CDC Global Health Security Agenda/Ebola Grantee Meeting

Accountability. Results. Sustainability.
Health, Border and Mobility Management within the Global Health Security Agenda

Approaches used by the International Organization for Migration

CDC GHSA/Ebola Grantee Meeting, 10-12 February 2016

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"Dignified, orderly, and safe migration for the benefit of all"

As the **leading international organization for migration**, IOM acts with its partners in the international community to:

- Assist in meeting the growing operational challenges of migration management
- Advance understanding of migration issues
- Encourage social and economic development through migration
- Uphold the human dignity and well-being of migrants
Migration Mega-trend: One in Seven

7 billion Population | 1 billion Migrants

- 247 million International
- >740 million Internal

Urbanization: 50% + Feminization: 50%
Irregular: 15-20%
Under 20 years of age: 33M
A Decade of Exponential Growth

Membership: 67 to **162**

Offices: 119 to +481 **in 150 countries**

Projects: 686 to **2,600**

Staff: 1,100 to > **9,000**

Budget: $250 million to **$1.6 billion** (2013)
IOM Service Areas

- Facilitating Migration
- Policy, Research & Forum Activities
- Migration Health
- Migration & Development
- Regulating Migration
- Resettlement, Movement, Emergency & Post-Crisis
Why Focus on Migrant Health?

*Health of Migrants: bridges rights, health security, global health, and development*

1. Migrants are human beings, and have a **right to health**.
2. Safe Migration and Human Mobility is critical for the realization of **global health security**
3. Migrant-inclusive health systems **improves global health outcomes**.
4. Healthy migrants **contribute to positive sustainable development outcomes**.

**Better health, better security, better integration, better migration!**
IOM’s Global Presence
Where does IOM stand vis-à-vis the global health security agenda?
The Global Health Security Agenda

Today’s Global Health Security Risks:

✓ Emergence and spread of new microbes;
✓ **Globalization of travel and trade**;
✓ Rise of drug resistance; and
✓ Potential for accidental release, theft or illicit use.
Health, Borders and Mobility

- Mobility as
  - A known social determinant of health
  - Direct contributor to spread of diseases
  - A continuum
- Understanding mobility = better prevention, detection and response to public health threats
- Borders as spaces, borders as part of the mobility continuum
- Mobility induced spaces of vulnerability: pathways and congregation points
A short history of migration, and disease control: the quarantine

- The second pandemic of bubonic plague during the great expansion of European trade in the early 14th century.

- In 1377 the Great Council of the City of Ragusa (modern Dubrovnik, Croatia) passed a law establishing a twenty or thirty-day isolation period for citizens or visitors from plague-endemic areas.

- The Public Health Service Act of 1944 established the federal government's quarantine authority with the responsibility for preventing the introduction, transmission, and spread of communicable diseases from foreign countries into United States.

Cholera pandemic of the mid-nineteenth century

Immigration health practices were legislated by several countries.

Quarantine: Contagious Disease

The kind of 'assisted emigrant' we can not afford to admit."

1883 the Puck. Drawing which shows members of the New York Board of Health wielding a bottle of carbolic acid, a disinfectant, in their attempt to keep cholera at bay.

Immigrants are inspected in 'the line' at Ellis Island, circa 1904

(Photograph: US National Library of Medicine)
Understanding Mobility for Better Prevention, Detection and Response to Health Threats

- Better targeting of resource allocation and priority locations
- Forecasting spread of diseases through mobility corridors
- Primary Health Care strengthening along the vulnerable corridor, including through health screening and referral procedures
- Integration of mobility information into disease surveillance and response (including through EOC structures)

✓ IHR review process to be presented at the 2016 WHA
✓ Land crossing guidance document development complementing the IHR definition of Points of Entries
✓ Prioritization of spaces of vulnerability → borders as spaces, not points
✓ Reflection of IOM HBMM’s programming across the 8 countries
The IOM Response to the EVD Crisis: the Dual Strengths

✓ Operational capacity and presence to address immediate life-saving gaps
  – 3 ETUs in Liberia
  – Training Academy in Sierra Leone
  – PEOC support in Guinea

✓ Migration mandate: pushing forward the mobility lens in public health interventions
  – Human mobility in the context of the Ebola epidemic – from one case in a remote forest region in Guinea to 10 countries across the globe
  – The IOM Health, Border and Mobility Management - the realization that by better understanding population mobility, more targeted and evidence informed public health responses can be mounted at critical locations along human mobility pathways
IOM-CDC-WHO Working Group on Health Management at Borders

✓ First meeting in Geneva in April 2015

✓ Aims:

• Discuss and coordinate strategic matters aimed at improving surveillance and response

• Support the integration of human mobility information within disease surveillance and response mechanisms

• Review and share existing cooperative agreements, protocols, checklists, data collection forms, and reports on cross-border health issues

• Provide guidance in the rapid response to disease outbreaks, particularly on the cross-border aspects
IOM-CDC-WHO Working Group on Health Management at Borders

✓ Joint mission to Mali, Guinea, Sierra Leone and Liberia in July 2015:
  – to explore current cross-border collaboration on EVD response;
  – to obtain a better understanding on known and unknown population mobility patterns potentially influencing the sustained EVD transmission

✓ IOM is already implementing EVD response incorporating the mobility dimension in Mali, Sierra Leone, Guinea, Guinea Bissau and Liberia

✓ How can information on mobility dynamics and patterns be better collected and analysed?

✓ What other data collection methods and tools need to be developed?
  – Qualitative vs quantitative
  – Cost effectiveness and geographical coverage (health screening necessary?)
  – Replicability, transferability
IOM’s CDC GHS-15 1632
Multi-Country Project

✓ A comprehensive public health program that incorporates human mobility
✓ Ghana, Guinea Bissau, Guinea Conakry, Liberia, Senegal and Sierra Leone

Three priority areas:
1. Point of Entry capacity development according to IHR
2. Border health risk mitigation through strengthened surveillance
3. Bilateral and regional IHR coordination

Priority area two:
✓ Population mobility mapping: methodologies, tools, capacity building
✓ Integration of mobility information into surveillance mechanisms
From Better Mobility Information to Public Health Impact: the Sierra Leone Pilot Test
29 September to 10 October 2015

1. Identify geographic areas of interest with human mobility dynamics and patterns that may increase the impact of public health risk of international, national, and community concern
2. Data collection: assess the characteristics and extent of human mobility into, from and between identified areas of interest, including their congregation points
3. Analyze mobility patterns in the context of the public health event to guide resource and response needs

Better public health outcomes
Three Stages of Data Collection

Stage 1:
- Key informant interview and group discussion through participatory mapping
- Compile existing information on mobility (maps, georeferenced data)
- Identify priority “locations”

Stage 2:
- Key informant interview and group discussion through participatory mapping
- Observation
- Checklist (including preparedness, health system capacities, etc)

Stage 3:
- Quantitative data collection
- Sampling defined by clear presence of mobility flows/ No flow

At the main “site”/ chiefdom level

At priority locations

Quantification and sampling survey of travelers
Arising Opportunities & Challenges

✓ “A new science in the making”
✓ Validity of the approach, methodologies, tools, SOPs?
✓ Development of additional tools
✓ Standardization of analysis, integration of public health information from other sources
✓ How to document knowledge and evidence rapidly?
✓ Integration of mobility data into health information systems for public health impacts: surveillance, preparedness plans
✓ Replicability, transferability and sustainability
Thank you!

Comments and questions are welcome.
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Accountability. Results. Sustainability.
Building Laboratory-Supported Real Time Surveillance: 

Acute Febrile Illness at the Human-Animal-Environment Interface in India

Govindakarnavar, ARUNKUMAR PhD
Professor and Head, Manipal Centre for Virus Research
Manipal University

GHSA Grantee Conference
Technical Breakouts- Surveillance
February 11, 2016
Background

• Immense biodiversity of India is a public health challenge due to the emerging disease threats

• Significant gaps remain about the burden, etiologic spectrum, and risk factors associated with Acute Febrile Illness (AFI) at the human-animal-environment interface

• A laboratory-supported AFI surveillance platform initiated under CDC Cooperative Agreement in 2014
  • In 2014, 4 district/sub-district hospitals in two districts of south west India
  • In 2015, extended to 5 more hospitals in two additional states
  • By end 2016, total 24 hospitals in 12 states
GHSA Early Successes

• Initiation of AFI surveillance in 9 sentinel hospitals across 4 states, resulting in:
  • Redrawing the risk map of Kyasansur Forest Disease (KFD)
  • Enhanced capacity in laboratory-supported disease surveillance for any emerging disease (eg. Zika virus)
  • One health models in anthrax and brucellosis surveillance

GHSA Action Package(s)
- Detect 1: National Laboratory system
- Detect 2/3: Real Time Surveillance
- Prevent 2: Zoonotic Disease
- Detect-5: Workforce development
- Prevent-3: Biosafety/Biosecurity
GHSA Early Successes

Initiation of AFI Surveillance in 9 sentinel hospitals across 4 states

Goa
Karnataka
Kerala
Assam

Case Report Form

Detect 1: National Laboratory system
Detect 2/3: Real Time Surveillance
Detect-5 : Workforce development
Detect 4: Reporting
Prevent 2: Zoonotic Disease
Prevent-3: Biosafety/Biosecurity
Aetiology of AFI - Early Results

- Influenza A & B: 17%
- Leptospirosis: 9%
- Scrub typhus: 7%
- Dengue: 7%
- KFD: 4%
- Malaria: 1%
- Brucella: 0.1%
- Others: 1%
- Unknown: 54%
The Case of Kyasansur Forest Disease
Monkey Fever - Shimoga, India

- 1957
- Unusual death of red faced Bonnet macaques and Black faced langurs in the Kyasanur forest, Karnataka, South West India
- Few weeks later, severe acute febrile illness with encephalitis/hemorrhage among locals, high mortality (10%)
- Dr. Work (VRC, Pune) and team isolated a new pathogen
- Named Kyasanur Forest Disease Virus (KFDV)
KFD Background

(Knipe and Howley, 2013)
Epidemiology of KFD

- **Agent:** KFDV
- **Vector/Reservoir host:** Ticks (*Haemophysalis spinigera*), highly anthropophilic
- **Hosts:** Porcupines, rats, squirrels, mice, shrews, cattle
- **Amplifying host:** Red faced Bonnet – *Macaca radiata*; Black faced Langur – *Semnopithecus entellus*
- **Accidental host:** Human
  (Dead end host- *No Human to Human transmission*)
- **Transmission:** Bite of infected hard ticks; Transovarian and Transstadial transmission
- **Incubation period:** 3 to 8 days
- **Mortality:** 1-10%; VHF
Since 1960 Karnataka has KFD Surveillance System in place.
• Responsible for the detection of KFD within districts of Karnataka only
• AFI surveillance under GHSA CDC CoAG has facilitated detection of KFD outside Karnataka
Expansion of Geographic Distribution of KFD Post AFI Surveillance Initiated under GHSA

Karnataka, Kerala, Tamilnadu, Goa and Maharashtra

- Resulted in public health response by affected states
- Engaging states to develop guidelines for Prevention, Control and Clinical case management
- Increased attention to research in KFD
- Engagement with KFD vaccine development under Indo-US Vaccine action programme
Lab-Supported Surveillance Improves Disease Detection

- Enrolls all hospitalized febrile patients (1-65 years old) at district/sub-district government hospitals
- Collection of epidemiological and clinical data
- Capacity building at site laboratories for preliminary pathogen testing *(Leptospirosis, Dengue, Scrub Typhus and Malaria)*
  - Site laboratory is located in the district/sub district hospital
  - Linked to the district / state IDSP laboratory
  - Supports outbreak investigations
- Innovative, secure and fast specimen transport system using bus /train services or specialized courier service to reference lab at Manipal University (within 24-36 hrs)
- Detection of >60 pathogens, using standardized algorithm
  - More than 50 viruses, more than 10 Bacteria and 2 parasites
- Platform allows detection of *any* new pathogens, including Zika Virus

GHSA Action Package(s)
- Detect 1: National Laboratory system
- Detect 2/3: Real Time Surveillance
- Prevent 2: Zoonotic Disease
- Detect-5: Workforce development
- Prevent-3: Biosafety and Biosecurity
- Detect 4: Reporting
AFI Platform Facilitates Zoonosis Action Package

- Application of AFI platform
  - For detection of anthrax and brucellosis, both in human and animal sectors, jointly with NIVEDI.
- Joint outbreak/epidemiology training of veterinary and medical professionals
- One health models Zoonotic Disease Surveillance
  - Anthrax Surveillance
    - Joint training at NIVEDI led to collaboration of animal and human health personnel in Simdega district of Jharkhand in June 2015 human anthrax outbreak
  - Brucellosis surveillance
    - Outbreak of AFI supported by Manipal University led to detection of human brucellosis in Amsing, Kamrup, Assam.
    - Assam Agriculture University of Guwahati demonstrated widespread brucellosis in cattle at herd level
    - Manipal and Assam Human health services jointly initiated AFI surveillance and are building link with the Agricultural University for greater collaboration.

NIVEDI-National Institute of Veterinary Epidemiology and Disease Informatics
Challenges and Lessons Learned

- **Challenges/obstacles**
  - Obtaining formal government permissions at state level; each state different approving hierarchies and systems

- **Lessons learned**
  - Continuous engagement needed
  - Continuous training needed
  - Transparent and clear communication
  - Continuous strengthening of government sector via public-private initiative

- **Contribution of partnership in early success**
  - Partnership in private sector
  - Partnership with state and district, public health services
  - Partnership with district administration.
  - Engaging sentinel site clinicians
Contact Information

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