Refugee and Migrant Health: Cases

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Update Course, Toronto, Ca, Nov 9, 2025

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Conflicts of Interest

- Nothing to disclose

2

Who are "mobile populations"?

- Travelers
  - 1.6 billion
    - Short-term
    - Long-term/expats
    - VFRs
- RIM populations
  - Economic Migrant laborers
  - Nomadic
  - International adoption
  - Human trafficking
  - Displaced populations
    - IDP
    - Refugees
    - Asylees
    - Unaccompanied children

Nikola Sander, Guy J. Abel and Ramon Bauer of the Wittgenstein Centre for Demography and Global Human Capital in Austria https://download.gsb.bund.de/BIB/global_flow/ 2005-2010, accessed 10/26/2025

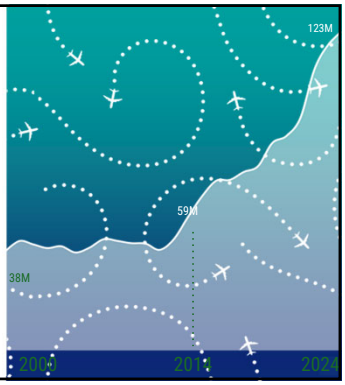
3

Migration Patterns

Globally, migration is rising, with 281 million people living outside their countries of origin, including 123 million forcibly displaced—a figure that has **more than doubled in the last decade**.

source: UNHCR 2024

Migration Health Initiative · Task Force for Global Health



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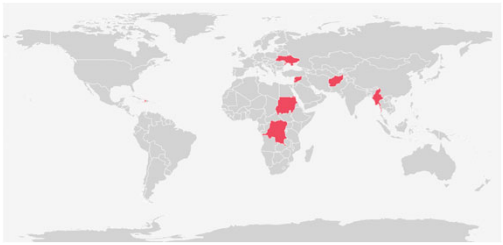
Key displacement situation 2024 per UNHCR



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Third Country Resettlement

- < 1% of Refugees
- ~20 countries with formal resettlement programs

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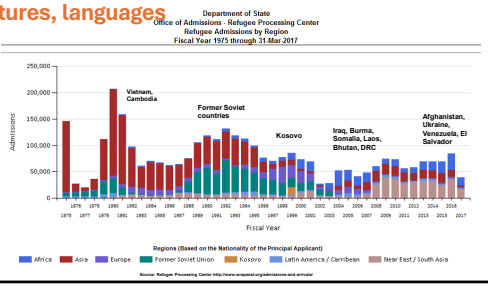
Origins and numbers of U.S. refugee admissions change over time--so do Infectious Diseases, NCD's, cultures, languages



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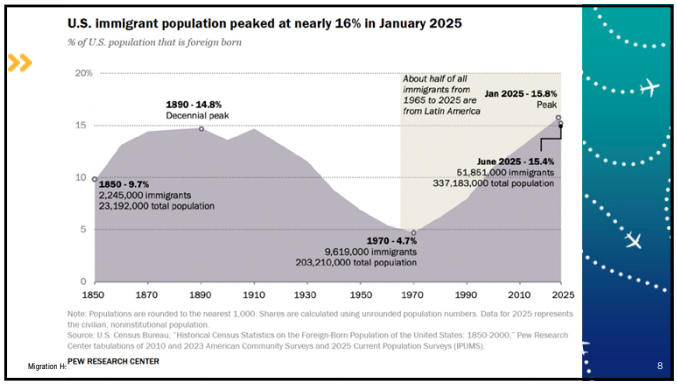

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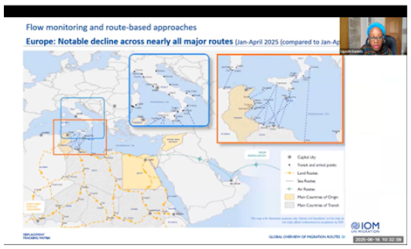
IOM migration updates 2025 – Ugochi Daniels

(Deputy Director General IOM @ International Forum on Migration Statistics June, 2025)



https://www.oecd-events.org/ifms2025/onlinesession/f0e91988-e051-f011-8f7c-6045bd96bdd0

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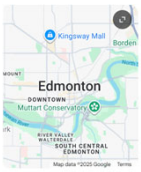
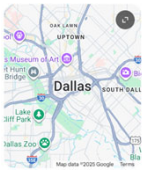
U.S, 2025

- By June 2025 – dropped 1.4 million
- June 2024 – Biden new restrictions on asylum applications
- Trump 100 days = 181 executive actions on immigration
- Still highest # of immigrants
  - Not %
  - United Arab Emirates >75%
  - Canada 22%





https://www.pewresearch.org/short-reads/2025/08/21/key-findings-about-us-immigrants/#:~:text=immigrants%20speak%20English?-,How%20many%20people%20in%20the%20U.S.%20are%20immigrants?,immigrants%20than%20any%20other%20country.

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HPI

AI Generated Image using Canva

- 17-year-old female presents with 8 days of malaise, headache, abdominal pain, nausea, and diffuse pain – especially knees and hands - and pins and needles in her feet while walking.
- Symptoms waxed and wane and are not all present at once.
- Now vomiting x3 today and SOB, esp. with exertion.
- Unable to stand for long.
- Temp 99.9˚F, BP 136/103, HR 140

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Exam

AI Generated Image using Canva

- General: She is not in acute distress. She is not ill-appearing or diaphoretic.
- Eyes: Extraocular movements intact. Conjunctivae normal. Pupils are equal, round, and reactive to light.
- Cardiovascular: Normal rate and regular rhythm. Normal pulses. Normal heart sounds. No murmur (flow murmur present) heard.
- Pulmonary: Normal breath sounds.
- Abdominal: Abdomen is flat. Bowel sounds are normal. There is abdominal tenderness. There is guarding and rebound. Hepatosplenomegaly
- Musculoskeletal: Normal range of motion. Back: Normal range of motion and neck supple. No tenderness.
- Lymphadenopathy: No cervical adenopathy.
- Skin: Skin is warm and dry. Capillary Refill: Capillary refill takes more than 3 seconds. Delayed
- Neurological: No focal deficit present. She is alert and oriented to person, place, and time. No cranial nerve deficit. No sensory deficit. Bilateral lower extremity weakness in quads. Coordination normal. Gait abnormal.

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What would you like to know?

- Hint: This session's title…
- Aways ask where are you from?
- Where have you "traveled"?

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Travel

- Lived in Minnesota for 1 year, not out of the state
- Walked from Ecuador to Texas
- In Texas ???
- Given a ride to MN to be with family
- Denies other medications besides ibuprofen

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The Darién Gap

- Break in the Pan-American Highway
  - Only land between N. and S. America- Colombia to Panama
- High mountain ridges, rivers, dense jungle
- ~10 days to cross on foot

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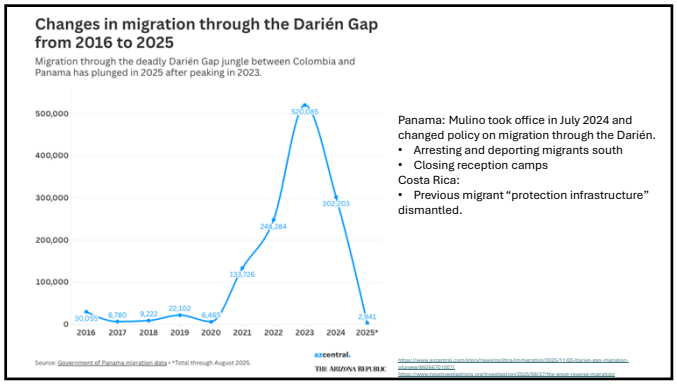

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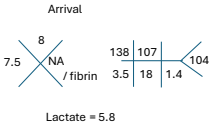
Next Steps in Emergency Department

- Zofran
- 1600 ml LR
- Ibuprofen
- Pregnancy test –
- eFAST positive
- EKG = sinus tachycardia
- Influenza A/B/COVID -



Lactate = 5.8

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Next Steps in Emergency Department

- Zofran
- 1600 ml LR
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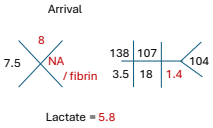

Lactate = 5.8

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Assessment:

- 17 y.o. female from Ecuador, walked to Minnesota a year before presenting with subjective fevers, headache and body aches, vomiting, anemia, AKI, lactic acidosis, and perihepatic and pelvic fluid, and is worsening…
  - HR 140
  - BP 90/40

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Why People Leave

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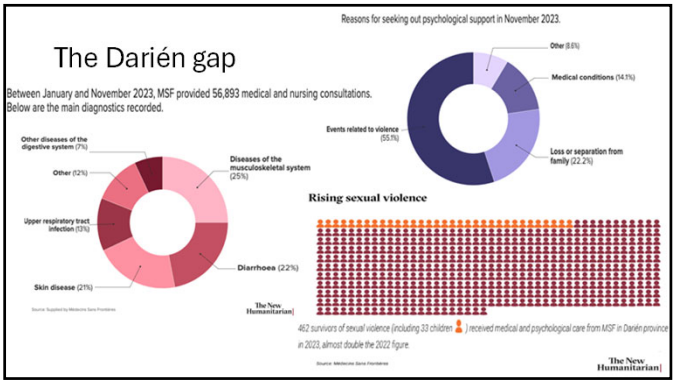
The Darién gap



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The Darién Gap

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Differential

- Infectious
  - Bacterial infection
    - UTI - pyelonephritis
    - Meningitis
    - Pelvic inflammatory disease
    - E. coli
    - Salmonella
    - Pneumonia
    - Tick borne
  - Viral
    - Coxsackievirus
    - Enterovirus
    - HIV + OI
    - EBV
    - Bird flu (if 2025/2026)
  - Fungal
    - Blastomycosis
    - Histoplasmosis
    - Coccidiomycosis
    - Paracoccidiomycosis
- Heme/Onc
  - AML
  - HLH
- Autoimmune
  - SLE
  - JIA
  - MISC
- Tox
  - Alcohol(s)
  - THC
  - Synthetics
- Neuro
  - MS
  - Guillain barre
  - Spinal abscess
  - Transverse myelitis

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4 hours from check in 2 hours since last lab

6.8
8.9 39

INR 1.9
Lactate = 4.5

- Critical result: gametocytes on CBC
  - RDT done + for non-falciparum sp.

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Case Continues

- UA: cloudy, mod blood, Prot 30, urobilin, small Leuk Est, 11-20 WBC, >20 RBC, >20 hyaline casts, + bacteria
- Retic 0.9
- Lactate 2.4
- Blood smear sent – ***P. vivax* 0.43% parasitemia**

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Treating sepsis

- Ceftriaxone
- Atovaquone-proguanil
- 500 ml LR
- 1U pRBC
- 1U platelets

- Temp 37˚C, BP 80/30, HR 70's, 40 when sleeping

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Anemia, hemolytic +? And thrombocytopenia

- Retic 0.9
- Haptoglobin <3
- LDH 363 (^)
- Direct coombs +
- Peripheral smear – hemoglobin C crystals, microcytic anemia with target cells, thrombocytopenia, leukopenia
- Referred to the University for bone marrow biopsy…

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ID Consult: DDX

Rheumatologic : MISC vs JIA vs

Hem Onc : malignancy vs HLH

ID : Disseminated histoplasmosis vs. Leishmaniasis vs chronic chagas vs malaria

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Case continues…

Infectious work up	Immune/ Autoimmune	Nutritional	Onc	Imaging
• RPR +1:2 • Hep A, B, immune • EBV surface Ag high, IgG and IgM also • EBV DNA 161,501 copies/ml • CMV - • Parvo - • HIV - • TB quant - • O&P *Blastocystis hominis* • GC / Chlamydia - • Repeat malaria smear and RDT day 3 - • Karius – *P. vivax*, EBV	• IGGS high, • C3, C4, ds DNA nl • RF + • ANA + • ENA - • Cardiolipin IgG/IgM AB positive • Centromere AB IGG nl • Anti smith - • CK 14 • TSH nl	• B12 811 • Folate 9 • Iron low • IBC high	• Flow cytometry: polyclonal B cells • Bone marrow biopsy: normocellular with trilineage, no increase in blasts • Decreased sideroblastic iron	• Head Ct unremarkable • Abd US splenomegaly • US legs, no DVT

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What 1 more test do you want, and when?

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P. vivax:

- Where was she from in Ecuador?
- What is needed to prevent recurrence?
- Is 0.43% parasitemia enough to explain this teen's presentation?
- Was there a mysterious tox?

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Follow up

- Weakness improved immediately after bone marrow biopsy.
- G6PD levels normal. Home with primaquine and completed treatment.
- Inflammatory labs all normalized.
- Retic, iron and iron binding remained indicative of iron deficiency.

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HPI

- 23-year-old male, no PMHx or current medications
- Recently arrived in Minnesota, presented to ED with two months of feeling unwell
  - Subjective fever
  - Night sweats
  - Weight loss (30 lbs!)
  - Chest pain
  - Cough
  - Abdominal pain (epigastric)
  - Diarrhea
  - Headache
  - Diffuse myalgias

Additional questions?

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Social/travel history

- Originally from Ethiopia
- Left Ethiopia in April, flew to Nairobi, Kenya
- Flew to Brazil
- Traveled on foot/bus through South and Central America
- Arrived at US/Mexico border mid June, was in a detention facility for several days
- Arrived in MN and presented to ED soon after

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Exam

Vitals: T 98.4, HR 112, BP 110/69, saturating well on RA
Constitutional: Interactive. Appears underweight/cachectic.
Psychiatric: alert, oriented, cooperative, normal affect.
Lymph Nodes: Palpable cervical and submandibular LNs- mostly on the left side of the neck. Palpable R axillary node.
Pulmonary: No respiratory distress. Breathing comfortably. Decreased breath sounds in the lower lung fields bilaterally.
Cardiovascular: Tachycardic. No LE edema.
GI/Abdomen: Abdomen round and distended. No rebound. No guarding.
Skin: No rash.
Neurologic: Mental status: oriented to time, place, person. CN II-XII intact. Normal strength and DTRs.
Musculoskeletal: No joint effusions or deformities. No pain with palpation along spine.
GU: Not examined.

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Labs

Glucose (70-100 mg/dL):	**103 (H)**
Sodium (135-148 mmol/L):	**134 (L)**
Potassium (3.5-5.3 mmol/L):	3.5
Chloride (92-108 mmol/L):	100
Creatinine (0.70-1.25 mg/dL):	**<0.57 (L)**
ICA pH corrected (4.40-5.20 mg/dL):	4.5
Albumin (3.8 - 5.1 g/dL):	**3.0 (L)**
Lactate (0.7 - 2.1 mmol/L):	**2.4 (H)**
LD (135 - 225 IU/L):	**260 (H)**
Alk Phos (40 - 129 IU/L):	105
ALT (SGPT) <=41 IU/L:	11
AST(SGOT) 5 - 40 IU/L:	21
Bili Total <=1.2 mg/dL:	0.3

Hgb (13.1 - 17.5 g/dL):	**11.3 (L)**
Plt (150 - 400 k/cmm):	**583 (H)**
WBC (4.00 - 10.00 k/cmm):	5.56
Hematocrit (40.0 - 51.0 %):	**35.2 (L)**
MCV80.0(- 100.0 fL):	93.6
Abs Neutrophil (1.70 - 6.50 k/cmm):	4.13
Abs Lymphocyte (0.80 - 4.00 k/cmm):	**0.53 (L)**
Abs Monocyte (0.20 - 1.00 k/cmm):	0.85
Abs Eosinophil (0.00 - 0.60 k/cmm):	0.00
Abs Basophil (0.00 - 0.20 k/cmm):	0.01

HIV negative
Malaria smear negative

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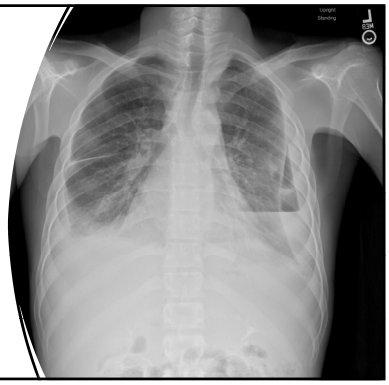
Radiology evaluation?



CXR:

IMPRESSION:
1. Positive for loculated left pleural effusion
2. Right pleural effusion.
3. Nodular airspace opacities throughout both lungs.

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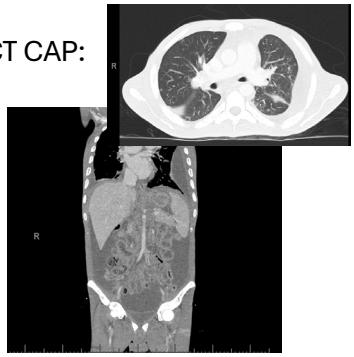
CT CAP:



Report:

Extensive left-sided pleural thickening with loculated effusion versus empyema measuring up to 15.8 cm.

Right-sided pleural thickening with small associated effusion.

Extensive tree-in-bud nodularity throughout the left greater than right lungs suspicious for an infectious etiology.

Large volume ascites with peritoneal thickening and enhancement suggestive of peritonitis. Medialized bowel loops are present.

Subcentimeter hypoattenuating nodularity of the liver.

Extensive enlarged mediastinal, hilar and retroperitoneal lymphadenopathy is likely reactive.

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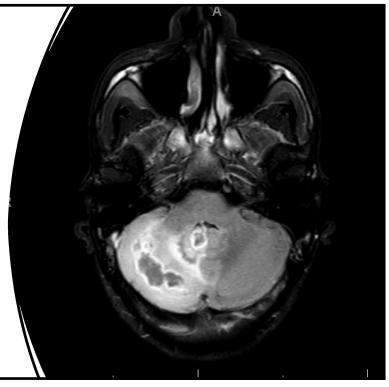
MRI brain



Impression:

Multiple ring-enhancing lesions in the right cerebellum, fourth ventricle and right frontal lobe with associated pachymeningeal enhancement.

Moderate right cerebellar edema. Mass effect on the fourth ventricle with no hydrocephalus.

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DDx and next steps?

- Bacterial:
  - Mycobacterium tuberculosis complex
  - Nocardia
  - Brucella
  - Disseminated Staph or Strep (+/- endocarditis)
  - Melioidosis
- Fungal:
  - Histoplasmosis
  - Coccidioidomycosis
  - Paracoccidioidomycosis
  - Cryptococcoses
- Parasitic:
  - Toxoplasmosis
  - Visceral Leishmaniasis
- Noninfectious
  - Malignancy
  - Sarcoidosis

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Next steps

- Thoracentesis:
  - RBC PF cells/ul 3,000
  - Nuc Ct PF cells/ul 1,128
  - Neutrophils PF % 1
  - Lymphocytes PF% 97
  - Adenosine Deaminase (0 - 30 U/L) **49 (H)**
  - Cytology negative
  - AFB smear negative, MTB PCR negative
- Paracentesis:
  - Rbc PT cells/ul 3,000
  - Nuc Ct PT cells/ul 1,025
  - Neutrophil PT % 2
  - Lymphocytes PT% 92
  - Adenosine Deaminase **57 (H)**
  - AFB smear negative, MTB PCR negative
- QFT positive
- Sputum AFB x 3: smear negative, MTB PCR negative
- EUS with mediastinal LN biopsy:
  - Report: "Necrotizing granulomatous inflammation. AFB and GMS stains are negative for acid fast and fungal organisms."
  - Micro lab: AFB smear negative, MTB PCR negative

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Remaining ID work up

- H pylori antigen (feces) positive
- Blood cultures x2 negative
- Stool GI panel negative
- Stool O&P: Blastocystis hominis, Endolimax nana
- Toxoplasma IgG positive, IgM negative
- Histoplasma urine antigen negative
- Coccidioides Ab negative
- Strongyloides IgG negative
- Bacterial and fungal cultures from sputum, pleural and peritoneal fluid, LN biopsy negative

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Now what?

- Start TB therapy?
- Airborne isolation?
- When is it ok to discharge?

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The answer…

- AFB cultures:
  - Lymph node tissue: **MTB complex**
  - Sputum (2/3 samples): **MTB complex**
  - Pleural fluid: negative
  - Peritoneal fluid: negative
  - Feces: negative
- Why did he end up with disseminated TB disease??
  - No known immunocompromise: HIV negative, HTLV-1 negative
  - Felt well prior to leaving Ethiopia
  - No known recent TB contacts
  - Severe malnutrition and stress from prolonged migration to the US?

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Follow up

- Treated with HRZE (Isoniazid, rifampin, PZA, ethambutol) for 2 months
- Decadron taper over 6 weeks
- MTB susceptibilities show sensitive to all first line drugs
- At 2 months of treatment, follow up imaging (CXR and MRI) with improvement and repeat sputum negative
- After 60 days of HRZE, transitioned to INH and RIF only and completed an additional 10 months of treatment (12 months total)
- End of treatment imaging (CXR and MRI) normalized
- Planned for repeat CXR approximately 6 months after stopping treatment

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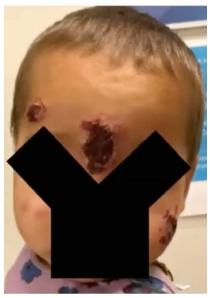
HPI

- A 1.5-year-old child with no previous reported medical history presents with the following skin lesions on her face. The lesions stared while in Afghanistan's Farbyab province (bordering Turkmenistan) 3-4 months ago. Her mother and older sister have similar lesions. Over the 3-4 months the lesions increased in size.



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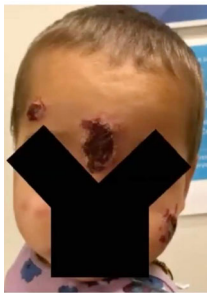
Questions:

- What testing would you like to do?
- What treatment?



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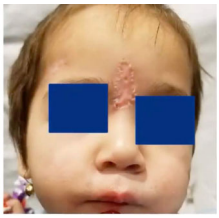
Follow up:

- Oral Fluconazole + wound care.
- Right cheek lesion healed completely.
- Ulcerated lesion did scar.



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Microbes move with humans--it is what they have always done

- An example of how the dynamics of human mobility affects health

Image source: Efficient Microbes

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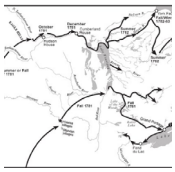
Epidemics

- Smallpox epidemic in 1781
  - 3 years to reach Churchill, Canada from current northern U.S. (Minnesota)

Epidemics move at the speed of human movement



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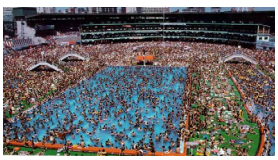
What has changed?



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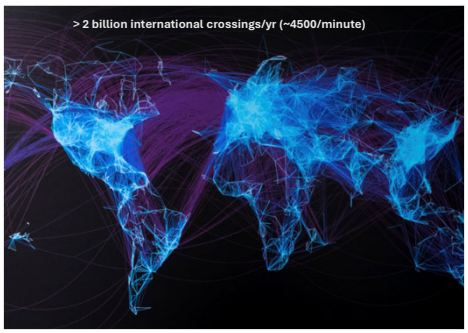

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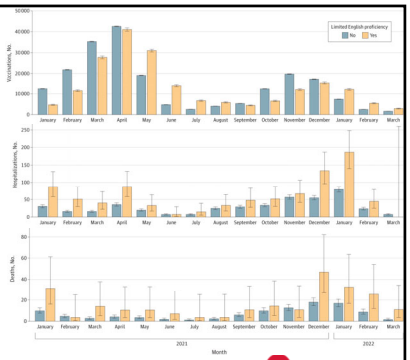
Preferred language and interpreter

- N=851,410 (2020-22)
- Largest study ever to look at patient outcome based on preferred language/use of an interpreter



JAMA Netw Open. 2023;6(4):e237877. doi:10.1001/jamanetworkopen.2023.7877

JAMA Network

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American Journal of Preventive Medicine

RESEARCH ARTICLE

Understanding COVID-19 Health Disparities With Birth Country and Language Data

Highest death rate was in a White population, the lowest and Second highest death rate were in Asian populations

Table 2. Frequencies and Age-Adjusted RRs of COVID-19 Infection, Hospitalization, and Death

Demographics	Total N 1,114,895	Positive test result Cases per 1,000 36.8	Positive test result RR (95% CI) —	Hospitalization Cases per 1,000 4.0	Hospitalization RR (95% CI) —	Death Cases per 1,000 1.6	Death RR (95% CI) —
White							
Western advanced economies	561,919 (50.4)	35.7	ref	4.7	ref	1.7	ref
Latin America and Caribbean	603 (0.1)	66.3	1.78 (1.32, 2.41)	8.3	2.15 (0.90, 5.16)	0	—
Eastern Europe and Central Asia	1,927 (0.2)	43.1	1.21 (0.98, 1.49)	8.8	1.77 (1.10, 2.83)	5.7	2.35 (1.31, 4.23)
North Africa and the Middle East	832 (0.1)	34.9	0.96 (0.67, 1.38)	6.0	1.42 (0.59, 3.42)	1.2	0.91 (0.13, 6.29)
Other	3,480 (0.3)	25.9	0.74 (0.60, 0.91)	3.4	0.68 (0.39, 1.19)	4.9	2.35 (1.46, 3.79)
Asian							
Western advanced economies	12,046 (1.1)	45.3	ref	6.6	ref	0.7	ref
Southeast Asia and the Pacific	12,889 (1.2)	63.4	1.47 (1.31, 1.64)	15.1	1.21 (0.90, 1.61)	3.7	1.50 (0.75, 2.98)
Northeast Asia	3,991 (0.4)	18	0.42 (0.33, 0.53)	3.3	0.27 (0.15, 0.49)	0.8	0.29 (0.08, 1.06)
South Asia	3,847 (0.3)	46	1.05 (0.89, 1.24)	4.2	0.46 (0.26, 0.79)	0.8	0.57 (0.16, 2.08)

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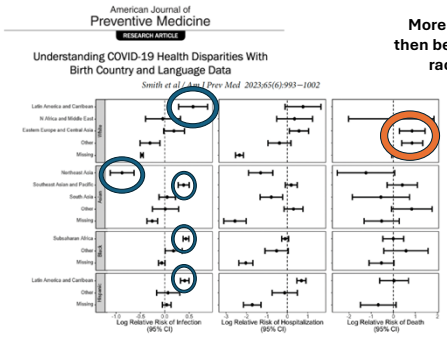

More variation within, then between, traditional racial categories

N=1,114,895

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Vaccines

- Officially Overseas
  - All Immigrants (required)
  - Refugees 11 diseases
    - Diphtheria, *Haemophilus flu* type b, Hepatitis B*, Measles, Mumps, Rotavirus, Rubella, Pertussis, Polio, *Streptococcus pneumoniae, and* Tetanus
- 2023 review of 50,829 adult immigrants and refugees
  - Only 28 % had documented complete tetanus/diphtheria vaccines
  - EHRs did not identify 2/3 of those missing vaccines

https://doi-org.ezp2.lib.umn.edu/10.1016/j.vaccine.2025.127881

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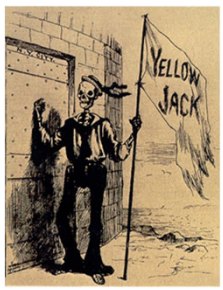
- RIM populations seeking refuge are not a significant risk to the public health.

However, YOU & I are!!



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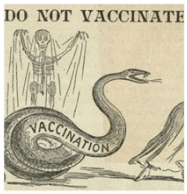
Recipe for disaster (or job security??)

- Dismantling of Global and Domestic Public Health Systems
  - Surveillance, detection, response capacity
  - Loss in public health program funding (eg vector control)
- Mis-information and distrust
  - Anti-Vax, anti-science
  - Record low trust level for US physicians
- De-regulation
  - Food safety & inspection, trade (invasive species and pathogens)
- Worsening climate change (expansion of vectors, more forced displacement)
- Persecution of individuals and populations
  - Won't come for care until very late, or very sick
    - Bird Flu????



League of Anit-Vaccination, 1892 (UK): history rhymes

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Take home points

- Aways ask where are you from?
- Where have you "traveled"?
- Immigrant and refugee health is fun or should be…your patients teach you everyday. Take advantage of the beautiful human tapestry

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Resources/opportunities

- UMN Global Health Course—Certificate Course
  - Hybrid (2-week in-person, Minnesota; Uganda, Thailand/Cambodia, Italy)
- Master's in Global Health
  - Above course
  - Fellow Project
  - 4 months at European Grant Institution for core classes
  - Cost ~$12,000

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Other Misc resources

- Bobbi Pritt's Blog (>750 cases, I believe): https://www.parasitewonders.com

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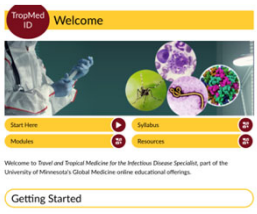
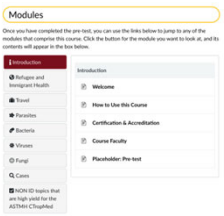
UMN Global Medicine: Tropical and Travel Medicine for the Infectious Disease Specialist





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Free Courses at UMN Global Medicine

- Tropical Dermatology (Alexia Knapp)
- Introduction to Immigrant and Refugee Health
- Case presentations from Tanzania
- Rheumatic Heart Disease
- Introduction to Medical Interpreting
- Caring for Newly Arrived Afghans

- Itch in the Tropics
- Pigmentary Disorders
- Enlarged Limbs
- Cutaneous Nodules
- Fever and Rash
- Cutaneous Ulcers

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How will history judge “us”?

In the future, human rights will be increasingly a universal criterion for designing ethical systems

--Mahnaz Afkhami

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Currently IGRA is almost uniformly used,
and pilot projects of treating LTBI prior to arrival

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Example: Parasite presumptive treatment program (refugees only)

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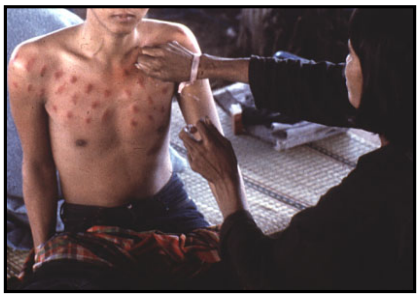

Photo by Pat Walker MD, DTM & H

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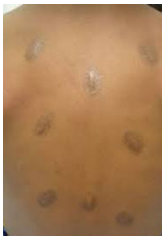

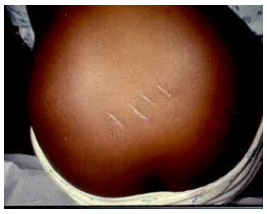

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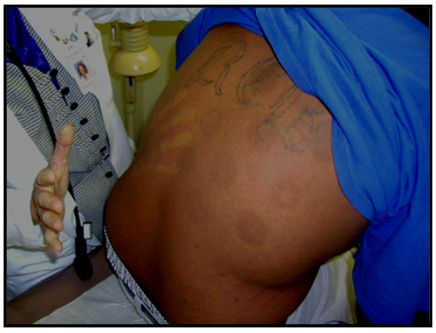

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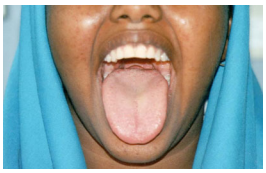

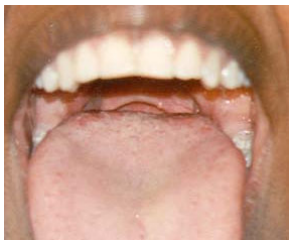

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- Photo by Robert Levin, MD

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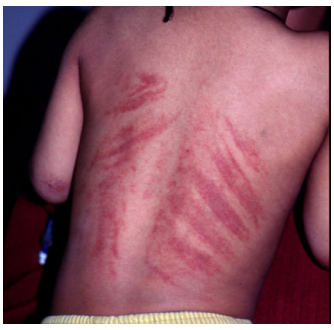

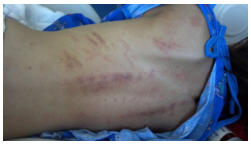

- Photo courtesy of Jeff Louie MD & Chris Bowron MD

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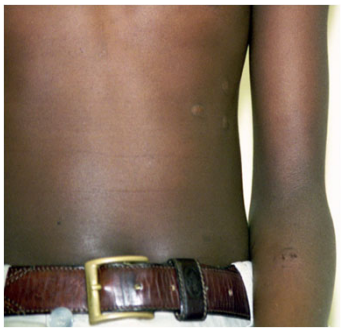

Photo: Stacene Mouroshek

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