Stay up to date by signing up for our newsletter:
http://bit.ly/PolicyLab_Newsletter
policylab.chop.edu | @PolicyLabCHOP
Katherine Yun, MD, MHS
Faculty Member, PolicyLab at Children’s Hospital of Philadelphia, Assistant Professor of Pediatrics at Children’s Hospital of Philadelphia and the University of Pennsylvania Perelman School of Medicine

Blain Mamo, MPH
Refugee Health Coordinator, Minnesota Department of Health

Disclosures: No financial conflicts of interest
HOUSEKEEPING

• Use the “Questions” tab for any questions throughout the webinar

• We will be showing two short videos as part of the presentation; sound playback is limited to computer audio

• Find the archived webinar on PolicyLab’s website and YouTube page on April 4th

• Please fill out the post-webinar survey
REFUGEE HEALTH CARE IN THE UNITED STATES

Katherine Yun, MD, MHS, and Blain Mamo, MPH
PolicyLab Webinar Series
policylab.chop.edu | @PolicyLabCHOP
**PRESENTERS**

**Katherine Yun, MD, MHS**
Faculty Member, PolicyLab at Children’s Hospital of Philadelphia, Assistant Professor of Pediatrics at Children’s Hospital of Philadelphia and the University of Pennsylvania Perelman School of Medicine

**Blain Mamo, MPH**
Refugee Health Coordinator, Minnesota Department of Health

*Disclosures: No financial conflicts of interest*
At PolicyLab we seek to achieve optimal child health and well-being by informing program and policy changes through interdisciplinary research.
OVERVIEW

1. The continuum of care from overseas to arrival in the U.S. for refugees

2. Three common models of refugee health care in the U.S.

3. How to standardize health care for newly-arriving refugees

4. Steps for health systems and community partners to ensure the best care for this population
ABOUT THE MINNESOTA DEPARTMENT OF HEALTH

Our program’s mission is to promote and enhance the health and well-being of refugees.

- Refugee screening coordination
- Health care provider education
- Technical assistance, education and resources to local, state and community partners
- Leadership and guidance to national partners
A refugee is 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 return.

- UN Refugee Protocol & Convention

~65.6 million displaced people includes
~22.5 million refugees
(UNHCR Global Trends)

Arrivals by Fiscal Year: 1975-2017
• Refugees arriving in the U.S. are diverse with regards to nationality, ethnicity, religion, and language

• Refugee populations arriving in the U.S. change significantly over time, reflecting events on the world stage
HEALTH CARE BEGINS OVERSEAS

<table>
<thead>
<tr>
<th>COUNTRY OF ORIGIN</th>
<th>Vaccination</th>
<th>Biomedical &amp; Traditional Healing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COUNTRY OF DEPARTURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overseas Medical Examination</td>
<td>Public Health Surveillance</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. BOUND REFUGEES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaccination</td>
<td>Presumptive Treatment for Selected Parasitic Infections</td>
<td>Hepatitis B Screening</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARRIVAL IN THE U.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Medical Examination</td>
<td>Primary Care</td>
<td></td>
</tr>
</tbody>
</table>

https://www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.htm
HEALTH CARE BEGINS OVERSEAS

COUNTRY OF ORIGIN

Vaccination

Biomedical & Traditional Healing

COUNTRY OF DEPARTURE

Overseas Medical Examination

Public Health Surveillance

U.S. BOUND REFUGEES

Vaccination

Presumptive Treatment for Selected Parasitic Infections

Hepatitis B Screening

ARRIVAL IN THE U.S.

Domestic Medical Examination

Primary Care

https://www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.htm
Outbreak notification: Cholera in Lusaka, Zambia
February 2nd, 2018

Dear State Refugee Health Coordinator:

We are writing to notify you of a cholera outbreak in Lusaka, Zambia, and to inform you of measures CDC and partners have taken to reduce the risk of cholera among U.S.-bound refugees. Zambia has been experiencing a widespread cholera outbreak since October 2017. Although areas at risk for cholera do not currently include the refugee camps or the transit centers, CDC, the International Organization for Migration (IOM), and in-country partners have implemented public health measures to prevent cases, including improvements in water and sanitation, case management, and community outreach and education. To date, no cases of cholera have occurred among U.S.-bound refugees.

Specifically, the public health measures include:
HEALTH CARE BEGINS OVERSEAS

**COUNTRY OF ORIGIN**
- Vaccination
- Biomedical & Traditional Healing

**COUNTRY OF DEPARTURE**
- Overseas Medical Examination
- Public Health Surveillance

**U.S. BOUND REFUGEES**
- Vaccination
- Presumptive Treatment for Selected Parasitic Infections
- Hepatitis B Screening

**ARRIVAL IN THE U.S.**
- Domestic Medical Examination
- Primary Care
OVERSEAS MEDICAL EXAMINATION

Communicable diseases of public health significance include:

- Tuberculosis
- Syphilis
- Gonorrhea
- Hansen’s Disease (Leprosy)

And the following two disease categories:

- Quarantinable diseases designated by any Presidential Executive Order
- Events that are reportable as a public health emergency of international concern (PHEIC) to the World Health Organization (WHO) under the International Health Regulations (IHR) of 2005

https://www.cdc.gov/immigrantrefugeehealth/exams/medical-examination-faqs.html#5
HEALTH CARE BEGINS OVERSEAS

COUNTRY OF ORIGIN
- Vaccination
- Biomedical & Traditional Healing

COUNTRY OF DEPARTURE
- Overseas Medical Examination
- Public Health Surveillance

U.S. BOUND REFUGEES
- Vaccination
- Presumptive Treatment for Selected Parasitic Infections
- Hepatitis B Screening

ARRIVAL IN THE U.S.
- Domestic Medical Examination
- Primary Care

https://www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.htm
# Vaccines Given to Eligible U.S.-Bound Refugees

Vaccination Program for U.S.-Bound Refugees: Immunization Schedule (updated August 2016) Prepared by the Immigrant, Refugee and Migrant Health Branch, Division of Global Migration and Quarantine, CDC

<table>
<thead>
<tr>
<th>Vaccines Given to Eligible U.S.-Bound Refugees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth-adult</td>
</tr>
<tr>
<td>6 wks-&lt;15 wks</td>
</tr>
<tr>
<td>6 wks-&lt;5 yrs</td>
</tr>
<tr>
<td>6 wks-&lt;7 yrs</td>
</tr>
<tr>
<td>6 wks-&lt;11 yrs</td>
</tr>
<tr>
<td>7 yrs-adult</td>
</tr>
<tr>
<td>≥ 1 yr-born ≥ 1957</td>
</tr>
<tr>
<td>HepB x 2&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Rotavirus x 2 (maximum age for dose 2 is 8 mos)</td>
</tr>
<tr>
<td>Hib (x 2 if &lt;15 mos; x 1 if 15 mos-5 yrs)&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>PCV-13 (x 2 if &lt;2 yrs; x 1 if 2-5 yrs)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>DTP x 1&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
<tr>
<td>Polio x 2 doses (OPV, IPV, or one of each)</td>
</tr>
<tr>
<td>Td x 2</td>
</tr>
<tr>
<td>MMR x 2</td>
</tr>
</tbody>
</table>

<sup>1</sup> Refugees are tested for hepatitis B virus infection (HBsAg) prior to vaccination, and are vaccinated only if negative (and if a dose is due).

<sup>2</sup> One dose of Hib vaccine is recommended for unimmunized asplenic persons regardless of age, and for unimmunized HIV-positive patients up to age 18 years.

<sup>3</sup> When available, PCV-13 will be given to children 6 wks-<5 yrs of age. A second dose will be given to children up to age 2 yrs. One dose of PCV-13 will also be recommended for all immunocompromised persons, regardless of age.

<sup>4</sup> Children residing in refugee camps often receive several doses of whole-cell pertussis (DTwP) as part of camp EPI programs. Children enrolled in the Vaccination Program for U.S.-bound Refugees will receive only 1 dose of DTP or pentavalent (DTP-Hib-HepB) from IOM/Panel Physicians, if due, in order to reduce the risk of severe local reactions.

HEALTH CARE BEGINS OVERSEAS

**COUNTRY OF ORIGIN**
- Vaccination
- Biomedical & Traditional Healing

**COUNTRY OF DEPARTURE**
- Overseas Medical Examination
- Public Health Surveillance

**U.S. BOUND REFUGEES**
- Vaccination
- Presumptive Treatment for Selected Parasitic Infections
- Hepatitis B Screening

**ARRIVAL IN THE U.S.**
- Domestic Medical Examination
- Primary Care

VACCINES GIVEN TO ELIGIBLE U.S.-BOUND REFUGEES

Vaccination Program for U.S.–Bound Refugees: Immunization Schedule (updated August 2016) Prepared by the Immigrant, Refugee and Migrant Health Branch, Division of Global Migration and Quarantine, CDC

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Vaccines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth-adult</td>
<td>HepB x 2¹</td>
</tr>
<tr>
<td>6 wks–&lt;15 wks</td>
<td>Rotavirus x 2 (maximum age for dose 2 is 8 mos)</td>
</tr>
<tr>
<td>6 wks–&lt;5 yrs</td>
<td>Hib (x 2 if &lt;15 mos; x 1 if 15 mos–5 yrs)²</td>
</tr>
<tr>
<td>6 wks–&lt;7 yrs</td>
<td>PCV-13 (x 2 if &lt;2 yrs; x 1 if 2-5 yrs)³</td>
</tr>
<tr>
<td>6 wks–&lt;11 yrs</td>
<td>DTP x 1⁴</td>
</tr>
<tr>
<td>7 yrs–adult</td>
<td>Polio x 2 doses (OPV, IPV, or one of each)</td>
</tr>
<tr>
<td>≥ 1 yr–born ≥ 1957</td>
<td>Td x 2</td>
</tr>
<tr>
<td></td>
<td>MMR x 2</td>
</tr>
</tbody>
</table>

¹ Refugees are tested for hepatitis B virus infection (HBsAg) prior to vaccination, and are vaccinated only if negative (and if a dose is due).

² One dose of Hib vaccine is recommended for unimmunized asplenic persons regardless of age, and for unimmunized HIV-positive patients up to age 18 years.

³ When available, PCV–13 will be given to children 6 wks–<5 yrs of age. A second dose will be given to children up to age 2 yrs. One dose of PCV-13 will also be recommended for all immunocompromised persons, regardless of age.

⁴ Children residing in refugee camps often receive several doses of whole-cell pertussis (DTwP) as part of camp EPI programs. Children enrolled in the Vaccination Program for U.S.-bound Refugees will receive only 1 dose of DTP or pentavalent (DTP-Hib-HepB) from IOM/Panel Physicians, if due, in order to reduce the risk of severe local reactions.

https://www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.htm
HEALTH CARE BEGINS OVERSEAS

COUNTRY OF ORIGIN
- Vaccination
- Biomedical & Traditional Healing

COUNTRY OF DEPARTURE
- Overseas Medical Examination
- Public Health Surveillance

U.S. BOUND REFUGEES
- Vaccination
- Presumptive Treatment for Selected Parasitic Infections
- Hepatitis B Screening

ARRIVAL IN THE U.S.
- Domestic Medical Examination
- Primary Care

https://www.cdc.gov/immigrantrefugeehealth/guidelines/refugee-guidelines.htm
### Treatment Schedules for Presumptive Parasitic Infections for U.S.-Bound Refugees, Administered by IOM – February 2017

<table>
<thead>
<tr>
<th>Region</th>
<th>Country of Processing</th>
<th>Principal Refugee Groups</th>
<th>Presumptive Parasite Treatment for Eligible Refugees</th>
<th>Special Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>Chad</td>
<td>Central African Republic; Sudanese Darfuri</td>
<td>Albendazole, Praziquantel Artemether-lumefantrine</td>
<td>Ivermectin is not administered to refugees who have resided or traveled in <em>Loa loa</em>-endemic countries due to risk of encephalopathy associated with ivermectin treatment in a person with <em>Loa loa</em> infection.</td>
</tr>
<tr>
<td></td>
<td>Burundi, Dijbouti, Ethiopia, Kenya, Rwanda, South Africa, Tanzania, Uganda, others</td>
<td>Somali; Congolese, Ethiopian; Eritrean; Sudanese (other than Sudanese Darfuri); South Sudanese</td>
<td>Albendazole Praziquantel Ivermectin Artemether-lumefantrine</td>
<td>Of note, refugees of Congolese or South Sudanese origin who resided or traveled in Democratic Republic of Congo (DRC) or South Sudan do NOT receive ivermectin. However, children of Congolese or South Sudanese origin who were born in the camps in non <em>Loa loa</em>-endemic countries and have not resided or traveled in DRC or South Sudan are (usually) treated with ivermectin.</td>
</tr>
</tbody>
</table>
MODELS OF CARE FOR THE DME: (1) SCREEN, REFER & FOLLOW UP

<table>
<thead>
<tr>
<th>Work outside the institution</th>
<th>Work within the institution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resettlement Agency</strong></td>
<td><strong>Health System</strong></td>
</tr>
<tr>
<td>- Contacts clinic</td>
<td>- Patient created &amp; registered in system</td>
</tr>
<tr>
<td><strong>Public Health System</strong></td>
<td><strong>Domestic Medical Exam</strong></td>
</tr>
<tr>
<td>- Overseas Medical Exam</td>
<td>- OME reviewed &amp; abstracted</td>
</tr>
<tr>
<td>- U.S. disease surveillance</td>
<td>- Labs drawn</td>
</tr>
<tr>
<td><strong>Resettlement Agency</strong></td>
<td></td>
</tr>
<tr>
<td>- Helps patient establish medical home</td>
<td></td>
</tr>
</tbody>
</table>

- Primary Care

Follow-up visit
MODELS OF CARE FOR THE DME: 2) TWO SITE MODEL

Work outside the institution

Public Health System
- Overseas Medical Exam

Domestic Medical Exam
Part 1
- OME Reviewed & abstracted
- Some labs drawn
- Initial vaccines

Resettlement Agency
- Contacts clinic
- Helps patient establish medical home

Work within the institution

Health System
- Patient created & registered in system
- Documents reviewed & abstracted

Domestic Medical Exam
Part 2
- Medical history
- Additional labs
- Additional vaccines
- Treatment as needed

Ongoing Primary Care
MODELS OF CARE FOR THE DME: 3) SINGLE SITE MODEL

**Work outside the institution**

- Resettlement Agency
  - Contacts clinic

- Public Health System
  - Overseas Medical Exam
  - U.S. disease surveillance

**Work within the institution**

- Health System
  - Patient created & registered in system

  **Pre-visit**
  - OME reviewed & abstracted
  - Labs drawn
  - Vaccines administered

- Domestic Medical Exam
  - Medical history
  - Additional labs
  - Additional vaccines
  - Treatment as needed

- Ongoing Primary Care
CHALLENGES:

• DME guidelines address multiple nationalities, age groups, and genders
• Screening (DME) sites are widely dispersed
• Fund of knowledge different from “routine” health care
• Depends upon information transmitted from overseas
MAKING SURE WE GET IT RIGHT

• Prevent adverse outcomes and health disparities for patients, e.g., liver disease caused by hepatitis B $^{1-2}$

• Strengthen screening & treatment for conditions of (personal and) public health importance $^{3}$

• Provide more effective patient care by enhancing surveillance for emerging issues, e.g., population-specific risk factors for lead poisoning $^{4}$

---


CLINICAL DECISION SUPPORT:
Using the Electronic Health Record (EHR) to:

- Integrate CDC guidelines into clinician documentation and ordering
- Standardize data collection
- Improve the patient experience and prevent health disparities
DEVELOPING CLINICAL DECISION SUPPORT (CDS) FOR THE DME

"Develop tools to encourage evidence-based, guideline-directed standardized care across institutions for newly arriving refugee patients while providing flexibility for local workflows & local resources."

2016: Survey of refugee health professionals (N=414)
- 40 states
- 316 clinicians & 98 public health professionals
- 182 Epic users

2016-present: Clinical Decision Support Workgroup
- 21+ contributors
- 13+ institutions

Workgroup Consultation & Guideline Review
Pilot at Build Site (CHOP)
Pilot at External Site (MN HealthPartners)

Adam Palmer, Andrea Evans, Andrea Green, Ann Settgast, Betty Housey, Carolyn McCarthy, Dawn Davis, Dipti Shah, Eliza Priest, Elizabeth Dawson-Hahn, Emily Esmaili, Emily Jentes, Fabiana Kotovicz, Ingrid Attleson, Jennifer Cochran, Joanna Lynch, Joel Davidson, Joshua Boortz, Kailey Urban, Karman Ott, Ker Vue, Larisa Turin, Laura Smock, Margaret Fitzthum, Marisa Ramos, Mary Fabio, Meera Siddharth, Melissa Moore, Mikhail Perelman, Molly Drake, Patricia Walker, Robert Carlson, Sarah Kimball, Seth Clark, Shary Vang, Shayla Holcomb, Suzinne Pak-Gorstein, Thomas Herchline, Timothy Childers, Tobey Audcent, Ann Linde, Blain Mamo, Clara Warden, Evan Orenstein, Jeremy Michel, Kate Yun, Morgan Mirth, Mike Westerhaus
Additional thanks: Camille Brown, Janine Young, Daniel Vostrejs, Julie Linton
CLINICAL DECISION SUPPORT FOR THE DME

Work outside the institution

Volag
- Contacts clinic

Public Health System
- Overseas Medical Exam
- U.S. disease surveillance

Volag
- Helps patient establish medical home

Work within the institution

Health System
- Patient created & registered in system

OME reviewed & abstracted

Pre-visit
- OME reviewed & abstracted
- Labs drawn
- Vaccines administered

Labs drawn

Domestic Medical Exam
- Medical history
- Additional labs
- Additional vaccines
- Treatment as needed

Ongoing Primary Care
EXAMPLE 1:
Amir is 5-year old refugee from Iraq who was born in Jordan. His family arrived in the U.S. two weeks ago and are coming to CHOP for Amir’s DME.
EXAMPLE 2:

Chandra is a 28-year-old refugee from Bhutan who has been living in Nepal. She arrived in the U.S. two weeks ago. She had her Pre-Visit and is now ready for the rest of her DME.
DISSEMINATION TO OTHER INSTITUTIONS (COMING SOON)

Epic community library
• https://userweb.epic.com/

Build Guide
• Draft form
• Intended for an Epic analyst team
• Flags “customization” points
• Adaptable for other EHRs
SUMMARY

• Refugee health care exists across a continuum that begins overseas

• Health care requires cross-sector collaboration and integration of overseas health information

• Sharing resources and tools for the DME should improve both patient care and public health
HEALTH CARE ALONE IS NOT ENOUGH TO IMPROVE HEALTH

North American Refugee Health Conference,
June 7-9, Portland, Oregon
RESOURCES

CDC Immigrant and Refugee Health
https://www.cdc.gov/immigrantrefugeehealth/index.html

MN Refugee Health
http://www.health.state.mn.us/refugee/

Office of Refugee Resettlement
https://www.acf.hhs.gov/orr/refugees

Association of Refugee Health Coordinators
https://refugeehealthcoordinators.wordpress.com

Ethnomed https://ethnomed.org/

Refugee Health Technical Assistance Center
http://refugeehealthta.org/

CMAJ Evidence-based clinical guidelines for immigrant and refugees

Society of Refugee Healthcare Providers
http://nasrhp.org/

AAP Immigrant Child Health Toolkit

Caring for Kids New to Canada
https://www.kidsnewtocanada.ca/

American Society of Tropical Medicine & Hygiene
http://www.astmh.org/

UNHCR Global Trends
http://www.unhcr.org/globaltrends2016/

Refugee Processing Center
http://www.wrapsnet.org/
ACKNOWLEDGEMENTS

**Workgroup Contributors:** Adam Palmer, Andrea Evans, Andrea Green, Ann Settgast, Betty Housey, Carolyn McCarthy, Dawn Davis, Dipti Shah, Eliza Priest, Elizabeth Dawson-Hahn, Emily Esmaili, Emily Jentes, Fabiana Kotovicz, Ingrid Attleson, Jennifer Cochran, Joannah Lynch, Joel Davidson, Joshua Boortz, Kailey Urban, Karman Ott, Ker Vue, Larisa Turin, Laura Smock, Margaret Fitzthum, Marisa Ramos, Mary Fabio, Meera Siddharth, Melissa Moore, Mikhail Perelman, Molly Drake, Patricia Walker, Robert Carlson, Sarah Kimball, Seth Clark, Shary Vang, Shayla Holcomb, Suzinne Pak-Gorstein, Thomas Herchline, Timothy Childers, Tobey Audcent

**CDS Development Team:** Ann Linde, Blain Mamo, Clara Warden, Evan Orenstein (clinical informatics fellow), Jeremy Michel (clinical informatics supervisor), Kate Yun (PA site lead), Morgan Mirth, Mike Westerhaus (MN site lead)

**Additional Thanks:** Camille Brown, Julie Linton, Janine Young, Daniel Vostrejs, Christina Phares, Emily Jentes

**CDS development was supported by the Centers for Excellence in Refugee Health cooperative agreement 5 NU50CK000459 from the U.S. Centers for Disease Control and Prevention.**
QUESTIONS AND COMMENTS?

PolicyLab
Children’s Hospital of Philadelphia
2716 South Street
Roberts Center, 10th Floor
Philadelphia, PA 19146

YunK@email.chop.edu
Blain.Mamo@state.mn.us
policylab.chop.edu
@PolicyLabCHOP