians, officials discuss Ebola

Updated: July 28, 2014 9:10 PM

Minnesota health officials met with about 400 community leaders in Minneapolis to discuss Ebola on Tuesday. The officials said that the disease has not been found in the state, but they are taking precautions to prevent it from spreading.

There have been no confirmed cases of Ebola in the United States. But there have been many reports of the disease in Africa. Health officials are concerned that the disease could spread to the United States through travel.

Patrick Sawyer, a Liberian who has lived in Minnesota for many years, said that he was worried about the disease. He said that he had been infected with Ebola in Liberia, where he worked as a top government official in the Liberian Ministry of Finance.

Minneapolis Star Tribune July 28, 2014

## Migrants, whether legal or illegal, move with pathogens

### Prevalence of Infectious Diseases of Immigrant Workers Receiving Health Examinations at Rajavithi Hospital

Udom Krattichai MD\*, Duampun Pungprakit RN\*\*,  
Kanya Boonthongthao MSc\*\*\*, Krissana Arsayot BSc\*\*\*

\* Department of Medicine, Rajavithi Hospital, College of Medicine, Rangsit University, Bangkok, Thailand  
\*\* Health Insurance Center, Rajavithi Hospital, Bangkok, Thailand

\*\*\* Division of Research and Technology Assessment, Department of Academic Support, Rajavithi Hospital, Bangkok, Thailand

Krattichai U, Pungprakit D, Boonthongthao K, Arsayot K; Prevalence of Infectious Diseases of Immigrant Workers Receiving Health Examinations at Rajavithi Hospital. J Med Assoc Thai. 2012;95(Suppl.3):S1-S6

## Infectious diseases in immigrant workers, Thailand, 2012

Table 3. The prevalence of infectious diseases in Burmese, Lao and Cambodian immigrants

	Burmese			Laos			Cambodian		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Workers	33,721	46,968	80,689	5,182	9,153	14,335	3,612	3,554	7,166
Pulmonary TB	466	416	882	64	127	191	39	107	146
	(1,441.2)	(887.6)	(1,119.3)*	(1,235.0)	(688.3)	(885.9)*	(1,382.6)	(1,097.4)	(1,493.2)
Elyphantiasis	3	5	8	0	0	0	0	0	0
	(8.9)	(10.7)	(9.9)	0	0	0	0	0	0
Leprosy	0	5	5	0	0	0	0	0	0
	0	(10.7)	(6.2)	0	0	0	0	0	0
Syphilis	169	208	377	10	27	37	29	32	61
	(501.2)	(443.8)	(467.8)*	(193.0)	(295.0)	(258.1)*	(802.9)	(900.4)	(851.2)
Malaria	11	8	19	1	1	2	0	2	2
	(32.6)	(17.1)	(23.6)	0	(10.9)	(1.2)*	(55.4)	0	(7.0)*
Patients	669	642	1,311	74	91	165	99	71	170
	(1,983.9)	(1,369.8)	(1,626.8)	(1,428.0)	(994.2)	(1,151.0)	(2,740.9)	(1,997.7)	(2,372.3)

Data is number and rate per 100,000 populations. \*Compared with Cambodians, p < 0.05. \*\*Compared with Burmese, p < 0.05.


Prevalence of Infectious Diseases of Immigrant Workers Receiving Health Examinations at Rajavithi Hospital, Krattichai U, Pungprakit D, Boonthongthao K, Arsayot K, J Med Assoc Thai. 2012; 95 (Suppl.3): S1-S6



**Spectrum of Illness in International Migrants Seen at GeoSentinel Clinics in 1997–2009, Part 1: US-Bound Migrants Evaluated by Comprehensive Protocol-Based Health Assessment**

Elizabeth D. Bensen,<sup>1</sup> Leisa H. Weid,<sup>2</sup> Anne E. McCarthy,<sup>3</sup> Heidi Gu,<sup>4</sup> Patricia F. Walker,<sup>5</sup> William Stauffer,<sup>1,6</sup> and Martin Cetronis<sup>7</sup> for the GeoSentinel Surveillance Network


N=7,792 migrants who crossed international borders for the purpose of resettlement and underwent a protocol-based health assessment at 2 US based GeoSentinel Surveillance network clinics



CID; 2013 Apr 1:56(913-24)

**Spectrum of Illness in International Migrants Seen at GeoSentinel Clinics in 1997–2009, Part 1: US-Bound Migrants Evaluated by Comprehensive Protocol-Based Health Assessment**

- Latent TB infection (LTBI) 43%
- Eosinophilia 15%
- Hepatitis B 6%
- Regional variations occurred
- Notable absence of infectious TB, malaria and STH (soil transmitted helminths)
- Universal health problems: dental caries, anemia, hypertension



CID; 2013 Apr 1:56(913-24)

**Thai travelers are different from foreign travelers**

*Journal of TRAVEL MEDICINE*

ORIGINAL ARTICLE

**Incidence and Spectrum of Health Problems Among Travelers to Laos**

Wanchaisri Phongsavan, MD,<sup>1</sup> Chantana Kiatvithakul, MD,<sup>2</sup> Sarameth Lamsophon, MD,<sup>3</sup> Wanchai Tangkhamthong, MD,<sup>4</sup> Nantana Nongnuek, PhD,<sup>5</sup> Pongpang Nuan, PhD,<sup>6</sup> Sirwan Wongsat, BSc (Public Health),<sup>7</sup> Thiraporn Pongthong, BSc,<sup>8</sup> Pongthong Wongsat, MD,<sup>9</sup> and Wanchaisri Phongsavan, MSc<sup>10</sup>

*Journal of TRAVEL MEDICINE*

EDITORIAL

**Travel Medicine for Asian Travelers—Do We Need New Approaches?**

Wanchaisri Phongsavan, MD,<sup>1</sup> Robert Seefelt, MD,<sup>2</sup> David B. Miller, MD,<sup>3</sup> Tony Ghebreselam, MD/PhD,<sup>4</sup> and Suzanne Chatterjee, MD/PhD<sup>5</sup>

CID; 2013 Apr 1:56(913-24)

**Human mobility and health**

- Demographics of human migration
- Examples of diseases moving with migrants
- **History of modern refugee crisis**
- Offer refugees as a case example of best practices in migrant health
- Imagining our future in migration medicine




**The highest levels of human displacement in history**

UNHCR

65.3 million forcibly displaced people worldwide

21.3 million refugees

10 million stateless people



Source: [www.unhcr.org](http://www.unhcr.org)  
Accessed 10/23/16

**54% of refugees worldwide came from three countries**

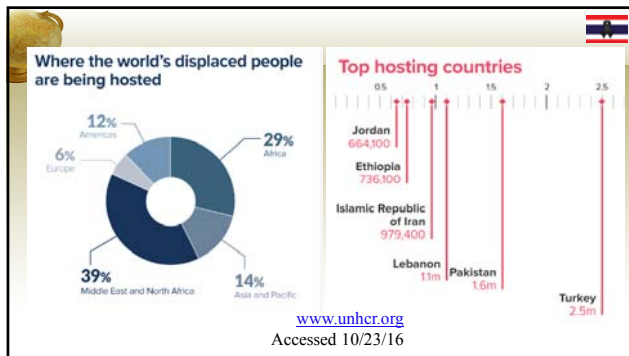
Somalia 1.1m

Afghanistan 2.7m

Syria 4.9m

[www.unhcr.org](http://www.unhcr.org)  
Accessed 10/23/16





### Syrian refugee crisis – one of the greatest human displacements in history

- Since civil war began in March 2011:
- 6.6 M internally displaced
- 4.8M refugees fled to Turkey, Lebanon, Jordan, Egypt and Iraq
- 1M requested asylum in Europe (Germany 300,000; Sweden 100,00)

<http://syrianrefugees.eu/>

### A brief history lesson

- Modern refugee protection movement is less than 100 years old

### Protection of refugees has occurred since antiquity

- International protection began with the League of Nations (1921-1946)

[https://www.icrc.org/eng/assets/files/other/727\\_738\\_jaeger.pdf](https://www.icrc.org/eng/assets/files/other/727_738_jaeger.pdf)

### Convention on the International Status of Refugees - 1933


- First time the principle of non-refoulment acquired the status of international treaty law

### Refugees after World War 2

- International Refugee Organization (IRO) 1946-1951
- Established by UN General Assembly to help resettle central European refugees to US, Canada, W Europe, Australia, Israel and Latin America

Photo: Wikimedia Commons: Passenger ship, possibly MS SKAUBRYN, berthed at a wharf (8400394605).jpg





- IRO was meant to complete it's work by 30 June 1950
- “As soon became evident, it was unlikely – to say the least – that the problem of refugees would be solved by that date”
- UN commissioned “A Study of Statelessness”





Photo Credit: Wikimedia  
The Palmach - Immigration to Israel

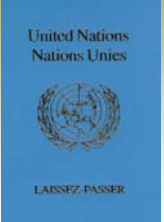



## A Study of Statelessness....

a key document in the modern history of refugee protection

- International travel
- Right of entry and sojourn
- Personal status
- Family rights
- Rights of exercise of trades or profession
- Education, relief, social security
- Exemption from reciprocity, expulsion, taxation and military service

Original photo uploaded by Fischerjs/Wikipedia







## Modern protection of refugees

This study served as the main elements of the

UN Convention Relating to the Status of Refugees, 1951






## Who is a refugee?

Someone who "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality, and is unable to, or owing to such fear, is unwilling to avail himself of the protection of that country."

1951 Refugee Convention establishing UNHCR



Refugees, Kassala State, Eastern Sudan

Photo credit: UNHCR website; Accessed 2013 Oct 24



## Refugees are different from other migrants.....

"Migrants, especially economic migrants, **choose to move** in order to improve the future prospects of themselves and their families. Refugees **have to move if they are to save their lives or preserve their freedom**. They have no protection from their own state - indeed it is often their own government that is threatening to persecute them. If other countries do not let them in, and do not help them once they are in, then they may be condemning them to death - or to an intolerable life in the shadows, without sustenance and without rights."

www.unhcr.org/accessed12Nov21013





## Refugees in Thailand after the Vietnam War (1975-present)



Lao/Hmong

KaRen/Myanmar

Khmer

Vietnamese





## United States and migration.....

- 1600's...Americans fleeing persecution since the Pilgrims
- 1948 -250,000 displaced Europeans from WWII
- 1940's-50's – laws assisting those fleeing Communism (China, Hungary, Korea, Poland, Yugoslavia)
- 1960's- fleeing Cuba
- 1980- US Refugee Act after Vietnam War



## A nation of immigrants

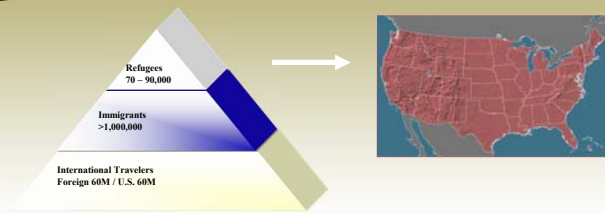
- 0.9% Native American
- 99.1% immigrants and their descendants

Photo credit:

<https://www.flickr.com/photos/dominiquejames/4621961395/>



## US Estimated Annual International Arrivals



Slide courtesy of Dr Martin Cetron, DGMQ, CDC



## US Refugee Admissions

- 3.25 M between 1975-12/31/15
- 69,933 in 2015
- In 1980, after the Vietnam War, we admitted 207,116 refugees

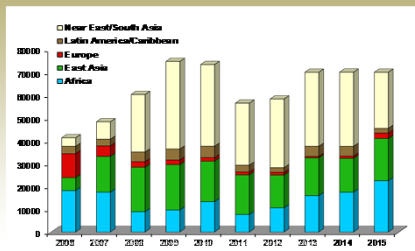


<http://www.state.gov/j/prm/releases/statistics/251288.htm>

Photo credit

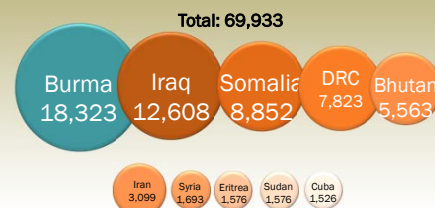
<http://refugeecamps.net/CV61.htm>

## U.S. Refugee Arrivals, by Region FY 2006-2015



Slide courtesy of Dr Martin Cetron, DGMQ, CDC

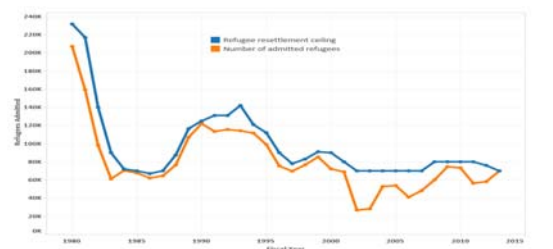
## Top 10 Countries of Nationality for US-Bound Refugees, 2015



Slide courtesy of Dr Martin Cetron, DGMQ, CDC



## Refugees admitted to the US 1980-2015



[www.migrationpolicy.org/programs/data-hub/us-immigration-trends](http://www.migrationpolicy.org/programs/data-hub/us-immigration-trends)

## Minnesota: home to many refugees



- Refugees comprise a large percentage of new immigration to the state
- Large Hmong and Somali populations
- Now seeing Iraqi, Syrians and Congolese....

## Syrian Refugees

- US resettled 1,693 Syrians in FY15
- The Obama Administration has committed to admitting at least 10K Syrian refugees in FY16
  - Majority will depart from Iraq, Jordan, Turkey, Lebanon, Egypt
  - Most refugees reside in urban/semi-urban settings
  - Additional processing site established in Erbil, Iraq (located closer to Syrian border)

\* FY16 global refugee arrivals set at 85,000

Slide courtesy of Dr Martin Cetron, DGMQ, CDC

## Reactions to Syrian Refugee Resettlement



Slide courtesy of Dr Martin Cetron, DGMQ, CDC

## Human mobility will always impact health

- The reality is that we have guaranteed job security in tropical and travel medicine/migrant and refugee health



## Human mobility and health


- Demographics of human migration
- Examples of diseases moving with migrants
- History of modern refugee crisis
- **Offer refugees as a case example of best practices in migrant health**
- Imagining our future in migration medicine





### One example of how to approach human mobility and health...

- Offer the example of the US refugee health program as one model of a humanitarian public health response that is good for the patient, the host country, and the country of ultimate resettlement



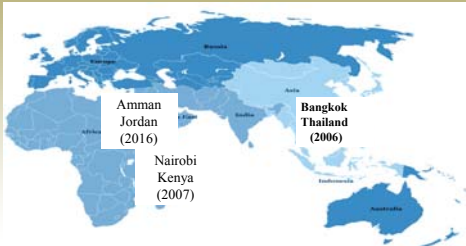
### CDC Enhanced Refugee Health Programs – enhanced detection and presumptive treatment

- Addressing healthcare needs of US bound refugees
- Presumptive pre-departure treatment for malaria, intestinal parasites, expanded TB and HIV diagnostic and treatment programs, immunizations
- Successful prevention of thousands of cases of intestinal parasitosis, malaria, vaccine preventable diseases and hundreds of cases of TB among US bound refugees.



Source: Maloney, S.A., Ortega, L.S., Cetron, M.S. (2007). Overseas Medical Screening for Immigrants and Refugees. In P.J. Walker and E. D. Barnett (Ed.), *Immigrant Medicine* (pp.111-121). Elsevier.

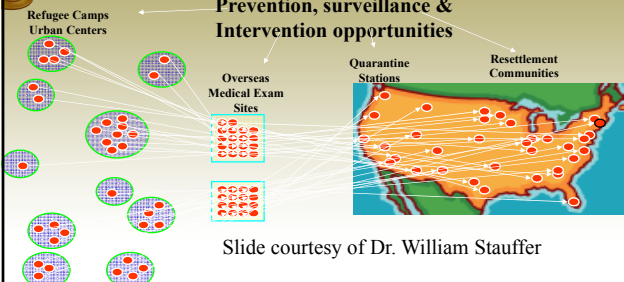
### Locations of CDC's Overseas Refugee Health Programs



Slide courtesy of Dr Martin Cetron, DGMQ, CDC

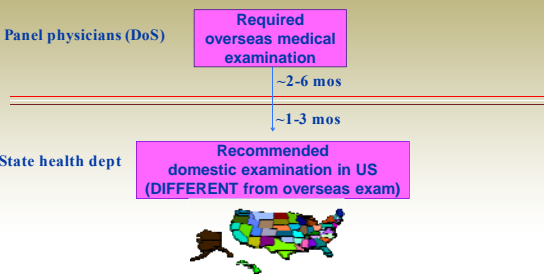
### Mobility: time for refugee health interventions

**Prevention, surveillance & Intervention opportunities**



Slide courtesy of Dr. William Stauffer

### U.S.-bound Refugees: Medical Evaluation




### Components of the Overseas Medical Exam




Slide courtesy of Dr Martin Cetron, DGMQ, CDC



### Healthy Resettlement Promotes Health Security: Overseas Tuberculosis Screening



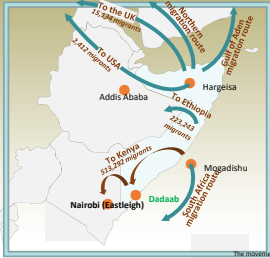
Directly observed therapy for TB, Kenya



TB cultures, Nepal

Slide courtesy of Dr Martin Cetron, DGMQ, CDC

### Horn of Africa Migration Movement: Why Migration is a Health Concern



- Migration out of Somalia is global
- In 2013, MDR TB cases surged in Dadaab and Eastleigh, Kenya
- Most (>80%) were migrants from Somalia seeking treatment

Image reproduced from Cain KP, Mariano N et al. The movement of multidrug-resistant tuberculosis across borders in East Africa needs a regional and global solution. PLoS Med. 2015 Feb 24;12(2):e1001791.


### TB Rates in Refugee Populations US refugee program 2014

Screening Location	Primary Populations	Refugees Examined	TB Cases	Cases with Drug Resistance	TB Rate per 100,000
Egypt	Iraqi, Syrian, Somali, Sudanese	3,301*	0	0	0
Ethiopia	Eritrean, Somali	7,511	14	0	186
Iraq	Iraqi	13,480	1	0	7
Jordan	Iraqi, Syrian	3,448*	0	0	0
Kenya	Somali, Congolese	7,005	25	1	357
Malaysia	Burmese	13,969	111	17	795
Nepal	Bhutanese	7,653	50	0	653
Thailand	Burmese	8,376	54	0	645
Turkey	Iraqi, Syrian	5,367*	2	0	37
Uganda	Congolese	2,940	6	2	204

Preliminary data courtesy Ms. Michelle Russell

### Limitations of overseas TB screening (CXR and AFB smear) among US bound Vietnamese refugees 1998-1999

- Sensitivity 34.4%
- Specificity 98.1%
- PPV 76.8%
- NPV 89.1%





- Nearly 2/3 of immigrants with positive cultures were not identified overseas using the standard algorithm.

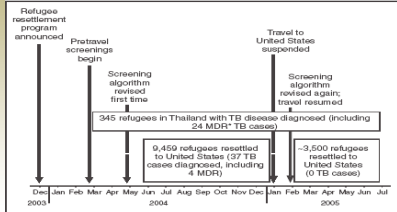
Maloney SA, Fielding KL, et al. Arch IM 2006;166:234-240

### MDR TB in Hmong refugees resettling from Thailand to the US 2004-2005

- Dec 2003 resettlement program for 15,700 Hmong living in a temple in central Thailand
- Not an official refugee camp, no public health or medical care infrastructure
- Ability to access care limited by finances of the Hmong in the camp, many supported by US Hmong families

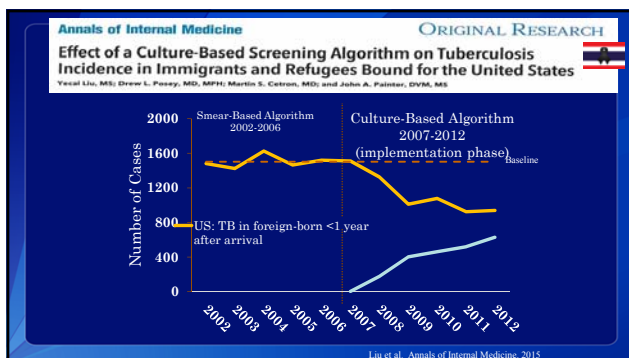
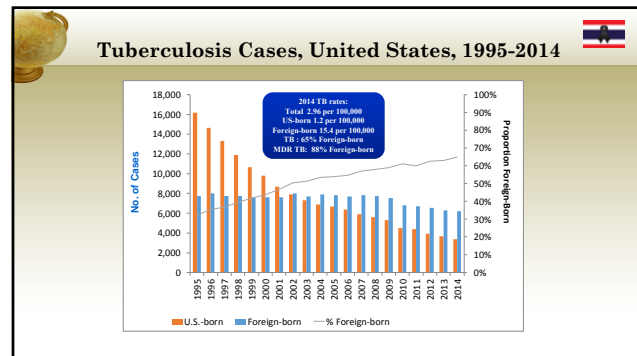
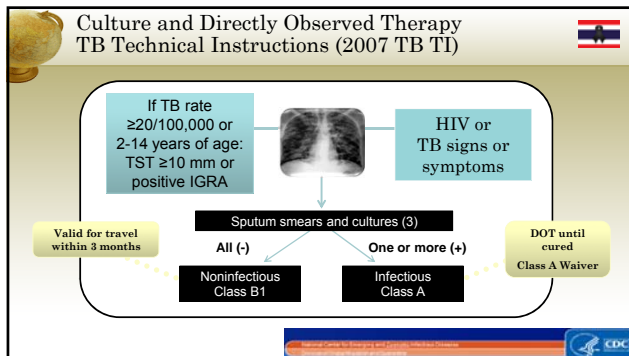
### Timeline for resettlement of Hmong refugees and identification of tuberculosis cases – Thailand and US December 2003-2005



\* Multidrug-resistant. Defined as resistant to at least isoniazid and rifampin.

MMWR Morb Mortal Wkly Rep. 2005 Aug 5;54(30):741-4





### TB on Thai-Myanmar border

- High prevalence area
- Many groups caring for patients: 5 provincial hospitals, NGOs and refugee camps
- Migrants with active TB are traveling for care – between Tak Province, Bangkok and Yangon
- Refugees have better access than other migrants to care
- Thailand's Compulsory Migrant Health Insurance helps some people access care

Fig 1. Mae La refugee camp is located in Tak Province, Myanmar. It is one of the largest TB treatment centers in Thailand. The map shows the location of Hpa An, Mae La, and Bangkok.

PLoS ONE 11(8):e0160222  
Tschirhart, Seim et al August 2016

### TB on Thai Myanmar Border

- “Dreamloppements”
- 90% of migrants in Tak province are uninsured
- NGO offering \$3/month health insurance for migrants
- Could be used as a model worldwide

Global Health NOW

GHN Exclusive

\$3 a Month

Health insurance for migrants in Tak, Thailand

### Presumptive Treatment for Intestinal Parasites, Dadaab Refugee Camp, Kenya

Slide courtesy of Dr Martin Cetron, DGMQ, CDC



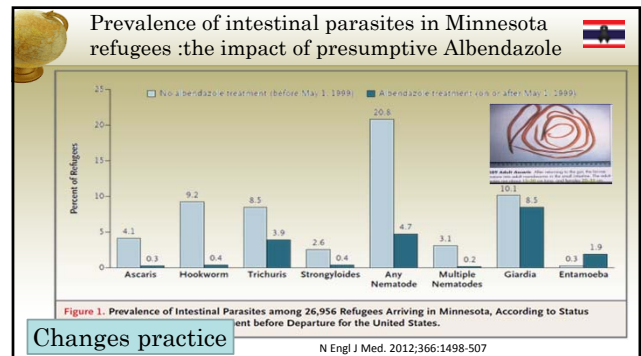
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Albendazole Therapy and Enteric Parasites in United States–Bound Refugees

Stephen J. Swanson, M.D., Christina R. Phares, Ph.D., Blain Mamo, M.P.H., Kirk E. Smith, D.V.M., Ph.D., Martin S. Cetron, M.D., and William M. Stauffer, M.D.

NEJM 2012;366:1498-507



### Overseas Refugee Presumptive Parasite Treatment

- Ivermectin for Strongyloides
- Praziquantel for Schistosomiasis in African refugees
- Artemether/lumefantrine for malaria

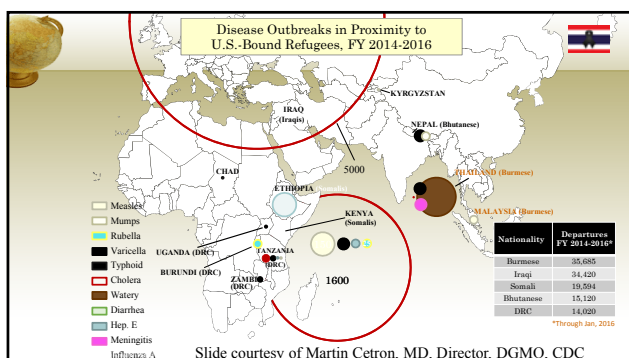
### Overseas Presumptive Treatment: Who is Getting What and Where?

Treatment Schedules for Presumptive Parasitic Infections for U.S.-Bound Refugees, administered by IOM<sup>a</sup>—June 2015

Region	Country of Origin	Principal Refugee Groups (Nationality)	Presumptive Parasitic Treatment for English Refugees <sup>b</sup>	Comments
Africa	Ethiopia	Eritreans (Shomaba); Somalis (Kahadiba); Multiple (Afar, Hadiba)	Ivermectin; Praziquantel; Artemether-lumefantrine	Ivermectin since Jan 2014
	Kenya	Somalis (Dadaab); Somalis, Ethiopians, Congolese (Kakuma); Multiple (Nairobi)	Albendazole; Ivermectin; Artemether-lumefantrine	Ivermectin since Sep 2013
	Tanzania	Congolese, Burundians (Ngarama)	Albendazole; Praziquantel; Artemether-lumefantrine	N/A
	Rwanda, Uganda, Burundi	Somalis, Congolese	Albendazole; Praziquantel; Artemether-lumefantrine	Ivermectin since April 2014
	South Africa and other countries	Multiple	Albendazole; Praziquantel; Artemether-lumefantrine	N/A
Asia	Malaysia	Burmese/Myanmar origin and others (Kuala Lumpur); other	Albendazole; Ivermectin	Ivermectin since Feb 2013
	Nepal	Burmese (Baidaryia and Baidaryia); other (Jorpati)	Albendazole; Ivermectin	Ivermectin since Jan 2013
	Thailand	Burmese/Myanmar origin (Thailand); Burma border; other (Jorpati)	Albendazole; Ivermectin	Ivermectin since July 2013
Middle East	Iraq	Iraqis (Baghdad and Erbil)	Albendazole; Ivermectin	Ivermectin since Jan 2014
	Jordan	Iraqis and Syrians (Amman)	Albendazole; Ivermectin	Ivermectin since Jan 2014
Europe	Turkey, Syria, Turkey, Egypt	Multiple	None	N/A
	Malaysia, Kyrgyzstan, Moldova	Multiple	None	N/A
Americas	Colombia, Colombia	Colombians	None	N/A
	Colombia, Colombia	Colombians	None	N/A

<sup>a</sup>Through Jan. 2016

<sup>b</sup>http://www.cdc.gov/immigrantrefugeehealth/guidelines/overseas/interventions/interventions.html

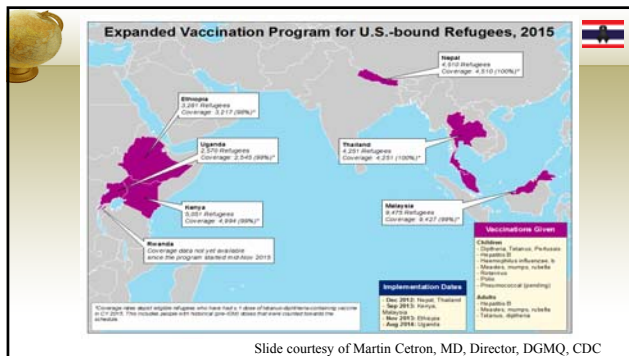


### Refugee Vaccination Program: Overview

- Up to 2012 - Many refugees arrived in U.S. with no vaccinations
  - Reports of VPD's in newly arrived refugees
  - Missed opportunity to vaccinate between overseas health exam & US arrival (4-6 months)
- Partnership between CDC, DOS, implemented by IOM, vaccinating against 11 diseases
- 2012 – began in 5 pilot countries: Malaysia, Nepal, Thailand, Ethiopia and Kenya
- 2016 and beyond – continuing to roll out globally with intentions of reaching 100% of USRP refugees

Slide courtesy of Martin Cetron, MD, Director, DGMQ, CDC





## Human mobility and health

- Demographics of human migration
- Examples of diseases moving with migrants
- History of modern refugee crisis
- Offer refugees as a case example of best practices in migrant health
- **Imagining our future in migration medicine**

## Imagining our future

- A world where upstream public health work is supported, and assessment and interventions occur during migration and before refugee resettlement

## Imagining Our Future

- A world where we work for peaceful resolutions of international conflicts (so that we don't have refugees...)

Photo: Arcadia University

## Imagining Our Future

- A world where we honor key principles of international refugee law

Photo Credit:  
University of Baltimore  
School of Law  
April 6, 2016

**Turkey's Breach of the Principle of Non-Refoulement**  
April 6, 2016 by Jan Gertken | 4 Comments

Non-refoulement is a fundamental principle in international law that was first laid out in the 1954 Convention relating to the Status of Refugees (Article 33(1)) of the convention provides that: "no Contracting State shall expel or return ('refouler') a refugee in any manner whatsoever to the frontiers of territories where his life or freedom would be threatened on account of his race, religion, nationality, membership of a particular social group or political opinion." [4] Recently, Turkey breached this principle of non-refoulement by illegally returning thousands of Syrian refugees to war-torn Syria.

## Imagining Our Future

- A world where governments, IO's and NGO's are prepared for high volume, long term tragedies such as the Syrian conflict

File photo shows a migrant boat in distress in the Mediterranean Sea. Photo: TORIS A/S



## Imagining Our Future

- A world which views refugee situations as the indescribable human tragedies which they are, and which responds with generosity and compassion



## Imagining Our Future

- “Refugees are not the danger – they are in danger”

Pope Francis  
Vatican City  
May 28, 2016



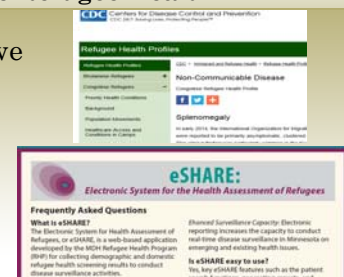
## Imagining Our Future

- A world in which medical providers are prepared for humanitarian crises abroad



## Imagining Our Future/ Domestic Refugee Health

- A world where we have fingertip access to the knowledge we need about diseases seen in each refugee group



## Imagining Our Future/ Domestic Refugee and Migrant Health

- A world where providers are trained in the body of knowledge which encompasses refugee and immigrant health, including clinical tropical medicine and traveler's health



Knowledge which didn't exist 35 years ago...  
CDC Refugee Health Guidelines and Community Profiles

[www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.html](http://www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.html)

[www.cdc.gov/immigrantrefugeehealth/profiles/index.html](http://www.cdc.gov/immigrantrefugeehealth/profiles/index.html)

- Bhutanese, Congolese, Iraqi, Burmese



## Knowledge which didn't exist 35 years ago

## Imagining Our Future/ Domestic Refugee and Migrant Health

- A world where providers have access to colleagues and experts which is timely and easy to access, and where we leverage that expertise more effectively

## Refugees telling their stories

## Imagining Our Future

- A world where providers routinely ask *"Where were you born, and where have you traveled?"*... and know what to do with the answer

Photo Credit:  
IOM via WHO

## Imagining Our Future

- A world where we remember that migration is circular – and we routinely ask “are you planning to travel back home?” (the Visiting Friends and Relatives or VFR traveler)

## Conclusions

- ❑ Human mobility, infectious diseases and health are inextricably connected
- ❑ Travelers, refugees and other migrants are important groups to target for infectious disease surveillance, screening and treatment
- ❑ Doing so pro-actively is better for patients, countries and the world community



Advocacy for migrant populations actually can make a difference – for both the person, and for the country receiving that person



President Barack Obama, on his final foreign trip, Nov. 2016

- “We have to guide against a tribalism built around “us” or “them”
- “The future will be decided by what we have in common, rather than what leads us in to conflict”



Krop khun mak, kha

