Climate Change and Human Migration

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Climate Mobility Case, Part 1

- 11 yo female w history of asthma
- Walks into health center with mother seeking treatment for worsening wheezing, coughing, and shortness of breath
- Ran out of inhalers recently
- Exam: RR 14, diffuse mild wheezing, no respiratory distress, no restructions
- Social history:
  - Can’t refill inhalers because she had to leave the town her pharmacy is located in
  - Hasn’t been able to get in touch with her pediatrician to arrange a new prescription

Image Comparison Credit: The Washington Post
Climate Mobility Case, Part 2

- 11 yo female w history of asthma, first seen a month ago.
- Returns today for scheduled follow-up visit.
- Breathing has improved.
- Mother reports increased irritability, poor sleep, frequent outbursts and crying spells
- Exam: well-appearing but quiet child
- Social history:
  - Living with relatives for now “while we figure out if we can afford to rebuild”
  - Attending new school, mother unsure if she has any friends
Topics for Today

- Climate Change Impacts
- Framing Mobility Decisions
- Pushes, Pulls, and Traps
- Terminology
- Case Studies
- Clinical Connections
- Discussion

Image: UN
Climate Change

Mechanisms
Impacts
Mechanism

- Regional Warming
  - Heat waves
  - Biome alteration
- Extreme Weather
  - Flooding
  - Drought
- Hurricanes
  - Intensity
  - Rainfall
- Wildfire
- Sea Level Rise
- Ocean Acidification
- Plant impacts
The cumulative forest area burned by wildfires has greatly increased between 1984 and 2015, with analyses estimating that the area burned by wildfire across the western United States over that period was twice what would have burned had climate change not occurred. USGCRP, NCA4, Vol. 2
In addition to affecting long-term climate change, burning fossil fuels affects local air quality right now.

In this example looking at hyperlocal effects related to gas- and diesel-powered vehicles, problem areas include:

- Freeways
- Busy intersections
- Certain businesses
  - Drive through restaurants
  - Busy parking lots
  - Car dealerships
  - Light industry
d) Global mean sea level change relative to 1900

Low-likelihood, high-impact storyline, including ice sheet instability processes, under **SSP5-8.5**

Source: IPCC AR6, Figure SPM.8
Mobility in a Changing Climate

Pushes, Pulls, Traps, and Choices
Stay or Go? Mobility, Immobility, & Agency

Figure Credit: Helene Benviniste, PhD, MS
Harvard University Center for the Environment
French Environmental Fellow, 2021-2023
Push: Lethal Heat

“...Dr Zafar Zaidi of the Indus Hospital, that had been visited by around 460 heatstroke patients in recent days...”

- Dawn News

Projection: “...in Lucknow and Patna, which have respective current metro populations of 2.9 and 2.2 million, [wet bulb temperature] reaches and exceeds the survivability threshold” by the late 20th Century
Push: Sea Level Rise

15 million people affected
17,000 km² of land submerged

+ 1 metre

18 million people affected
22,000 km² of land submerged

Sources: Dacca University; Intergovernmental Panel on Climate Change (IPCC).
Push: Too Much Water
Push: Not Enough Water
Push: Agricultural Disasters

Farmer suicides soar in India as deadly heatwave hits 51 degrees Celsius

Sweltering country seeks the relief of the monsoon, but this year’s downpour could be up to 11 days late as officials blame climate change

Ian Johnson | Environment Correspondent | @ionjohnson | Friday, 21 April 2017 02:27 | 20 comments

Climate-driven heat peaks may shrink wheat crops

by Marlowe Hood

A shepherd etches water on the dry bed of a reservoir that once supplied water to Latur in Maharashtra.
Push: Political instability and conflict
Inter-group Conflict (Hsiang et al, 2013)
Response (Buhaug et al, 2014)
Trap: Militarized borders

[Images: India – Bangladesh Border Fence, Mexico – Guatemala Border]
Trap: Too Poor to Migrate

“A smuggling journey from Agadez in the Niger to Libya or to Europe... would be priced at about $2,000 to $3,000”
- U.N.O.D.C.
Difficult Choices: Loss of Community

“I have thought about moving to another state, but this is my community.”

“We have been doing everything we can to stay here because I wanted my daughter to graduate with her friends.”

“...leaving was never an option. Home is where families are. All my family’s here. My work is here. My life is here. Having to get up and move would be stressful all over again, like starting out from zero.”

Pull: Longer growing seasons at high latitudes

Plant Hardiness Zones, 1990 and 2015. Images from USDA and Arbor Day Foundation.
Pull: Economic Opportunity
Terminology

Refugees? Migrants?
Asylum? Opportunity?
Refugees

1951 Convention Relating to the Status of Refugees:

A person who “owing to 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 or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence, is unable or, owing to such fear, is unwilling to return to it…”

Belgian refugees fleeing after the German invasion of their country in 1940. Image: AP
Migrants

UN Convention on the Rights of Migrants:

‘The term 'migrant' in article 1.1 (a) should be understood as covering all cases where the decision to migrate is taken freely by the individual concerned, for reasons of 'personal convenience' and without intervention of an external compelling factor’.
Distress Migration

UN Food and Agriculture Organization:

“...migratory movements made in conditions where the individual and/or the household perceive that the only viable livelihood option for moving out of poverty is to migrate. Such distress is usually associated with lack of livelihood options, given the limited economic and employment opportunities, as well as drought, crop failure and food insecurity....”
Urbanization

Urban and rural population of the world, 1950–2050

European Commission
Case Studies

Latin American Dry Corridor
Domestic United States
As the climate changes, drought and food insecurity drive rural residents in Mexico and Central America out of the countryside.
The Winners and Losers of Climate Migration*

A look at the movement of wealth and people among American cities by 2080

Seattle, WA
Climate Outlook: A hilly, temperate climate with plenty of fresh water - and no hurricanes.
Population: +200K
GDP: +10 percent

Madison, WI
Climate Outlook: A cool Northern college town with a stellar climate-change plan.
Population: +50K
GDP: +5 percent

Asheville, NC
Climate Outlook: A mountain town in Southern Appalachia, it’s the “capital of climate-change science.”
Population: +50K
GDP: +15 percent

Phoenix, AZ
Climate Outlook: Dwindling fresh-water supplies and summer temperatures that may soon hit 130 degrees or more.
Population: +50K
GDP: -15 percent

New Orleans, LA
Climate Outlook: The region is sinking, the coastline is disappearing, and it’s in prime hurricane country.
Population: -500K
GDP: -10 percent

Miami, FL
Climate Outlook: Rising sea levels routinely flood the low-lying city - and it will only get worse in coming years.
Population: -500K
GDP: -10 percent

*As Measured by GDP

Rolling Stone
Clinical Connections

Challenges Facing Distress Migrants
Refugee Health
Access to Care
Language Services
Trauma Informed Care
Long Term Stabilization
Specific Health Challenges Facing Distress Migrants

Misconceptions about causes of migration may affect decisions by healthcare providers
- Labeling as a "refugee" (may assume access to services that are unavailable)
- Labeling as economic migrants (may fail to screen for trauma or recognize mental health impacts of recent events)

Lack of dedicated services
- Refugee resettlement services are limited to refugees meeting the UN legal definition

US Refugee Resettlement Process

1. Refugee Status
   UNHCR identifies refugees who will need resettlement based on their vulnerabilities and specific needs.

2. Referral to the U.S.
   UNHCR assesses each individual case, gathers all the background information and submits the case to be considered for resettlement.

3. Security Clearance
   Resettlement Support Centers (RSCs) and U.S. government intelligence agencies run background checks and security clearance processes.

4. In-Person Interviews
   The Department of Homeland Security conducts face-to-face interviews to determine whether the application qualifies for resettlement.

5. Medical Screening
   Pre-approved applicants go through a medical screening to ensure they do not have tuberculosis or communicable diseases.

6. Matching with a Sponsor Agency
   Approved applicants are assigned to local NGOs that assist them upon arrival. These NGOs help refugees integrate and become economically self-sufficient in their new U.S. community.
Access to Care

UNHCR Position:

“Health is a fundamental human right for all, including refugees. Making it possible for refugees to access healthcare is a top priority for UNHCR. According to the 1951 Refugee Convention, refugees should have access to the same or similar healthcare as host populations.”
Title VI of the Civil Rights Act of 1964 requires recipients of Federal financial assistance to take reasonable steps to make their programs, services, and activities accessible by eligible persons with limited English proficiency.

- U.S. Dept of Health and Human Services

In a clinical setting, this means:

- Have access to interpreters
  - in person, by phone, or by video
- Offer interpreters to all patients with limited English proficiency
- Do not:
  - assume patients understand you
  - rely on family members by default
  - rely on your own partial competency with another language
Trauma Informed Care

Trauma-Related Considerations In Distress Migrants

- Disaster events
- Loss of connection to community
- Experiences during migration
- Interpersonal violence
- Difficulty assimilating into new setting
- Lack of social supports / community in new setting
- Ongoing legal or safety concerns
- Fear of re-traumatization
- Ongoing financial distress

Long-term Stabilization

Goal: integrate patients into a community so that they can develop self-sufficiency, a supportive community, and access healthcare effectively.

Approach:
• Connect with primary care provider
• Community health centers can provide excellent multidisciplinary support
• Connect with local NGOs or agencies for additional support
Key Points

Climate Effects
• Heat
• Drought
• Fires
• Flooding
• Storms
• Sea Level Rise

Pushes, Pulls, Traps, and Choices
• Climate-related disasters
• Long-term changes in sea level, ecosystem, agricultural productivity
• Political Instability / Conflict
• Border and immigration policies
• Economic draws / pushes / traps
• Choices about prioritizing community, employment, etc.
Key Points

Terminology
• Refugees
• Migrants
• Distress Migration
• Be aware of domestic / local effects (eg. regional urbanization) that may not be widely reported

Implications for Patient Care
• Recognizing need
• Language services
• Trauma informed care
• Connecting with long-term providers in primary care and the wider community
Discussion

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