



FAMINE & FOOD CRISIS FORECASTING CENTER

HACKATHON #1: YEMEN

Day 1: Introduction and Background

Springboard Grant – Tier I

Sep 1, 2022 – August 31, 2023



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UNIVERSITY

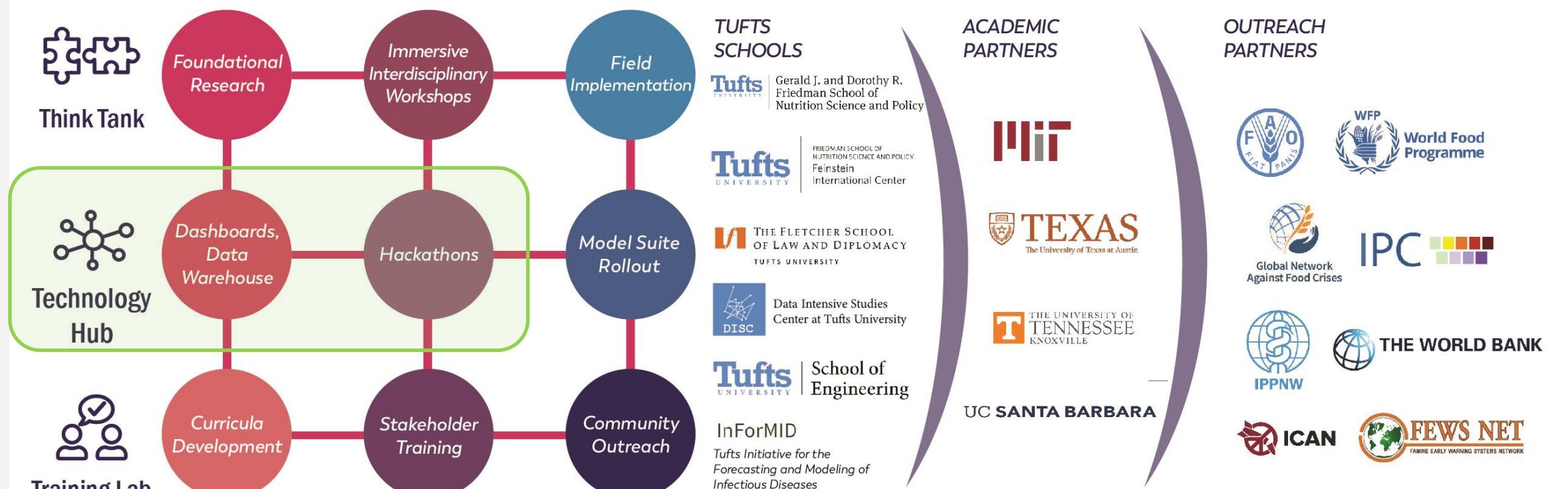
Gerald J. and Dorothy R.
Friedman School of
Nutrition Science and Policy

WELCOME!

ELENA N. NAUMOVA

PROFESSOR, NUTRITION EPIDEMIOLOGY & DATA SCIENCE

Design, Development, Testing, Implementation



Outreach & Broader Impact



Project Team

| Name (First, Last) | Role | Title Appointment | Dept | School |
|-----------------------|------------|-----------------------------------|------------------------------|--------|
| Elena Naumova | PI | Professor & Chair | NEDS | FSNSP |
| Paul Howe | PI | PoP & Director | FIC | FSNSP |
| Daniel Maxwell | Co-I | Prof & Director | FIC | FSNSP |
| Anastasia Marshak | Co-I | Assist Professor | FIC | FSNSP |
| Merry Fitzpatrick | Co-I | Assist Professor | FIC | FSNSP |
| Oxana Shevel | Co-I | Assoc Professor | Pol Sci Dept | A&S |
| Kyle Monahan | Consultant | Manager, Data Science Services | Tufts Technology Services | A&S |
| Kristin Lee | Consultant | Data Librarian | Tisch Library | A&S |
| Elise Warren | Consultant | Graphic Designer | | |
| Bingjie Zhou | Support | PhD student | NEDS | FSNSP |
| Ash Venkat | Support | PhD student | NEDS/AFE | FSNSP |

Design Team Members, Students/RAs, Communication Experts, DISC,
Administrative Support

- Multi-disciplinary:
 - Humanitarian Aid
 - Political Science
 - Data Science
- Multi-cultural
- Multi-generational
- Team Science
 - vTeams
 - Knowledge transfer

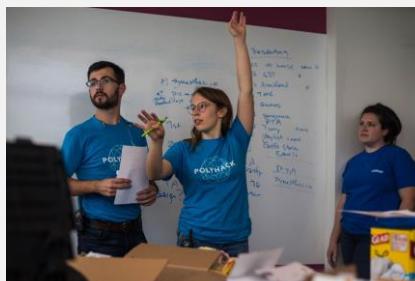
Tufts Hackathons

[Hackhackhack](#) -
2013



Generation Citizen:
Civic Tech 2015

2015



[Tufts Polyhack 2017](#)

2016



[ID Hack 2018](#)

2018

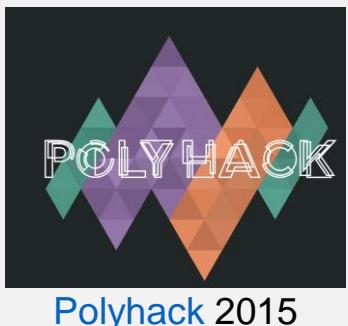


[Polyhack 2020](#)

2021



2023



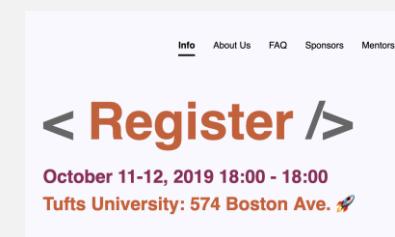
[Polyhack 2015](#)



[Nurse Innovation
Hackathon 2016](#)



[Dental Hack \(ADEA\)](#)



[Tufts Polyhack 2019](#)



[Art Datathon](#)



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CODE OF CONDUCT & HOUSEKEEPING

BINGJIE ZHOU
ANUSHKA SINGH

DOCTORAL STUDENT, FRIEDMAN SCHOOL (NEDS)
MS STUDENT, SCHOOL OF ENGINEERING/GORDON INSTITUTE

Website Overview

Schedule

Day 1: Introduction and Background

- 2-3 pm: Introductions (Auditorium/Urdang 207)
- 3-4 pm: Background on famine dynamics and forecasting (Auditorium/Urdang 207)
- 4-5 pm: Team-building and report back (Rooms 160, 280, 302, 502)

Day 2: Understanding Crisis Data

- 8:30-9 am: Coffee and hellos (Auditorium/Urdang 207)
- 9-10 am: Panel on hackathon preparation and data collection in emergencies (Auditorium/Urdang 207)
- 10 am-12 pm: Hacking groups (Rooms 140, 160, 260, 265)
- 12-1 pm: Report back
- 1-2 pm: Lunch
- 2-5 pm: Task assignments and hacking groups (Rooms 140, 160, 260, 265)
 - Upload one slide per team to Google Slides

Dataset | Glossary

The dataset for Hackathon #1 derives from the UNICEF Nutrition Cluster in Yemen and contains monthly measures of various nutrition indicators. Detailed OCHA reports and monthly updates can be viewed [here](#).

The scientific exercises of the hackathon are:

- Develop a timeline of events relevant to team focus and period of the Yemen crisis (2016-present)
- Develop visualizations and summary tables of available and unavailable data in Yemen during the crisis period
- Create a merged dataset with available characteristics
- Perform preliminary quantitative analysis with the data (summary statistics, regression)



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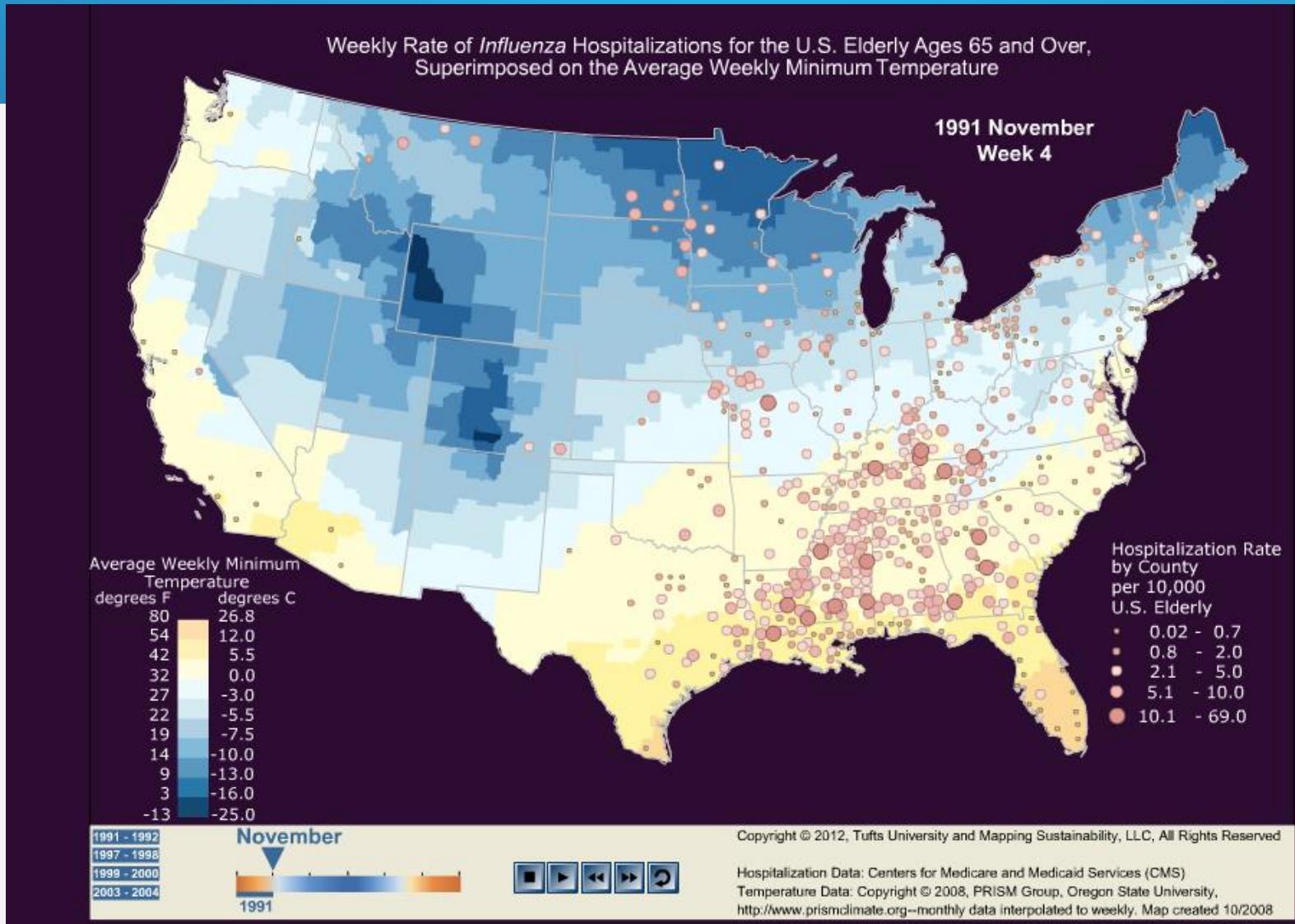
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THE VALUE OF DYNAMIC MAPS

ELENA N. NAUMOVA

PROFESSOR, NUTRITION EPIDEMIOLOGY & DATA SCIENCE

Dynamic Disease Mapping



Data Volume:

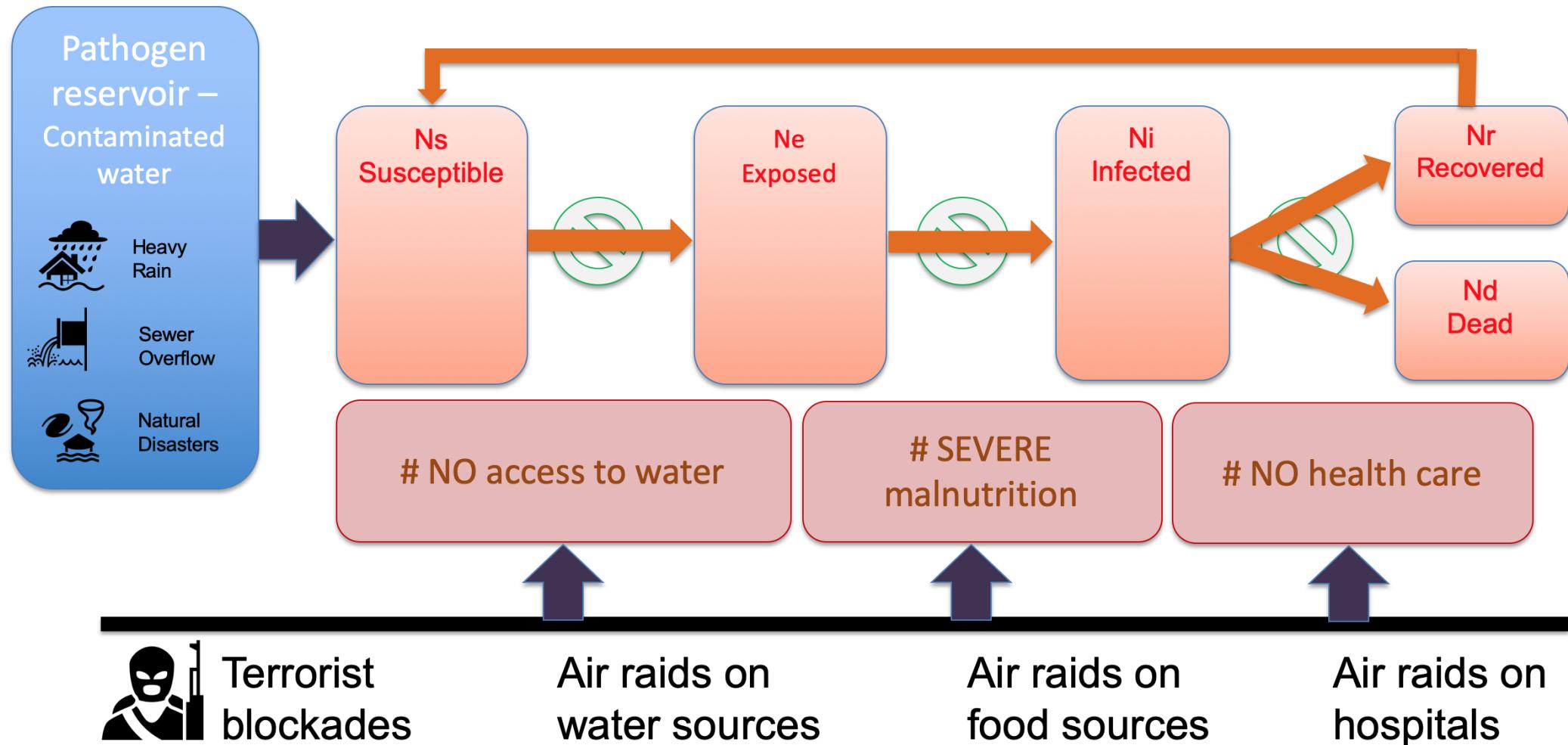
300,000,000+ records of hospitalizations in US adults 65+ y.o.
120,000+ cases of Influenza converted into weekly rates at county-level

9000+ ground
meteorological stations
for hourly temperature
measurements
from 1991-2009

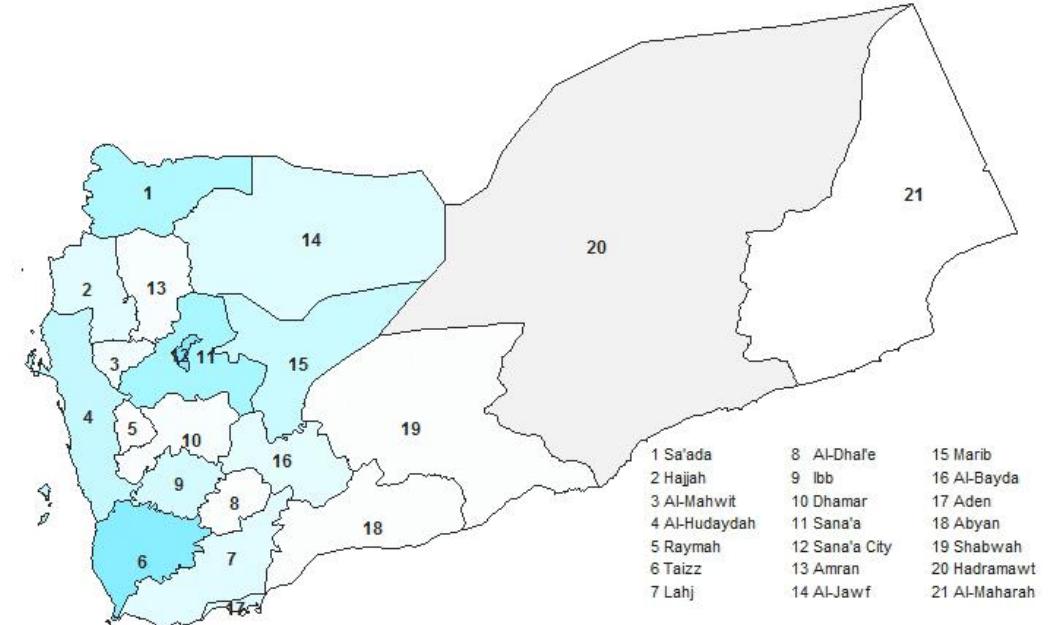
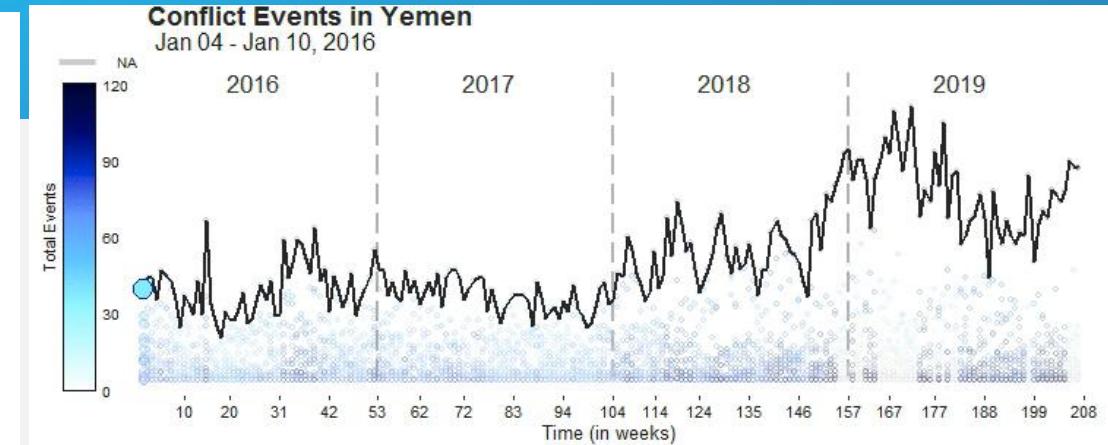
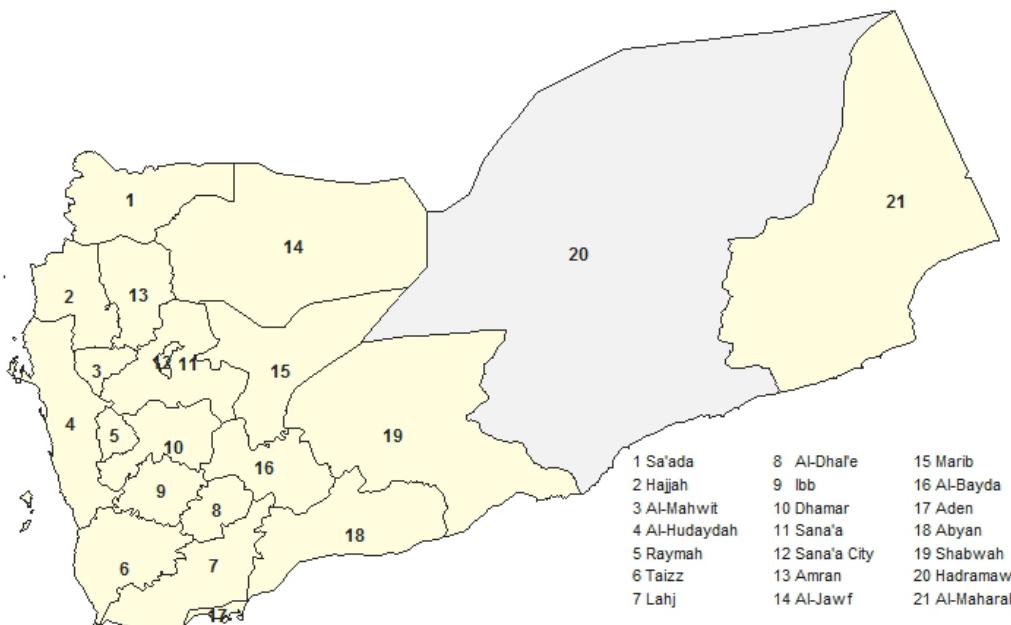
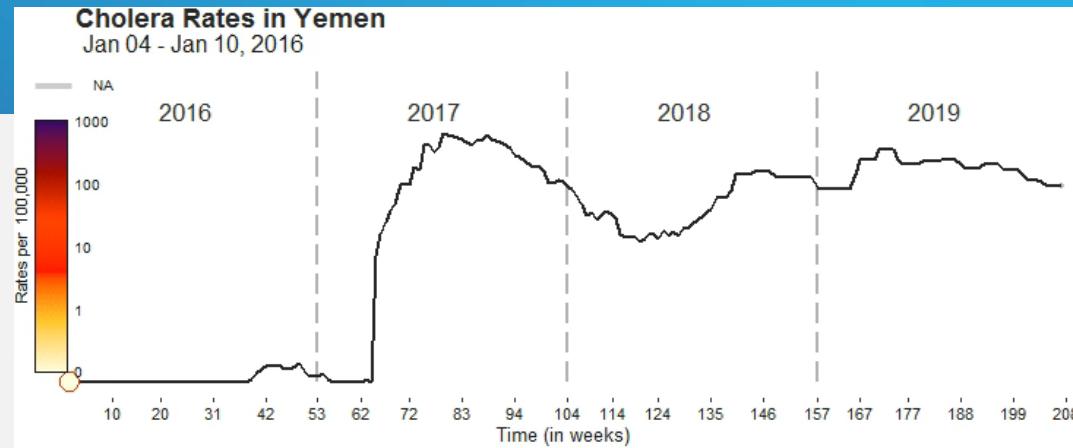
Moorthy et al. Deviations in influenza seasonality: odd coincidence or obscure consequence? Clinical Microbiology and Infection. 2012 Oct;18(10):955-62.

Aggravating factors

**Amplifying Risks of Cholera Transmission, Mortality and Morbidity:
intentionally broken barriers = wiping out 100 years of efforts**



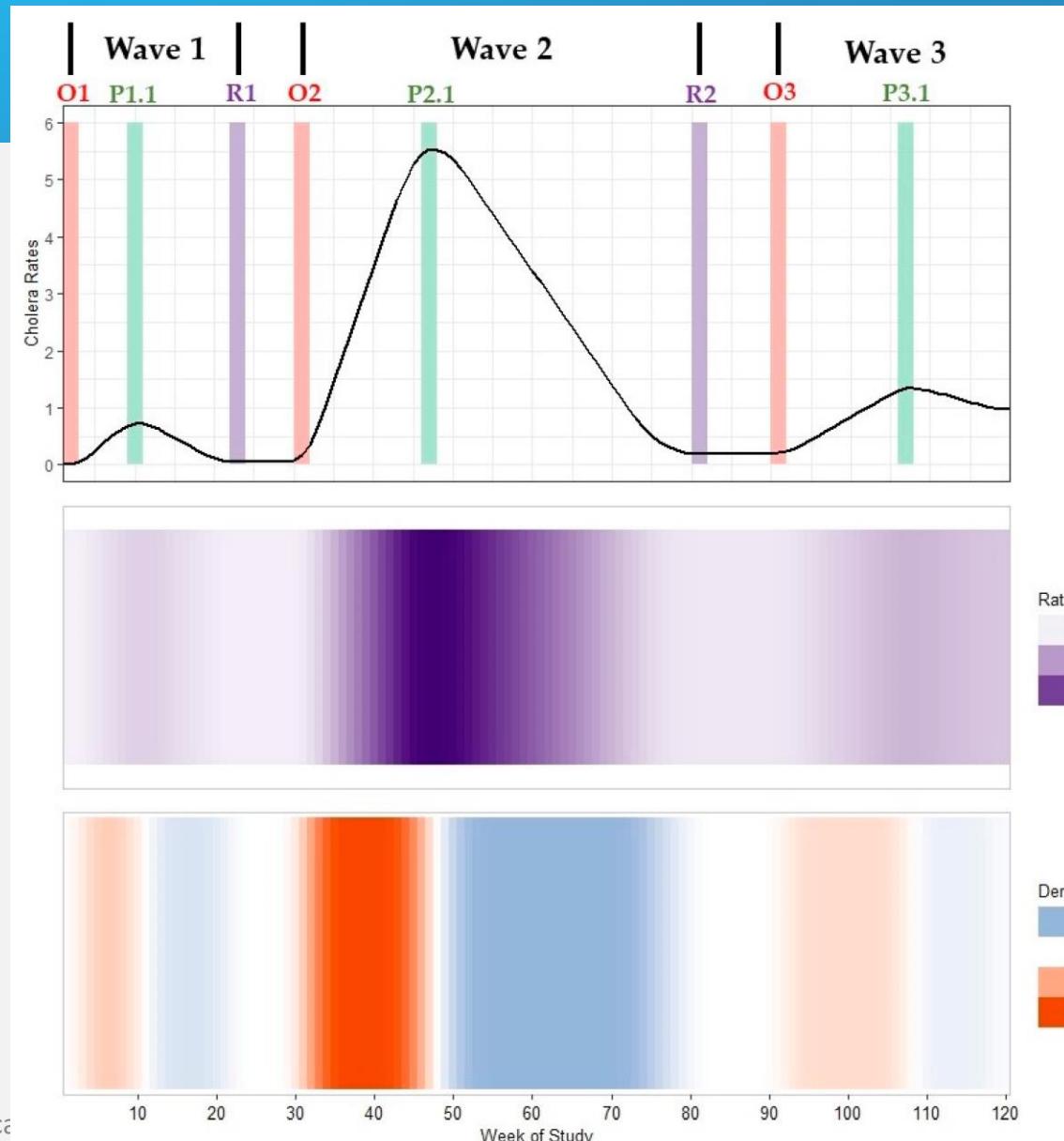
Dynamic Mapping: Cholera and Conflict



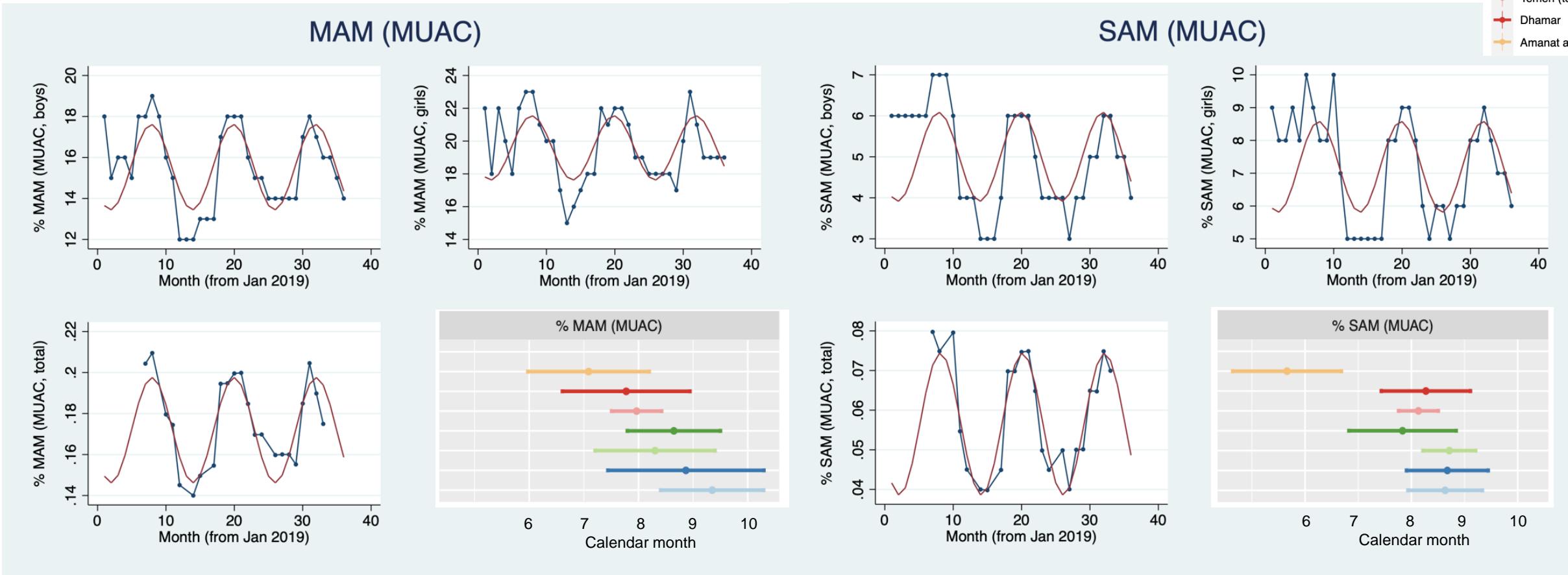
Cholera in Yemen, 2016-2019

Dataset

| Feature | Cholera Infections |
|-----------------|--|
| Database | Eastern Mediterranean Regional Office (EMRO) Epidemiological Bulletins |
| Host | World Health Organization (WHO) |
| Case Definition | Laboratory confirmed cholera cases |
| Location | 21 of 22 governorates in Yemen |
| Time Period | 04 January 2016 – 29 December 2019 |
| Timeliness | Weekly (Monday – Sunday) |



Seasonality in Malnutrition Outcomes in Yemen, 2019-2021



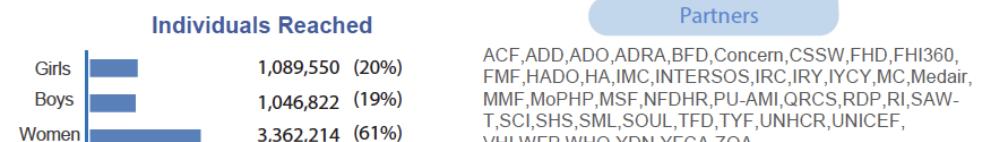
OCHA: The Humanitarian Data Exchange



Yemen | Nutrition Cluster Dashboard

7,380,231
People in Need **3,588,517**
Overall Target **5,498,586**
Reach(75% PIN,153% Target)

| Achievement in 12 months towards Cluster targets in 12 months | | | |
|---|----------|-----------|-----------|
| Activity | Progress | Target | Need |
| 268,276 Children treated for severe acute malnutrition Without Complication | 93% | 289,402 | 321,558 |
| 17,638 Children treated for severe acute malnutrition with Complication | 71% | 25,010 | 35,729 |
| 722,898 Children treated for moderate acute malnutrition | 73% | 996,128 | 1,570,026 |
| 752,264 Pregnant or Lactating Women treated for acute malnutrition | 146% | 514,808 | 1,140,532 |
| 867,089 Children received micronutrient supplementation | 46% | 1,903,680 | 3,966,000 |
| 1,115,069 Children 6-59 months received Vitamin A supplementation | 62% | 1,811,353 | 4,766,718 |
| 714,087 Children under 6-24 months at risk of malnutrition reached with BSFP support | 106% | 673,318 | 800,719 |
| 520,389 Pregnant or Lactating Women at risk of malnutrition reached with BSFP support | 83% | 630,288 | 1,211,146 |
| 1,572,642 Pregnant or Lactating Women received Iron folate supplementation | 164% | 958,931 | 1,712,378 |
| 2,824,231 Mothers/Caregivers received IYCF Counselling | 168% | 1,682,336 | 2,403,337 |



Contact Isaack Manyama
Cluster Coordinator
imanyama@unicef.org

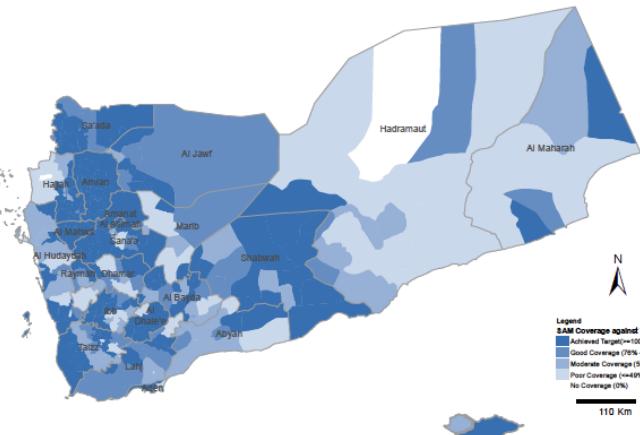
Abdulkawi Moharram
Cluster IMO
amoharram@unicef.org

Creation Date : 4th Feb , 2021

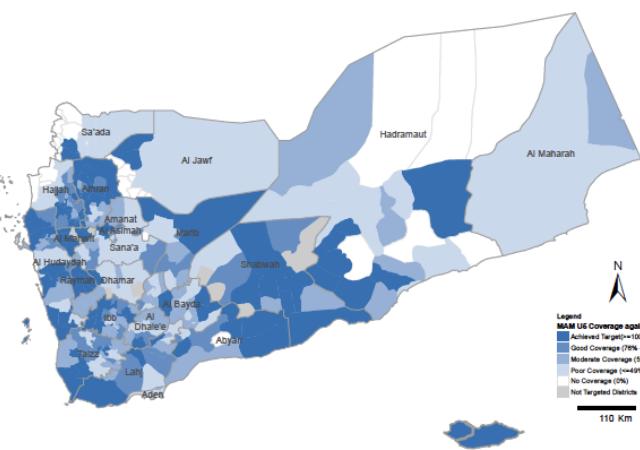
January to December 2020



SAM Achievement in 12 months towards Cluster targets in 12 months



MAM Achievement in 12 months towards Cluster targets in 12 months



- Inconsistent data reporting between governorate and national level makes comparisons difficult
- Seasonality is present for the majority of outcomes for each geographic location
- Differences in peak and nadir timings highlights importance of targeted interventions

<https://www.humanitarianresponse.info/en/operations/yemen/nutrition>

Data harmonization challenge

Media centre

The Ministry of Public Health and Population announces cholera cases in Yemen

Sana'a, 7 October 2016— Yemen's Ministry of Public Health and Population has officially announced the occurrence of 8 cholera cases among population in one of the areas of Sana'a city. The stool samples of these cases were tested positive for *Vibrio cholerae*. The cases were admitted to Al-Sabeen Hospital in Sana'a in the first week of October and are currently receiving treatment for acute dehydration in an isolated section of the hospital.

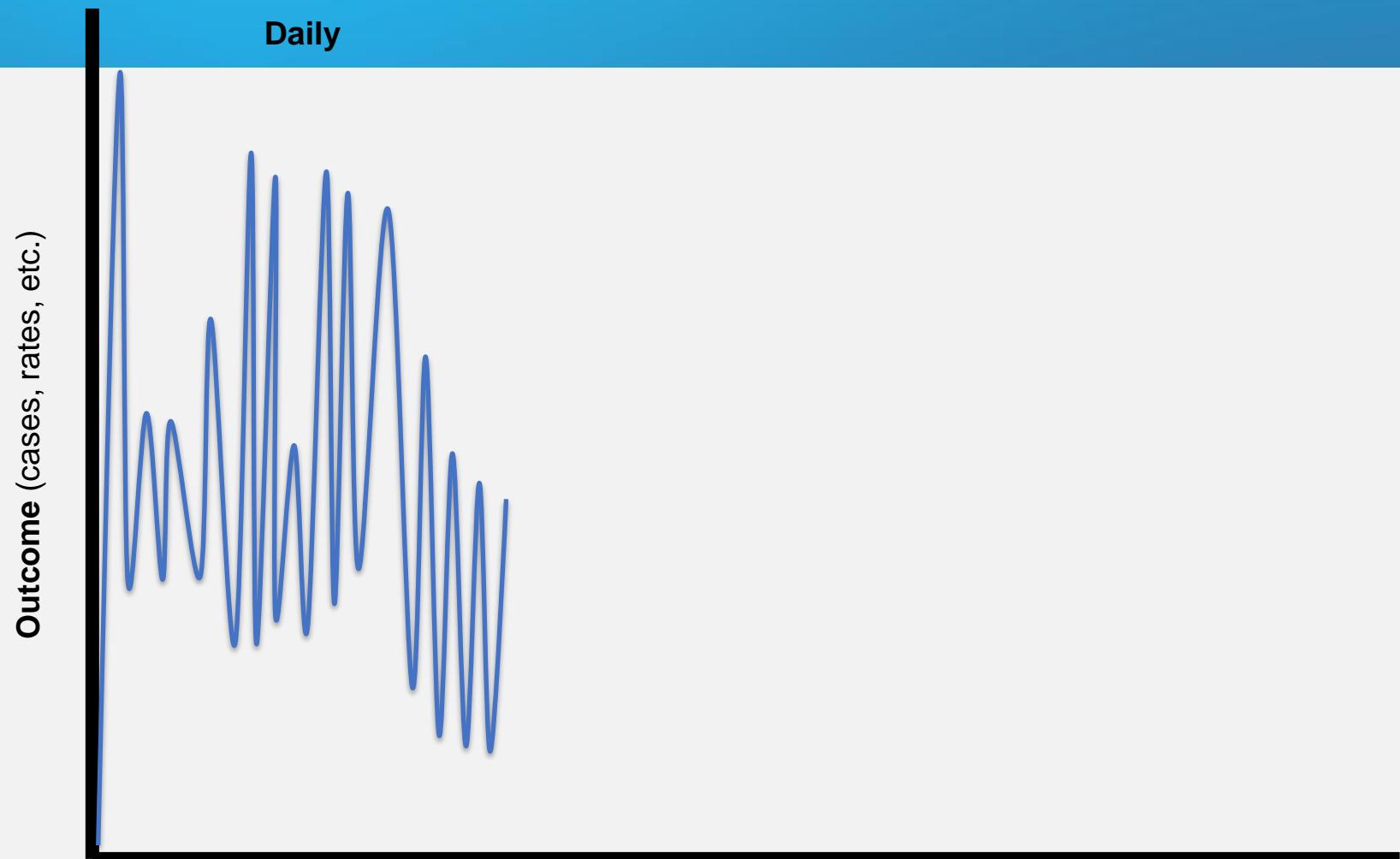
A team from surveillance programme of the Ministry was dispatched with a WHO-supported rapid response team to Al-Nasr neighbourhood of the Sh'ob district, where the patients (mainly children) were living, to investigate the source of cholera cases, test the water sources in the area and raise awareness about cholera among the community. Visits were also paid to the nearby schools and health centres to conduct an active case finding for suspected cases in the area.

To support the management of these cases by the Ministry of Public Health and Population facilities, WHO has provided sufficient quantities of intravenous fluids and oral rehydration salts to the hospital. Furthermore, WHO is working with the Ministry to support enhancing active surveillance, improve case management, establish a joint operations room for coordination of response measures and information sharing, and establish a task force to enhance the coordination response between health partners.

While response, investigation and preventive measures are ongoing, a joint Health/WASH Cholera Task Force, comprising WHO, UNICEF, Health and WASH partners has been established to coordinate the daily work and provide support to the Ministry and the concerned authorities on an integrated cholera response plan. The response plan requires urgent funding for establishment of a cholera treatment centre in inaccessible areas, diarrhoeal disease kit distribution, training, strengthening surveillance system, environmental interventions and community awareness.

"The current situation is yet another alarming indicator of the escalating humanitarian conflict-related crisis in Yemen and should alert the international community to support Yemen public health system and provide health partners with the necessary resources to contain the current transmission and prevent further spread of *Vibrio cholerae* to other high-risk areas in the country," said Dr Ahmed Shadoul, the WHO Representative in Yemen.

The scarcity of clean, safe drinking-water has exacerbated the already deteriorating health situation in Yemen, causing a significant increase in acute watery diarrhoea cases, especially among internally displaced persons, now exceeding more than 3 million people across the country.



Data harmonization challenge

جدول (١) تلخيص المؤشرات الرئيسية بحسب المحافظات

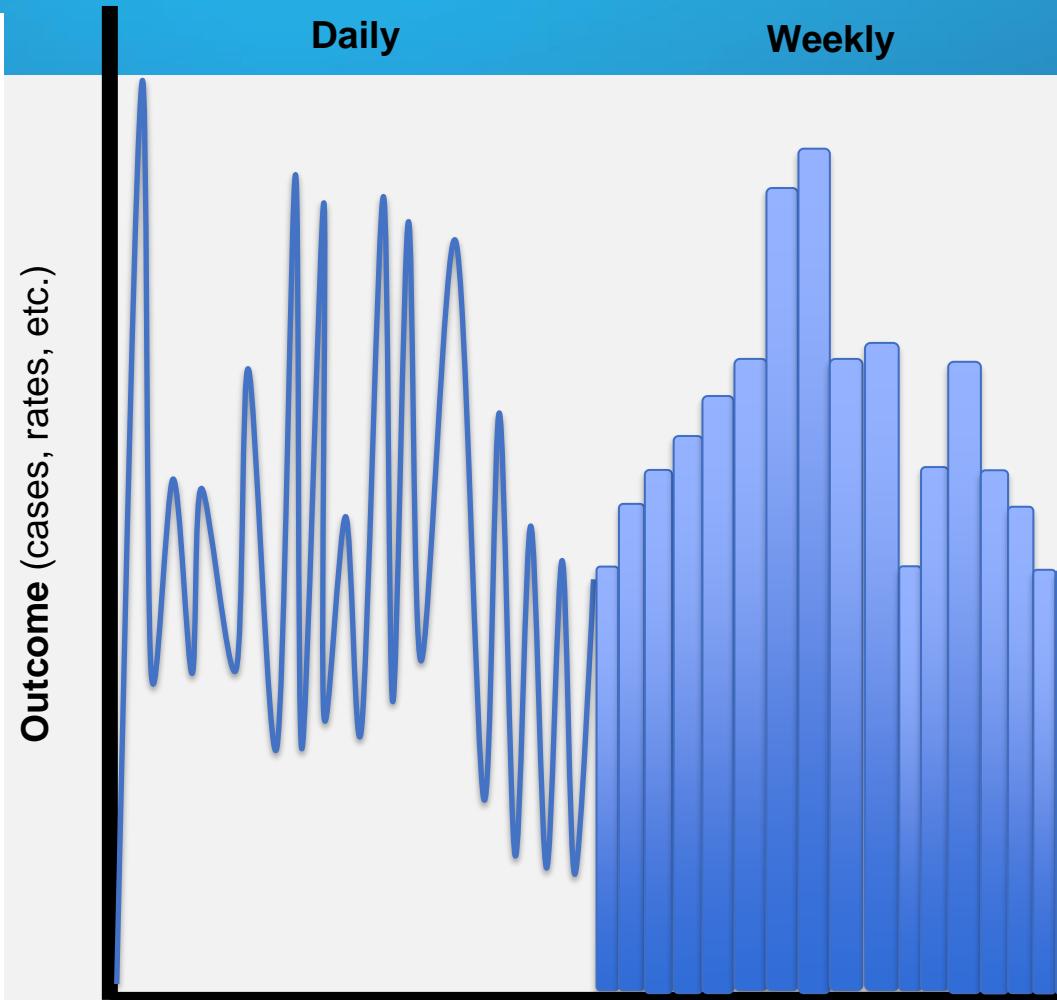
Table 1 | Summary of key cholera indicators by Governorate

| المحافظات Governorate | الإجمالي Cases | الوفيات Deaths | معدل الوفيات CFR ¹ | السكان Population | معدل الإصابة AR ² | أوجه ٣ أسبوع 3 week trend | | | | | |
|--------------------------------|----------------|----------------|-------------------------------|-------------------|------------------------------|---------------------------|-----------|-----------|------------------|----------------------------|--|
| | | | | | | أسبوع ٣ W | أسبوع ٢ W | أسبوع ١ W | الأسبوع الحالي W | النهاية Trend ³ | |
| Amran عمران | 106,448 | 163 | 0.17% | 1,165,044 | 913.68 | 197 | 254 | 244 | 263 | ► 5% | |
| Al Mahwit المحويت | 65,571 | 152 | 0.23% | 737,037 | 889.66 | 106 | 175 | 194 | 153 | ▲ +23% | |
| Al Dhale'e الدالى | 47,190 | 82 | 0.17% | 739,093 | 638.49 | 6 | 7 | 8 | 4 | ▲ +14% | |
| Dhamar ذمار | 108,480 | 163 | 0.15% | 2,030,321 | 534.30 | 176 | 322 | 593 | 370 | ▲ +63% | |
| Sana'a صنعاء | 78,852 | 123 | 0.16% | 1,479,715 | 532.89 | 120 | 128 | 185 | 279 | ▲ +28% | |
| Hajjah حجة | 121,406 | 424 | 0.35% | 2,368,714 | 512.54 | 6 | 12 | 19 | 18 | ▲ +54% | |
| Al Hudaydah الحديدة | 161,412 | 285 | 0.18% | 3,265,011 | 494.37 | 419 | 347 | 363 | 375 | ► -4% | |
| Abyan أبين | 28,243 | 35 | 0.12% | 575,120 | 491.08 | 0 | 0 | 0 | 0 | ■ Interrupt | |
| Al Bayda' البيضاء | 34,679 | 38 | 0.11% | 763,178 | 454.40 | 279 | 237 | 200 | 175 | ▼ -16% | |
| Amanat Al Asimah أمانة العاصمة | 108,385 | 72 | 0.07% | 2,874,899 | 377.00 | 255 | 262 | 223 | 148 | ▼ -10% | |
| Raymah ريمة | 18,762 | 123 | 0.66% | 612,072 | 306.53 | 32 | 24 | 44 | 44 | ▲ +32% | |
| Al Jawf الجوف | 16,197 | 22 | 0.14% | 582,293 | 278.16 | 0 | 12 | 6 | 18 | ► 0% | |
| Lahj لحج | 24,345 | 22 | 0.09% | 1,015,515 | 239.73 | 0 | 0 | 0 | 1 | ■ Interrupt | |
| Ibb إب | 70,203 | 294 | 0.42% | 2,977,819 | 235.75 | 82 | 66 | 135 | 137 | ▲ +43% | |
| Aden عدن | 20,993 | 62 | 0.30% | 934,060 | 224.75 | 0 | 0 | 0 | 0 | ■ Interrupt | |
| Taiz تعز | 66,402 | 190 | 0.29% | 3,018,310 | 220.00 | 110 | 77 | 106 | 122 | ► 9% | |
| Marib مارب | 7,296 | 7 | 0.10% | 362,021 | 201.54 | 0 | 0 | 0 | 0 | ■ Interrupt | |
| Sal'ada سلطة | 10,713 | 5 | 0.05% | 922,202 | 116.17 | 0 | 0 | 1 | 0 | ▲ +200% | |
| Al Maharah المحراة | 1,169 | 1 | 0.09% | 150,516 | 77.57 | 0 | 0 | 0 | 0 | ■ Interrupt | |
| Shabwah شبوة | 1,399 | 3 | 0.21% | 608,811 | 22.98 | 0 | 0 | 0 | 0 | ■ Interrupt | |
| Mokha موكح | 568 | 2 | 0.35% | 445,001 | 12.76 | 0 | 0 | 0 | 0 | ■ Interrupt | |
| Say'an سعدين | 24 | 0 | 0.00% | 379,828 | 0.63 | 0 | 0 | 0 | 0 | ■ Interrupt | |
| Yemen اليمن | 1,098,737 | 2,288 | 0.21% | 26,006,579 | 392.31 | 1,788 | 1,923 | 2,321 | 2,107 | ▲ +15% | |

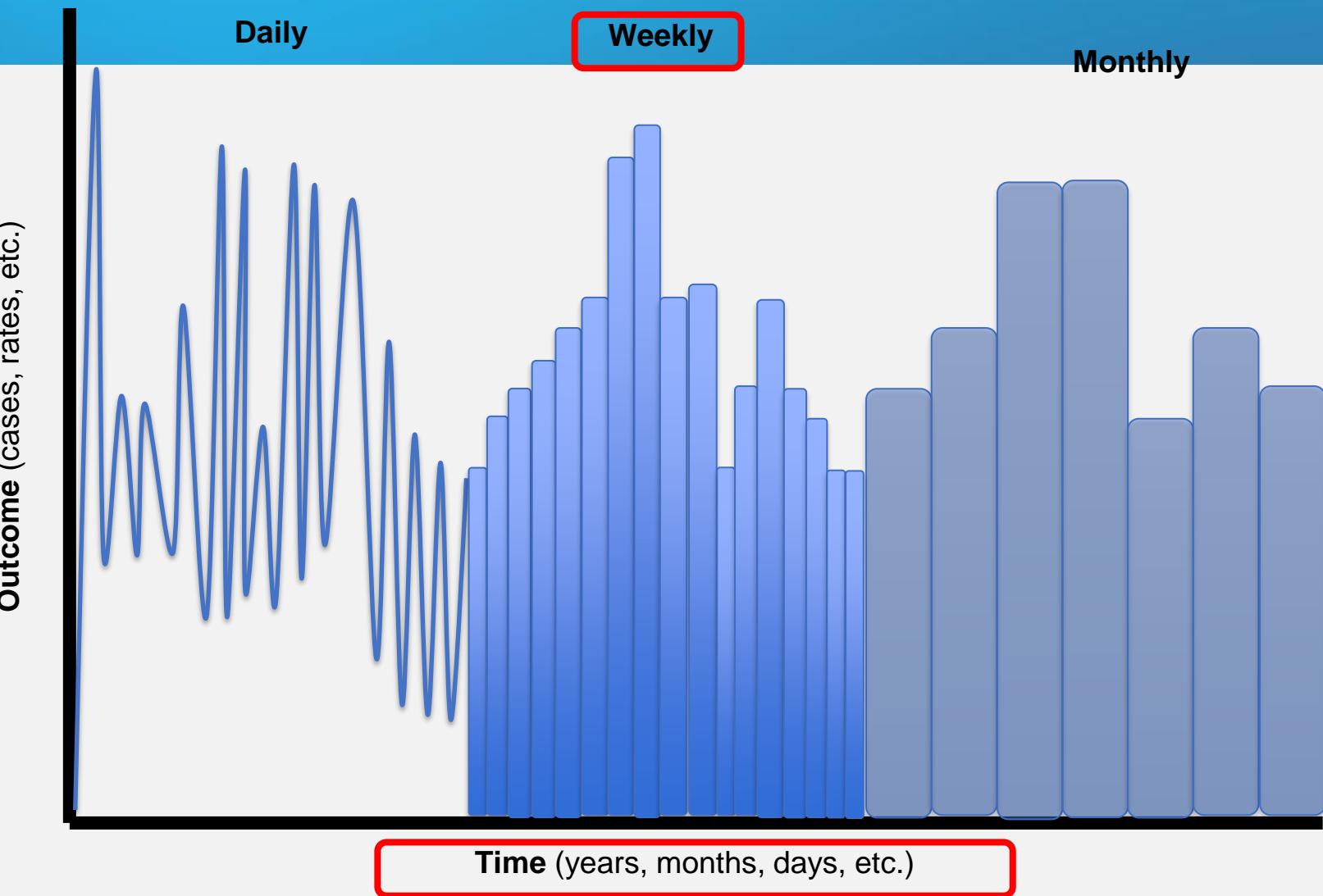
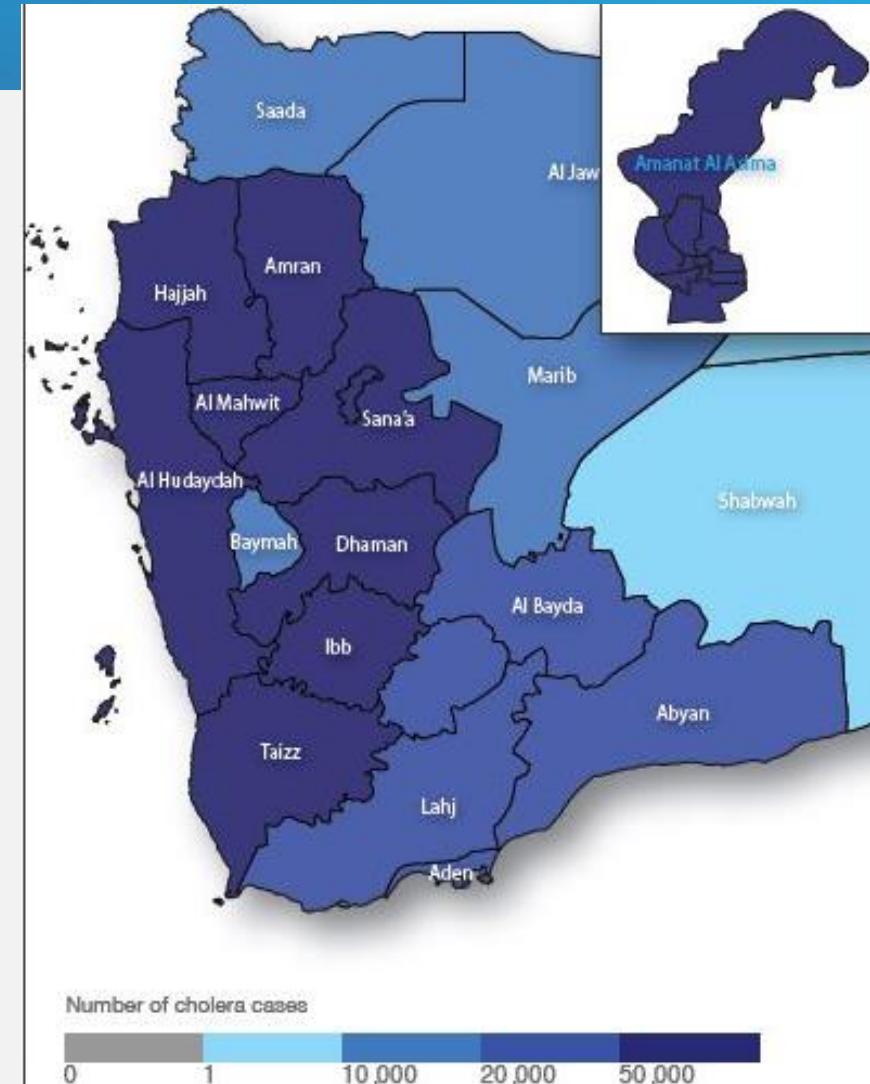
¹ Case Fatality Rate
² Attack Rate (10,000 population)
³ trend based on average number of cases in previous 3 weeks (current week excluded due to interrupt in transmission)

معدل الوفيات على عدد الحالات¹
معدل الإصابة لكل 10,000 سكان²
تم حساب المعدل على متوسط عدد الحالات خلال 3 أسابيع (405)
تم حساب المعدل على متوسط عدد الحالات (3)
غير يشمل الحالات الجديدة في حساب المعدل³

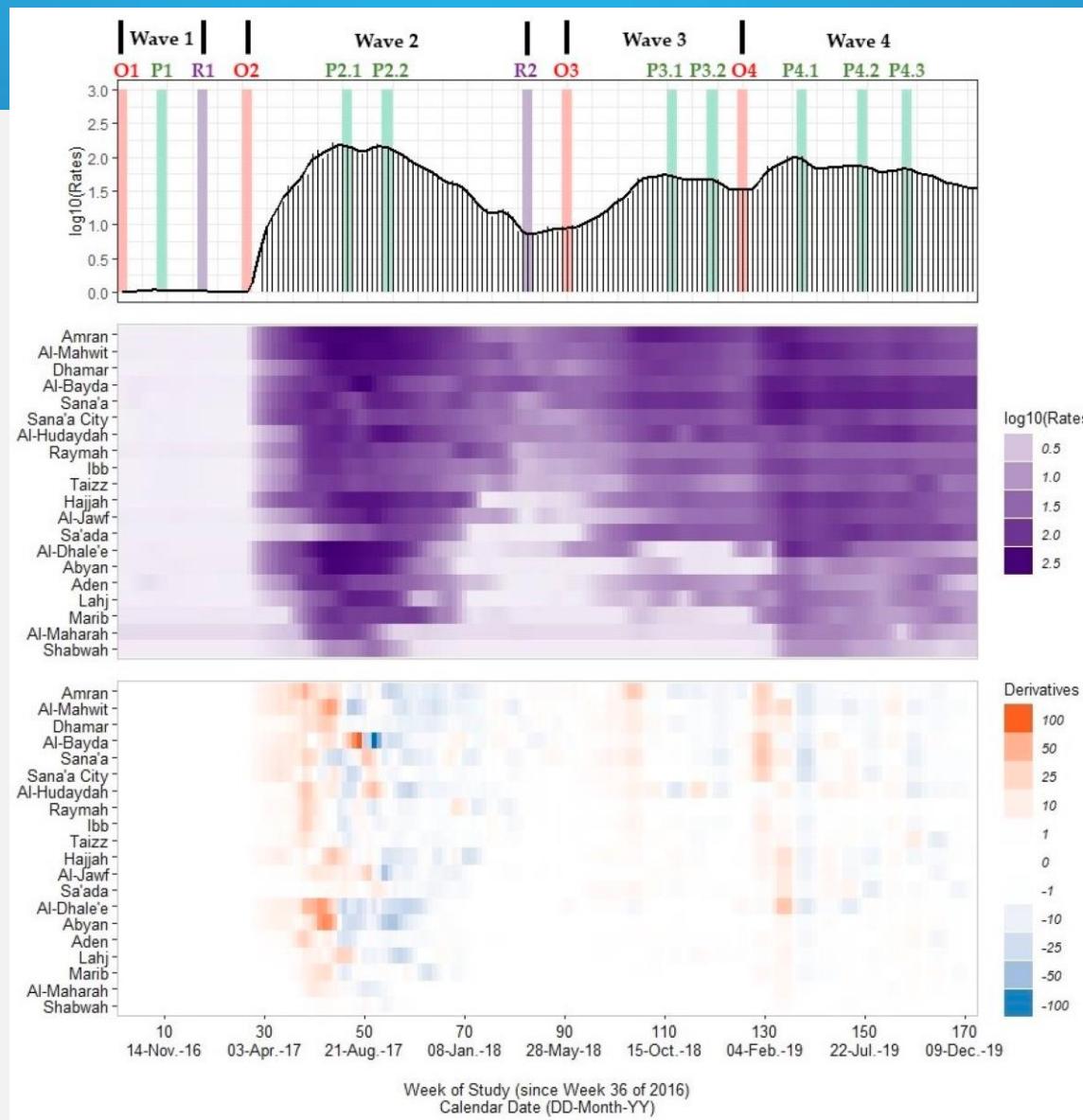
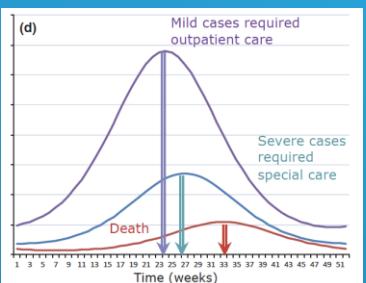
معدل مرتفع
غير يشمل
معدل مستقر
غير منخفض
غير يشمل
النهاية في الاتساع



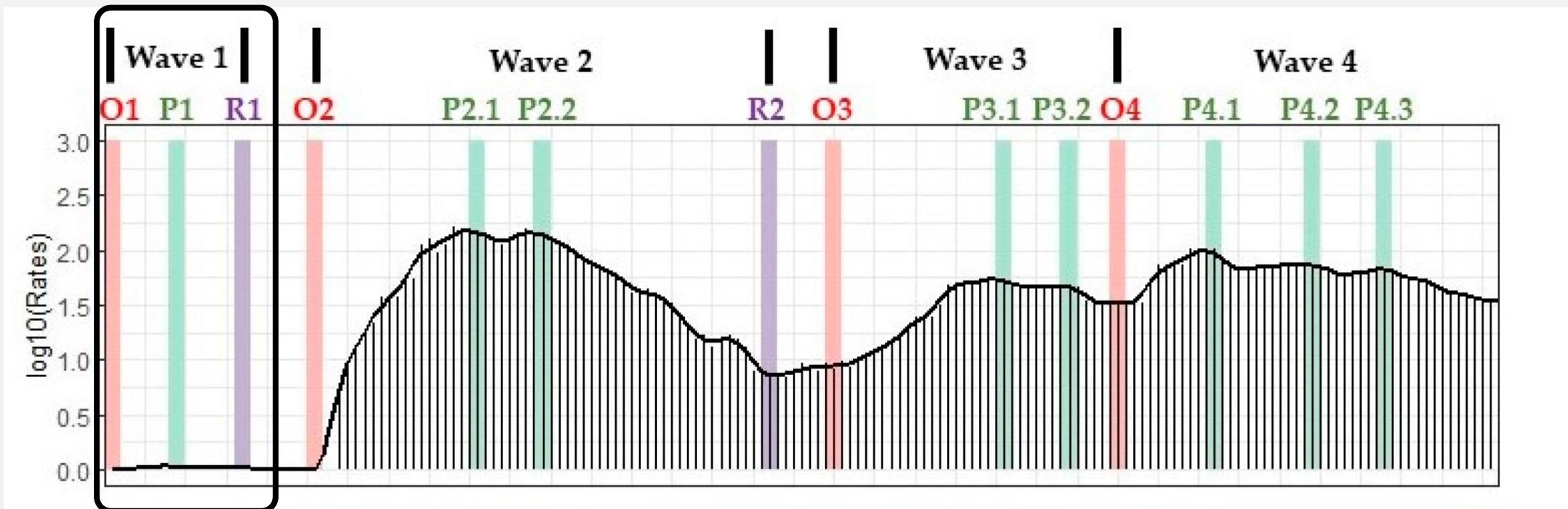
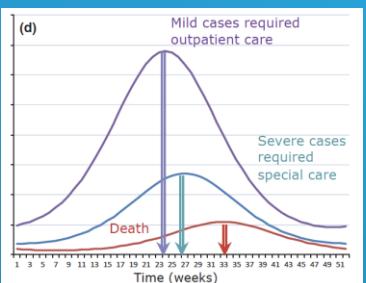
Data harmonization challenge



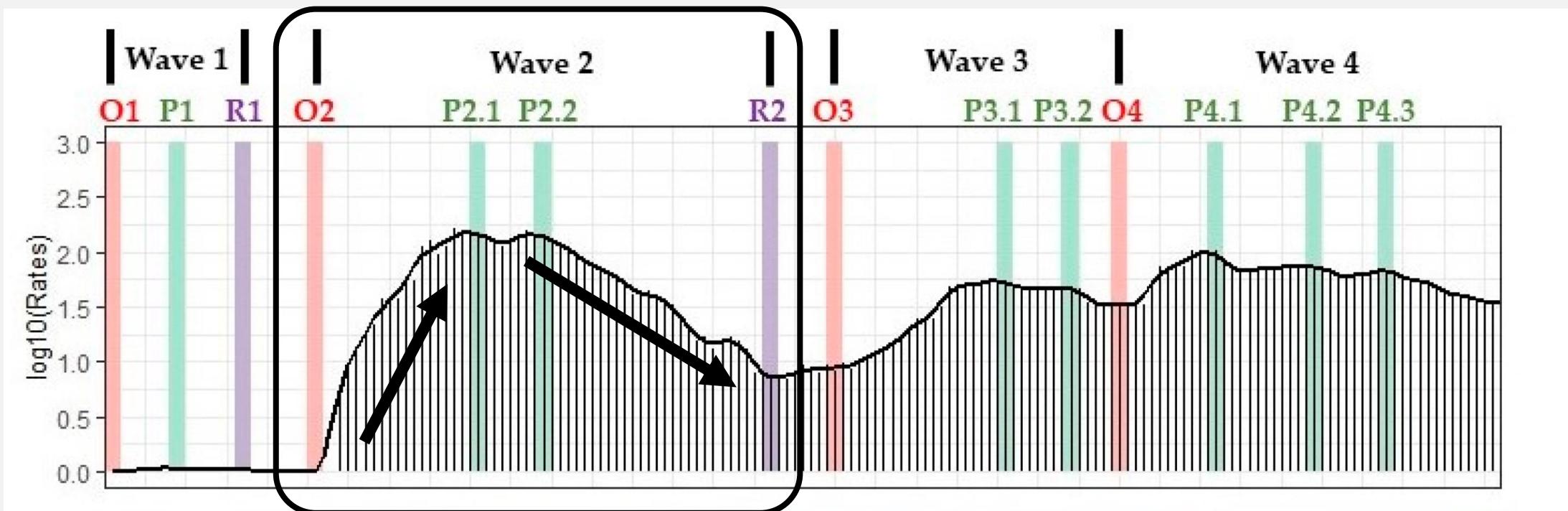
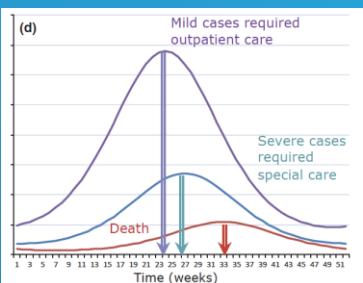
Outbreak Signature Decomposition: applicability for humanitarian emergencies



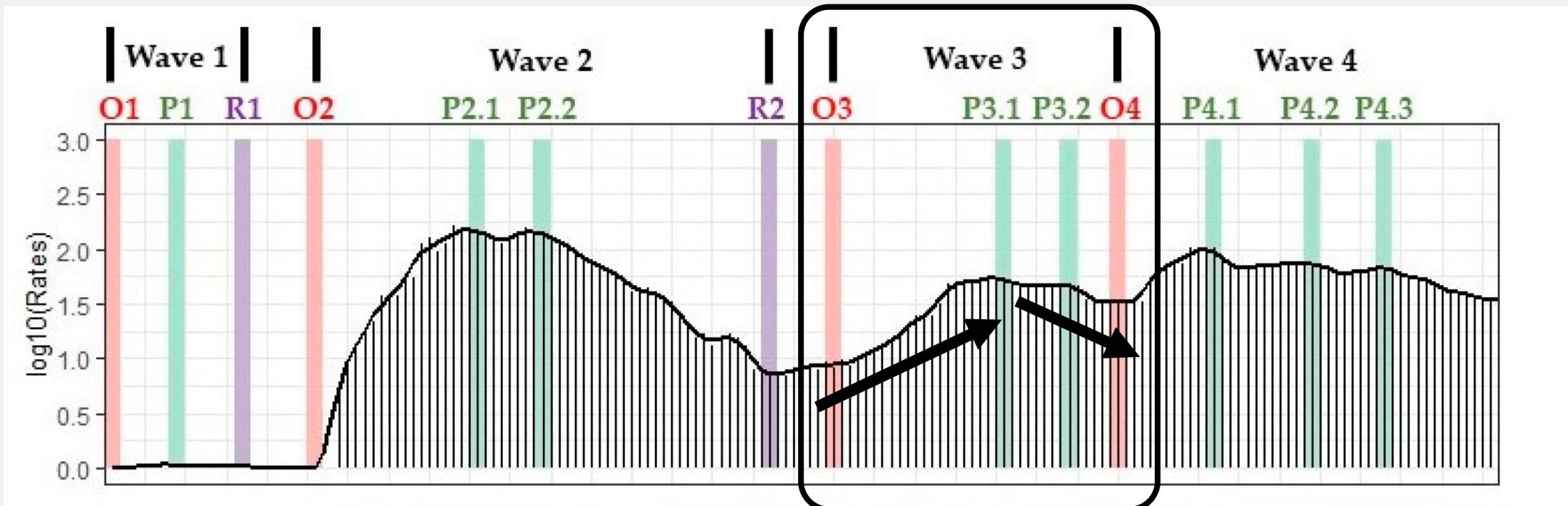
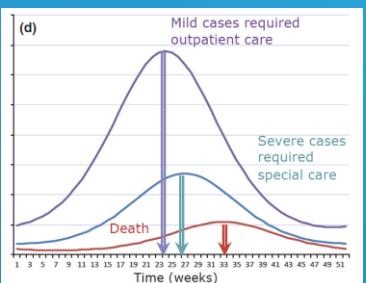
Outbreak Signature Decomposition: applicability for humanitarian emergencies



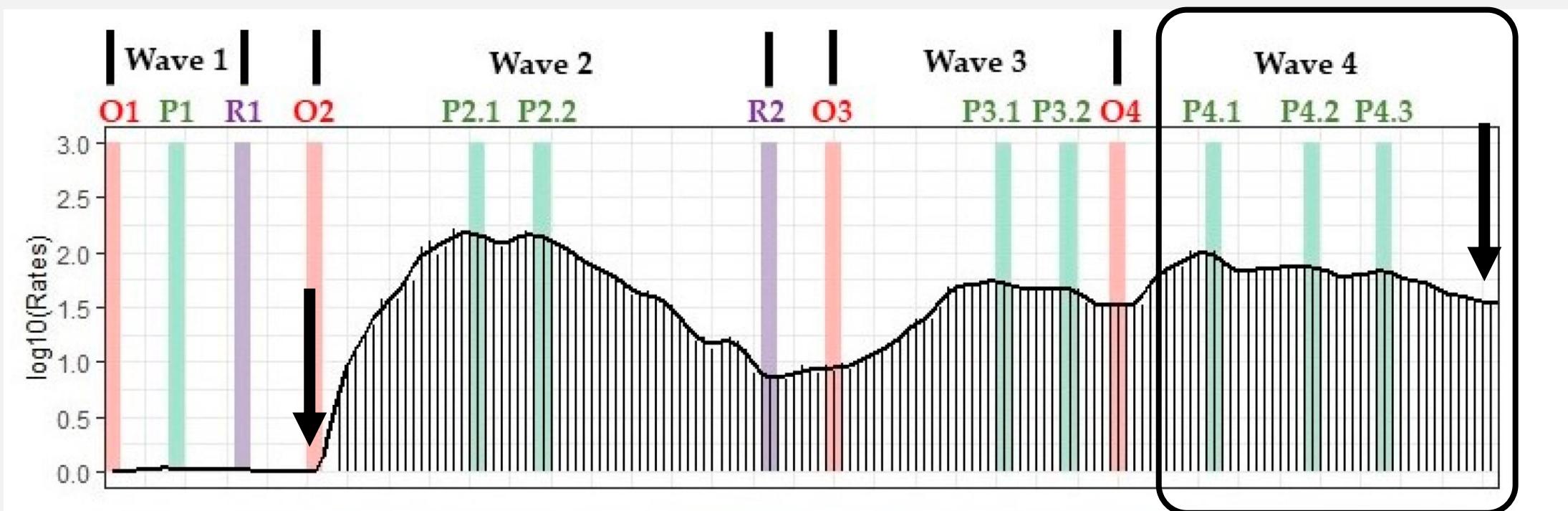
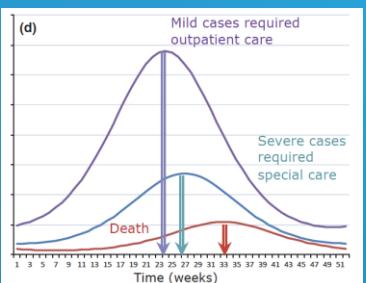
Outbreak Signature Decomposition: applicability for humanitarian emergencies



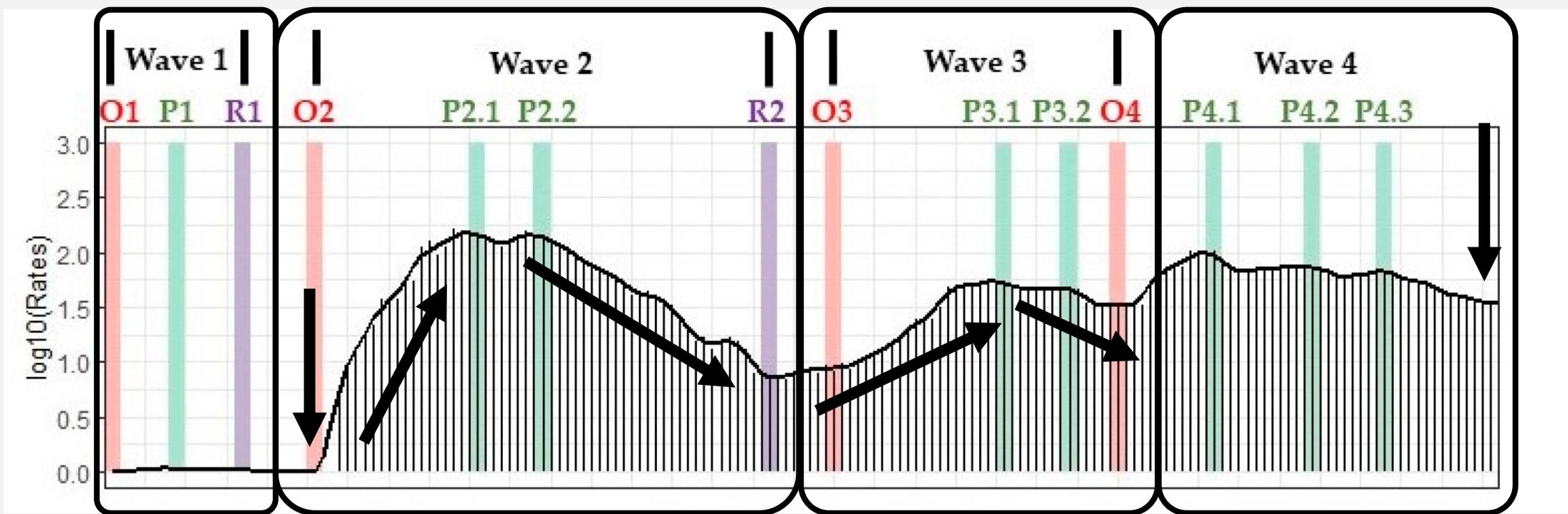
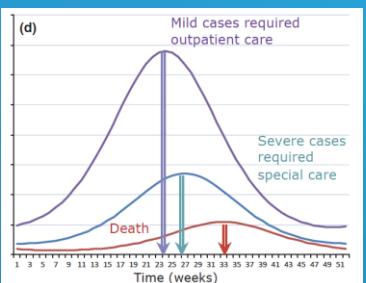
Outbreak Signature Decomposition: applicability for humanitarian emergencies



Outbreak Signature Decomposition: applicability for humanitarian emergencies



Outbreak Signature Decomposition: applicability for humanitarian emergencies

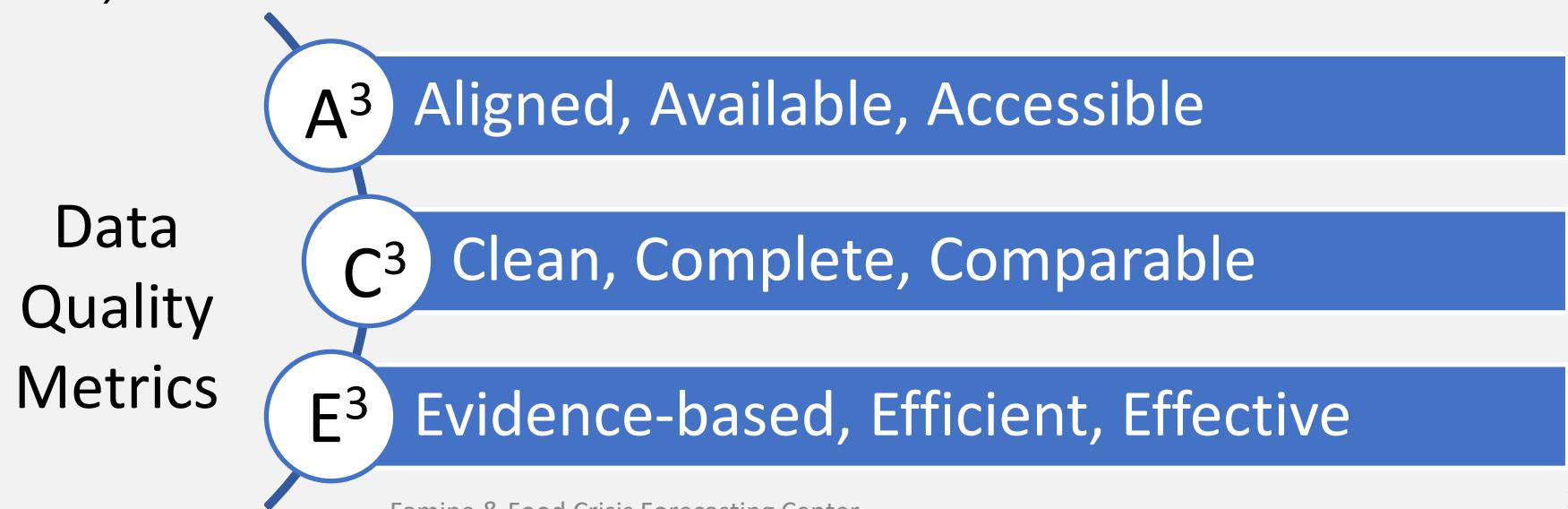


Redefine criteria for data quality and credibility

Data Quality: an inherent feature or property of the data; a characteristic that describes the essential nature of the data

- Accuracy + Precision = Reliability

Data Credibility: the quality of inspiring belief in reported data = $f(A^3, C^3, E^3)$



Dynamic Mapping Requirements

- Temporal resolution (from coarse to refined):
 - Year, Quarter, Month, Decal, Week, Day, Hour
- Spatial resolution (from coarse to refined – to be harmonized across locations and time!):
 - Country, Region, County, City, Town, Postal Code, Long/Latitude
- Outcomes of interest (from coarse to refined – to be harmonized across locations and time!):
 - Health: from various stages of malnutrition to death (all cause)
 - Food security:
 - Economic indicators:
 - Climate indicators:
 - Social and political indicators:

Call for harmonization of data, models, terms

Suggested terminology to describe seasonality in conducting research and policy analysis

| Term | Definition |
|---------------------------------------|---|
| Time Series Data | A set or a sample of time-referenced observations or records with an identified time period, time cycle, and time unit recorded by a timestamp. |
| Timestamp | Information on day, week, month in a conventional format (e.g. YYYY:MM:DD or YYYY:MM:DD:HH:mm) of data collection or processing. |
| Time Series Plot | A graph illustrating time series data by dot, line, or needle plots with axes reflecting time and an outcome(s) of interest. |
| Distribution of Time Series Data | A general summary of frequencies in time-referenced data – i.e., how often an outcome of interest reaches a certain level with respect to time units. |
| Distribution Plot of Time Series Data | Often illustrated with histograms and density plots. |
| Time Series Analyses | A collection of methods to describe, explain, and predict temporal processes with time-referenced data for an outcome of interest. |
| Trend | General temporal behavior in an outcome of interest that can exhibit steady incremental changes (linear) or varying incremental changes (non-linear) over time. |
| Season | An interval of time within one time cycle (typically one calendar year) defined by a specific biological, environmental, physical, physiological, or other property or feature in a biological or non-biological system [ref]. |
| Seasonal Pattern | A recurrence of periods in an outcome of interest with alternating values (e.g., high and low) over the course of a time cycle, commonly one calendar year. |
| Seasonality | A systematic periodic fluctuation in an outcome of interest over the course of one cycle (typically one calendar year) as an observable property of a biological or non-biological system. |
| Seasonal Curve | An analytical representation of seasonal periodic fluctuations in an outcome of interest within one time cycle (typically one calendar year). |
| Seasonality Features | A set of measurable characteristics to describe seasonality and a seasonal curve within one year, including seasonal peak, nadir, intensity, duration, speed at which a seasonal curve reaches its peak, and speed at which a seasonal curve declines to its nadir [Naumova, 2006]. |
| Peak or Nadir Timing | A seasonality feature that represents times when a seasonal curve of an outcome reaches its maximum or minimum [Naumova, 2006]. |
| Amplitude or Intensity | A seasonality feature that represents the difference between seasonal peaks and nadirs [Naumova, 2006]. |
| Duration | A seasonality feature that represents the time interval when incidence rises above a specified threshold [Naumova, 2006]. |



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Feinstein
InternationalCenter

HARMONIZING TERMS & CONCEPTS

MERRY FITZPATRICK ASSISTANT PROFESSOR, FEINSTEIN INTERNATIONAL CENTER

Standardization of Terms

- Precise communication is important
 - To make sure we are all talking about the same thing
 - So you understand the meaning of the data you are working with
- Glossary available in the folder
 - Acronyms and terms used in the data
 - Acronyms and terms related to nutrition and food security you are likely to encounter when searching for additional information
 - Additional terms (less likely to encounter, but important)
 - Terms related specifically to the theory of famines used as a framework for the eventual famine systems modeling

Some basic data acronyms explained

- WHZ vs MUAC, HAZ
 - Anthropometric measures of malnutrition
- MAM / SAM / GAM (combined) (complicated), Stunting
 - Prevalence of different levels/types of malnutrition
- VITA, MNP, IYCF (nutrition education), BFSP
 - Interventions
- PLW, IDP, Resident, U2, U5
 - Classifications of people
- IPC (AMN, AFI)
- PIN

Other important indicators

- Food security
 - HDDS, FCS,
 - HFIAS, HHS, FIES,
 - CSI, rCSI
- Mortality
 - CMR vs CDR
 - Total mortality vs excess mortality

Humanitarian terms

- Food Security
- Shock, Vulnerability, Resilience
- Early Warning System
- Livelihood group
- Intervention
- Response
- Terms of Trade
- WASH – Water, Sanitation and Hygiene
- Analogue year



FAMINE & FOOD CRISIS
FORECASTING CENTER



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FAMINE DYNAMICS

PAUL HOWE DIRECTOR, FEINSTEIN INTERNATIONAL CENTER

Famine: an event or a process ?

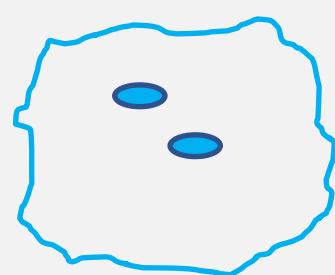


- ▶ **Event:** Early descriptions suggested famines were sudden events
- ▶ **Process:** In the 1980s and 1990s, there was a growing understanding of the process involved
- ▶ **Process and event:** In the 2000s, researchers argued processes led to events

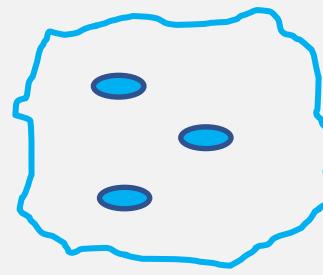
Source: Paul Howe (2022)

Famine as a system

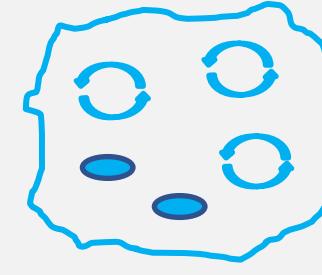
- ▶ A famine occurs when pressure on a community, kept in place by a hold, leads to self-reinforcing dynamics that tip over into a famine system until there is a rebalancing.



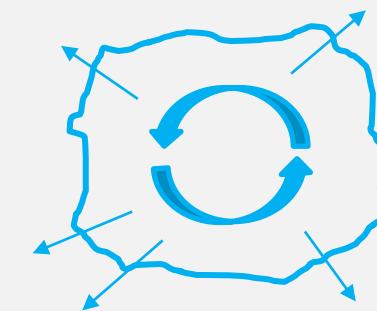
Pressure



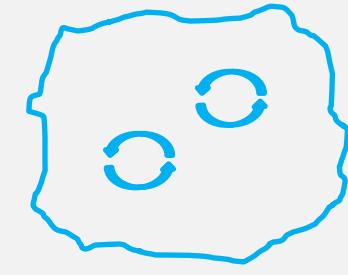
Hold



Self-reinforcing dynamics

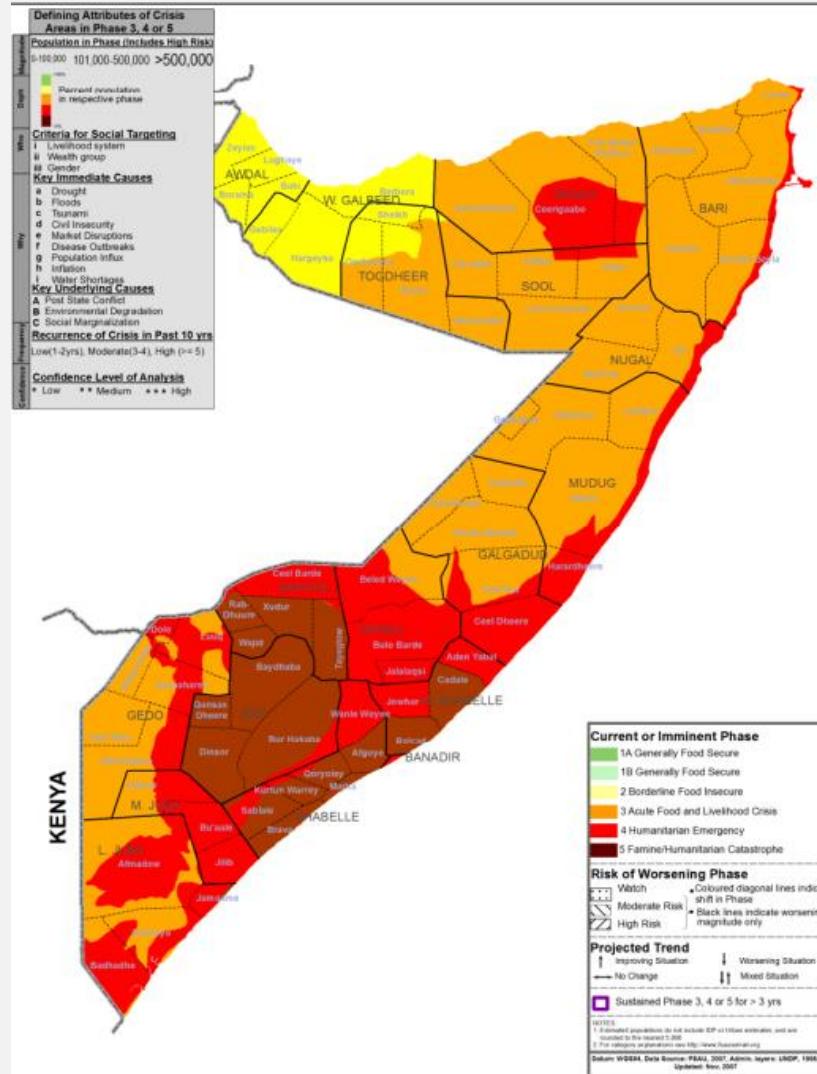


Famine system



Rebalancing

Famine as a system



Example: Somalia, 2011-2012



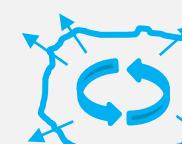
Pressure: Drought, food price rises, conflict



Hold: Al Shabaab controlled areas, counter-terrorism laws



Self-reinforcing dynamics: Rapid deterioration of terms of trade, increased migration

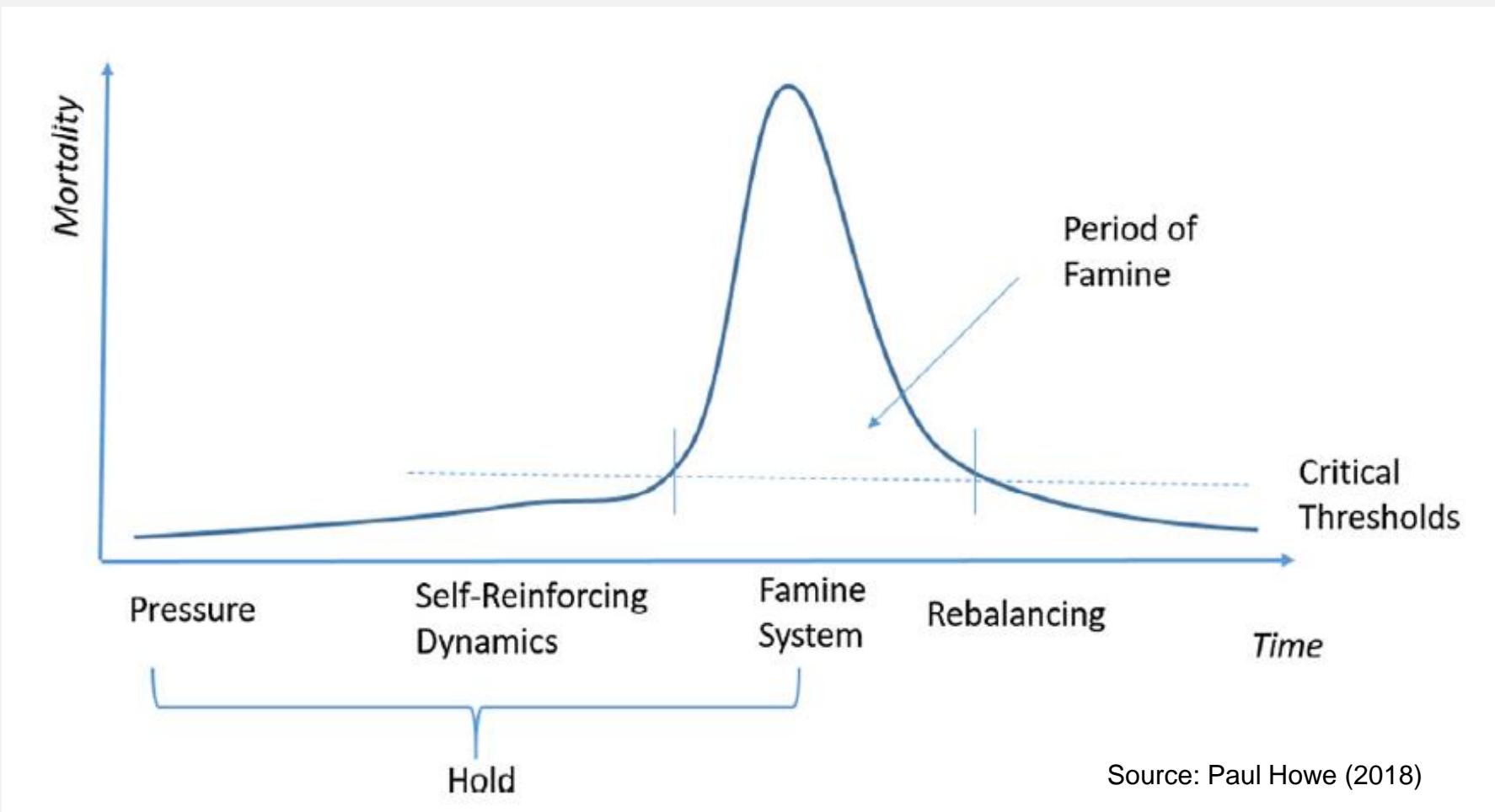


Famine system: Steep rise in mortality



Rebalancing: Increased assistance, new harvest, food price decline

Famine as a system





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FAMINE EARLY WARNING

DANIEL MAXWELL PROFESSOR, FEINSTEIN INTERNATIONAL CENTER

Famine Early Warning

- Origins
- Evolution
 - Famine as an “event”
 - Famine as a “process”
 - (or as an event resulting from a process)
- Main methods



Famine Definition and Thresholds



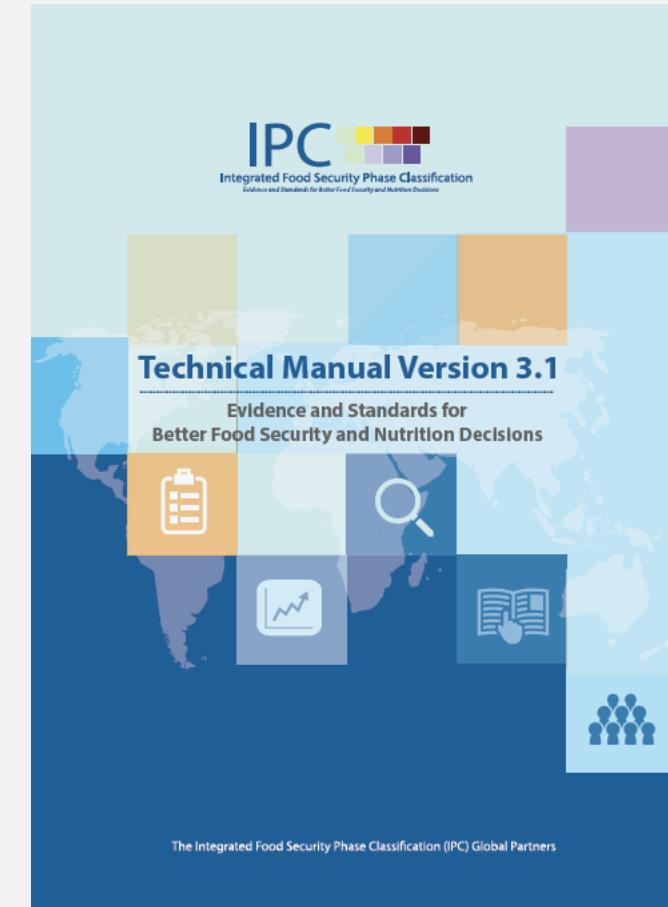
FRIEDMAN SCHOOL OF NUTRITION SCIENCE AND POLICY
Feinstein International Center

► Famine Definition:

*Famine is a state of extreme deprivation of food.
Starvation, death, destitution and extremely critical levels
of acute malnutrition are or will likely be evident*

► Famine Thresholds:

- *Even with any humanitarian assistance at least 20% of households in the area have an extreme lack of food; and*
- *At least 30% of children under five years are wasted
(low weight for height of GAM)*
- *Crude Death Rate of at least 2/10,000/day*

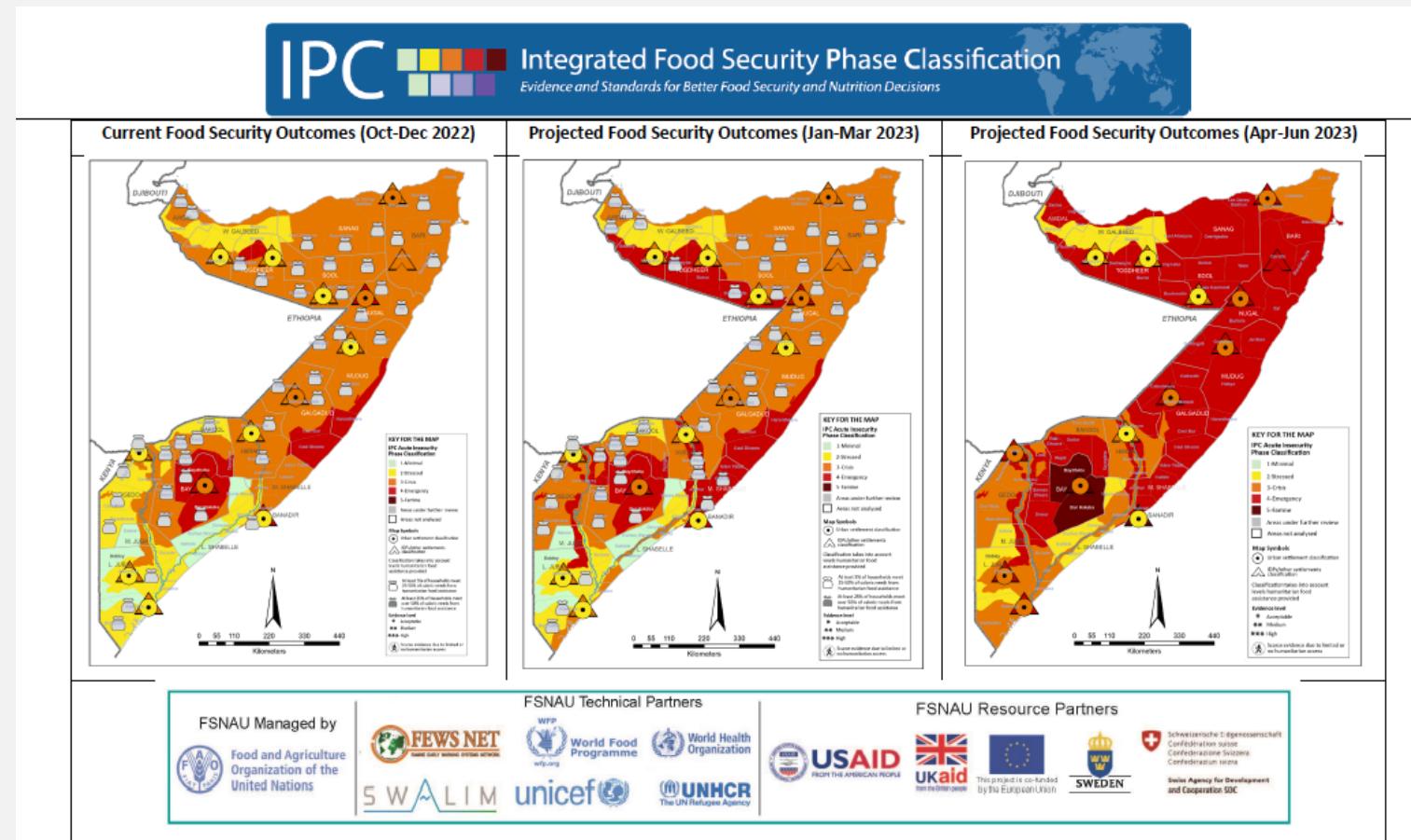


The IPC Phase Classification Reference Table



| Phase name and description | Phase 1 None/Minimal | Phase 2 Stressed | Phase 3 Crisis | Phase 4 Emergency | Phase 5 Catastrophe/ Famine |
|------------------------------|--|---|--|--|---|
| | Households are able to meet essential food and non-food needs without engaging in atypical and unsustainable strategies to access food and income. | Households have minimally adequate food consumption but are unable to afford some essential non-food expenditures without engaging in stress-coping strategies. | Households either: <ul style="list-style-type: none">• Have food consumption gaps that are reflected by high or above-usual acute malnutrition; or• Are marginally able to meet minimum food needs but only by depleting essential livelihood assets or through crisis-coping strategies. | Households either: <ul style="list-style-type: none">• Have large food consumption gaps which are reflected in very high acute malnutrition and excess mortality; or• Are able to mitigate large food consumption gaps but only by employing emergency livelihood strategies and asset liquidation. | Households have an extreme lack of food and/or other basic needs even after full employment of coping strategies. Starvation, death, destitution and extremely critical acute malnutrition levels are evident. (For Famine Classification, an area needs to have extreme critical levels of acute malnutrition and mortality.) |
| Priority response objectives | Action required to build resilience and for disaster risk reduction | Action required for disaster risk reduction and to protect livelihoods | Urgent action required to: Protect livelihoods and reduce food consumption gaps | Save lives and livelihoods | Revert/prevent widespread death and total collapse of livelihoods → |

FEWS NET's Eight-Step Scenario Development Process



Components of Famine Prediction

- Have to know historic trends (what has the population experienced?)
- Have to know current status (Food security status, nutritional and health status, mortality rates, water access, etc.)
- Have to know status of livelihoods and destitution
- Understand drivers (conflict, climate, markets, epidemics, etc.)
- Understand mitigating factors (coping capacity, assistance, etc.)
- Assumptions about how those will combine over a period of time (3-4 months, 6 months, etc.)
- Based on that: predictions about what level of outcomes will result?
- Identify factors to monitor to determine if assumptions are panning out (are predictions coming true?)

Alternative Perspectives

Alex de Waal (1989/2005). *Famine That Kills*.

- Famine is about destitution, not just about hunger or even mortality
- “If you die, that is in the hands of God.”

Maxwell and Majid (2016) “*Facing Famine*”

- *Famine as the breakdown of social relations (collapse of ability of social groups to protect one another)*
- *“3rd circle of social connectedness”*

Importance of recognizing multiple and local definitions of famine

TEAM BUILDING

- Introductions
 - Country of origin
 - Native Language
 - Professional Interests
 - Major
 - Goals for Hackathon
 - Assign rotating roles: reporter, timekeeper, moderator, ‘experts’
 - Name your team!
-
- Identify target product/output of hackathon and any needs
 - Create Gantt Chart of tasks
 - [Complete slide about your team!](#)





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HACKATHON #1: YEMEN

Team Presentations, Day 1