# CDC Global Health Security Agenda/Ebola Grantee Meeting

***Accountability. Results. Sustainability.***

CDC & GLOBAL HEALTH SECURITY AGENDA

# 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

**Dr. Teresa Zakaria, MIPH**

Migration Health Emergency Operations Officer

Health Assistance for Crisis Affected Populations – Head of Unit

Migration Health Division

IOM Headquarters, Geneva

# INTERNATIONAL ORGANIZATION FOR MIGRATION


Geneva, Route des Morillions 17

***"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% +

Irregular : 15-20%

Feminization: 50%

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

**Policy, Research & Forum Activities**

**Migration & Development**

**Facilitating Migration**

**Regulating Migration**


**Resettlement, Movement, Emergency & Post- Crisis**

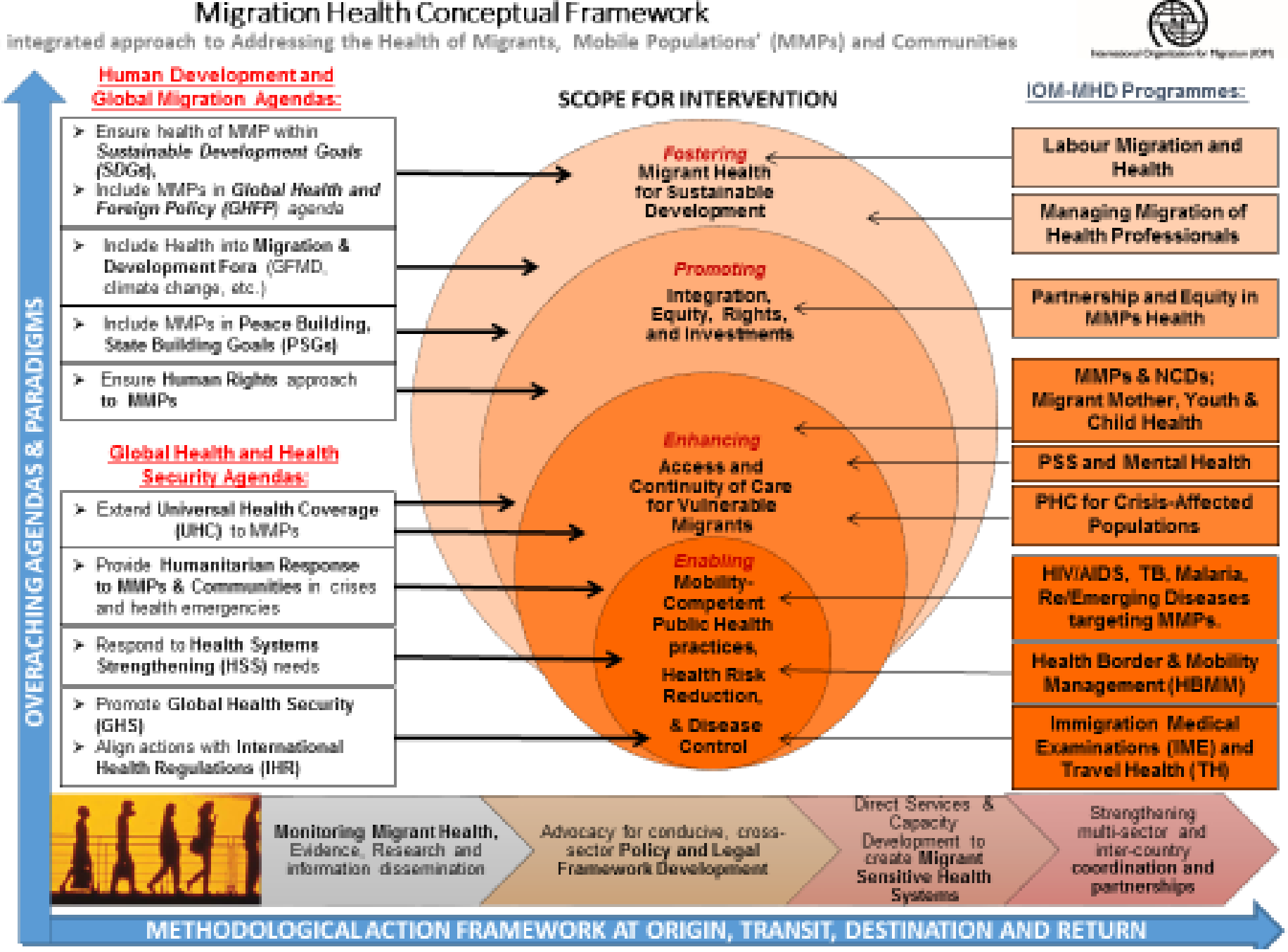
**Migration Health**

# Why Focus on Migrant Health?

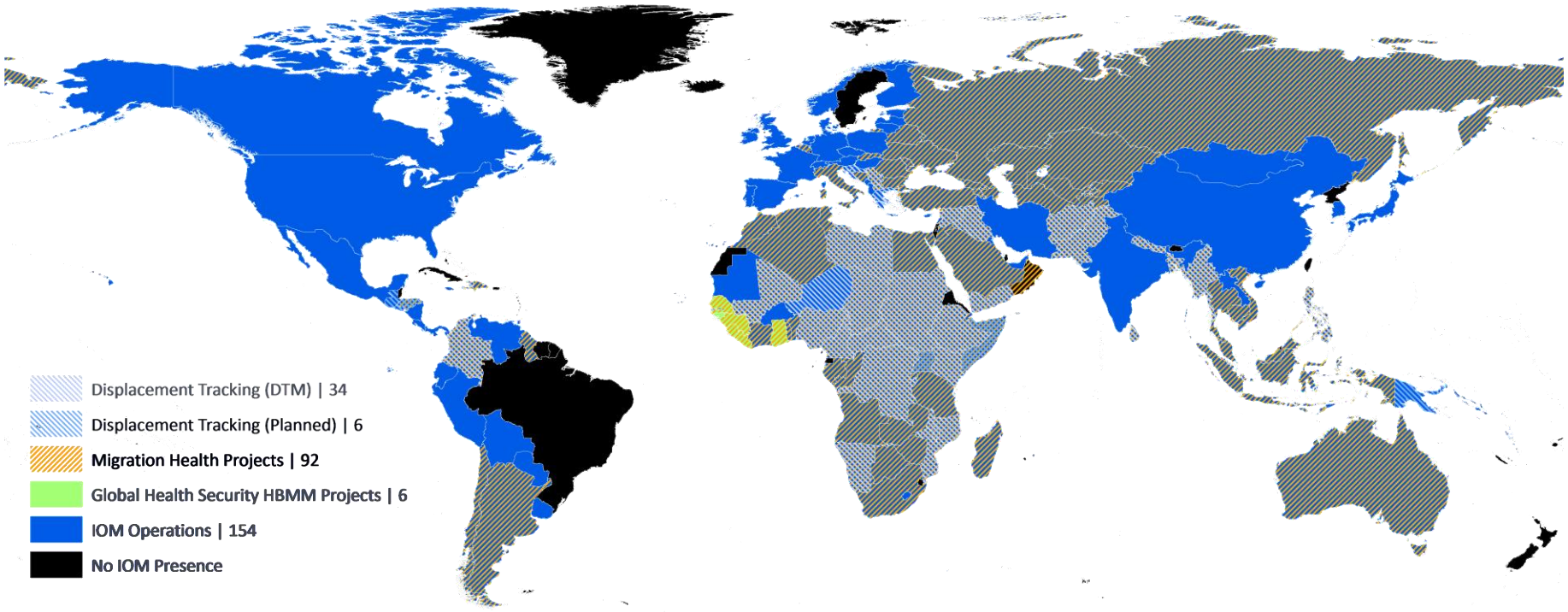
*Health of Migrants: bridges rights, health security, global health, and development*

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!


Migration Health Conceptual Framework
An integrated approach to Addressing the Health of Migrants, Mobile Populations' (MMPs) and Communities
OVERACHING AGENDAS & PARADIGMS
Human Development and Global Migration Agendas:
Ensure health of MMP within Sustainable Development Goals (SDGs).
Include MMPs in Global Health and Foreign Policy (GHFP) agenda
Include Health into Migration & Development Fora (GFMD, climate change, etc.)
Include MMPs in Peace Building, State Building Goals (PSGs)
Ensure Human Rights approach to MMPs
Global Health and Health Security Agendas:
Extend Universal Health Coverage (UHC) to MMPs
Provide Humanitarian Response to MMPs & Communities in crises and health emergencies
Respond to Health Systems Strengthening (HSS) needs
Promote Global Health Security (GHS)
Align actions with International Health Regulations (IHR)
SCOPE FOR INTERVENTION
Fostering Migrant Health for Sustainable Development
Promoting Integration, Equity, Rights, and Investments
Enhancing Access and Continuity of Care for Vulnerable Migrants
Enabling Mobility-Competent Public Health practices, Health Risk Reduction, & Disease Control
IOM-MHD Programmes:
Labour Migration and Health
Managing Migration of Health Professionals
Partnership and Equity in MMPs Health
MMPs & NCDs; Migrant Mother, Youth & Child Health
PSS and Mental Health
PHC for Crisis-Affected Populations
HIV/AIDS, TB, Malaria, Re/Emerging Diseases targeting MMPs.
Health Border & Mobility Management (HBMM)
Immigration Medical Examinations (IME) and Travel Health (TH)
Monitoring Migrant Health, Evidence, Research and information dissemination
Advocacy for conducive, cross-sector Policy and Legal Framework Development
Direct Services & Capacity Development to create Migrant Sensitive Health Systems
Strengthening multi-sector and inter-country coordination and partnerships
METHODOLOGICAL ACTION FRAMEWORK AT ORIGIN, TRANSIT, DESTINATION AND RETURN

# IOM's Global Presence




IOM

# *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

# Migration and Infectious Diseases

International Organization for Migration

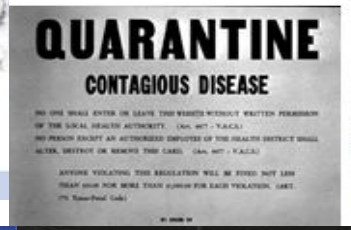
***History of migration and disease control: the quarantine***

- 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 *trentino*, or thirty-day isolation period for citizens or visitors from plague-endemic areas

**Ships Docking at the *Lazzaretto Vecchio*, Venice 14th Century**
***the quarantine***

International Organization for Migration

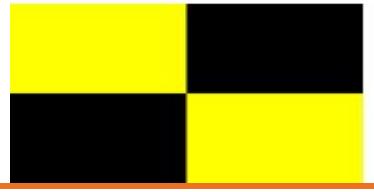
- **Cholera** pandemic of the mid- nineteenth century
- **immigration health practices** were legislated by several countries




***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 attempts to keep cholera at bay.

International Organization for Migration

- 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



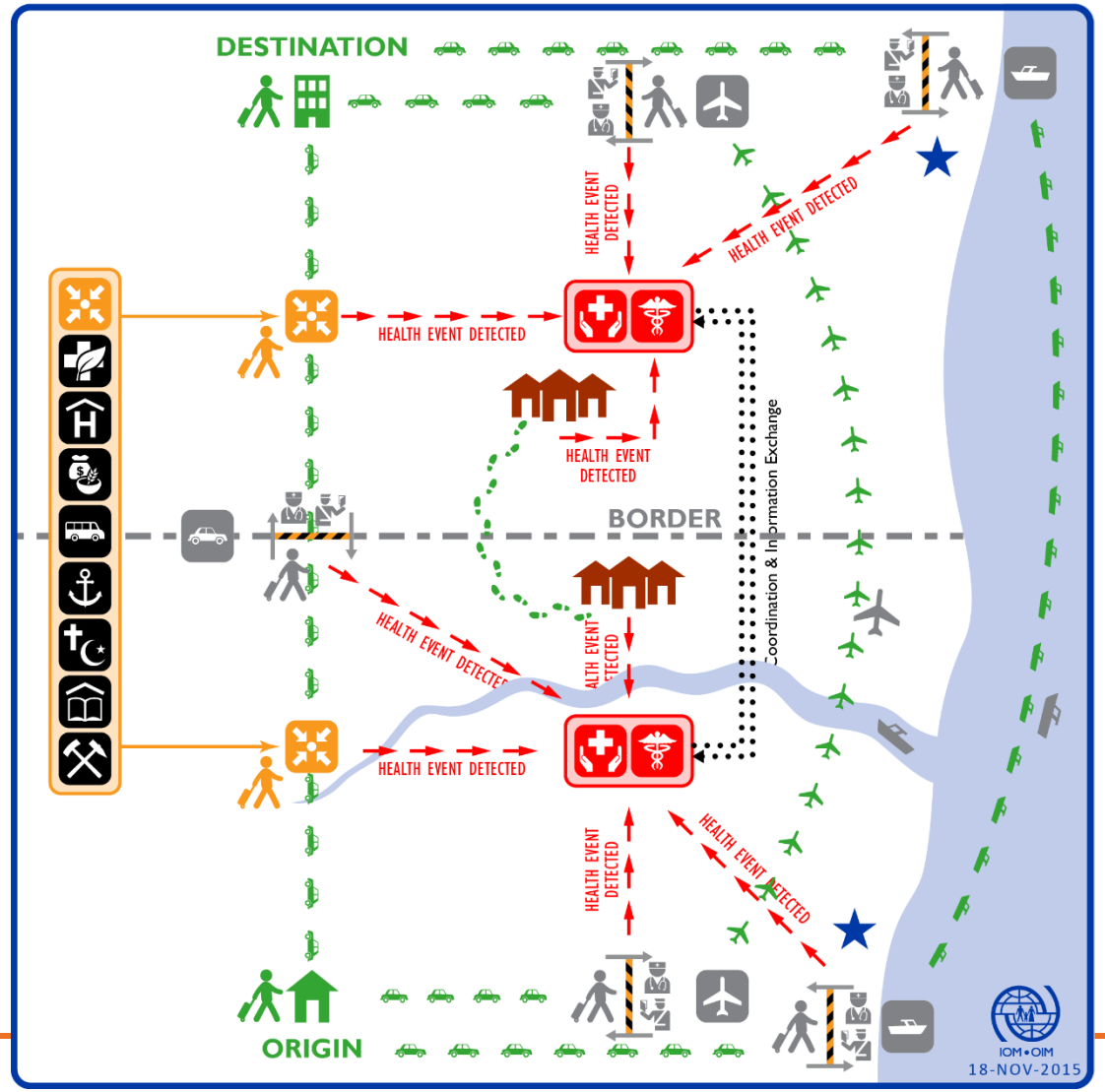
**US Quarantine Inspectors in Public Health Service uniforms, late 19th century**

**Immigrants are inspected in 'the line' at Ellis Island, circa 1904**
(Photo: 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)

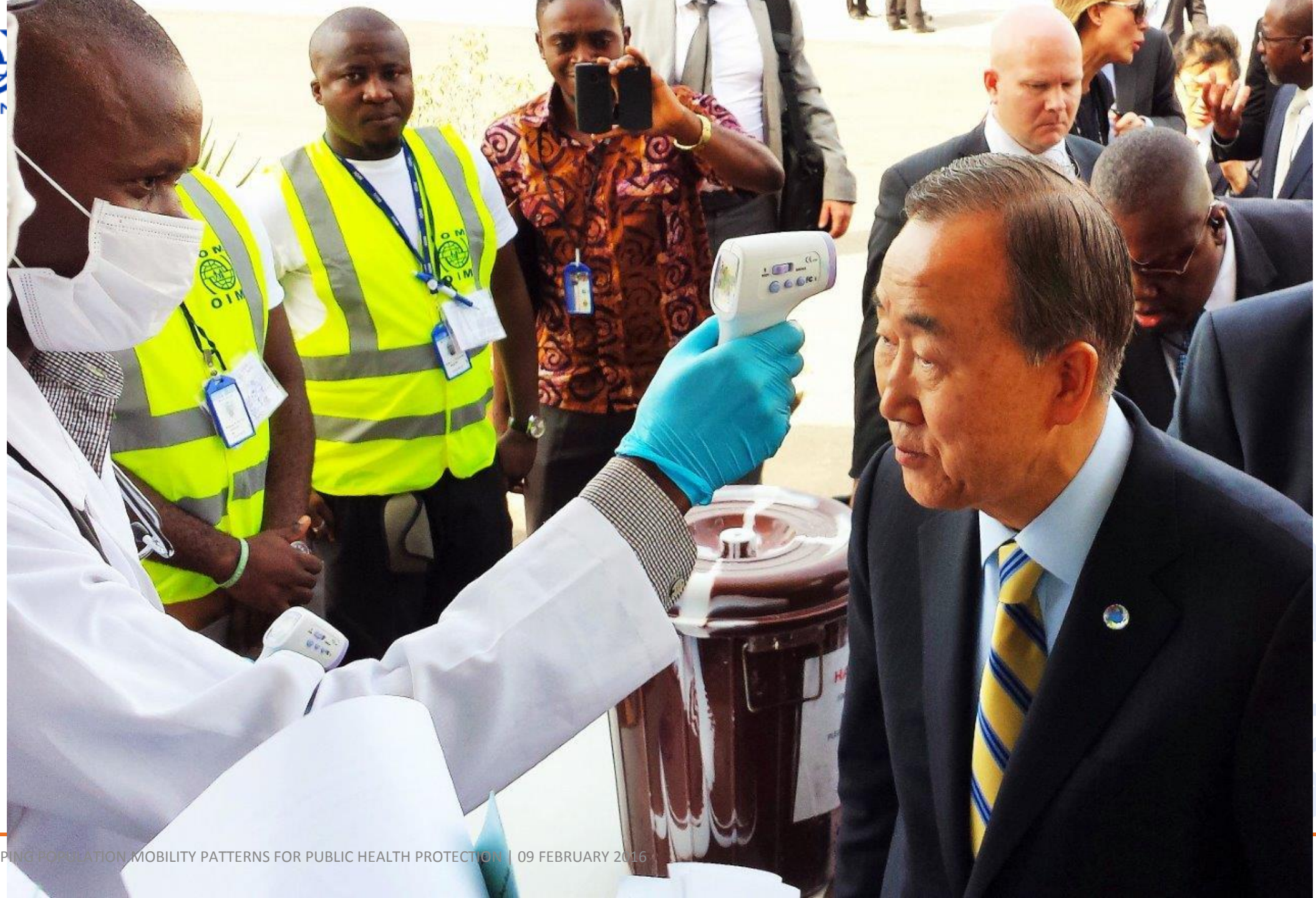
# IOM HEALTH, BORDER AND MOBILITY MANAGEMENT (HBMM) FRAMEWORK




| PILLARS | ACTIVITIES |
|---|---|
| POLICIES AND LEGAL FRAMEWORK ON HEALTH, BORDER AND MOBILITY MANAGEMENT | |
| OPERATIONAL RESEARCH, EVIDENCE, DATA GATHERING AND SHARING | 1 Needs Assessment, Operational Research, and Data Collection |
| | 2 Surveillance / CEBS / IDSR |
| | 3 Data Analysis and Risk Mapping |
| | 4 Data Dissemination and Reporting |
| ENHANCED CAPACITY OF HEALTH SYSTEMS AND BORDER MANAGEMENT SERVICES | 5 SOP Development (IPC, Case Management, and Migration Management), Training Manuals and Curriculum, Simulation of PHEIC Events, and Training Implementation |
| | 6 Health Screening and Referral System |
| | 7 Health Management and Public Health Response |
| | 8 Provision of Infrastructure and Supplies |
| INTER-SECTORAL AND MULTI-COUNTRY PARTNERSHIPS AND NETWORKS | 9 Social Mobilization, Population Awareness, and Behaviour Change |
| | 10 Coordination and Dialogues |

# The Review Process of the International Health Regulations (2005)

- ✓ 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
OIM

# 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

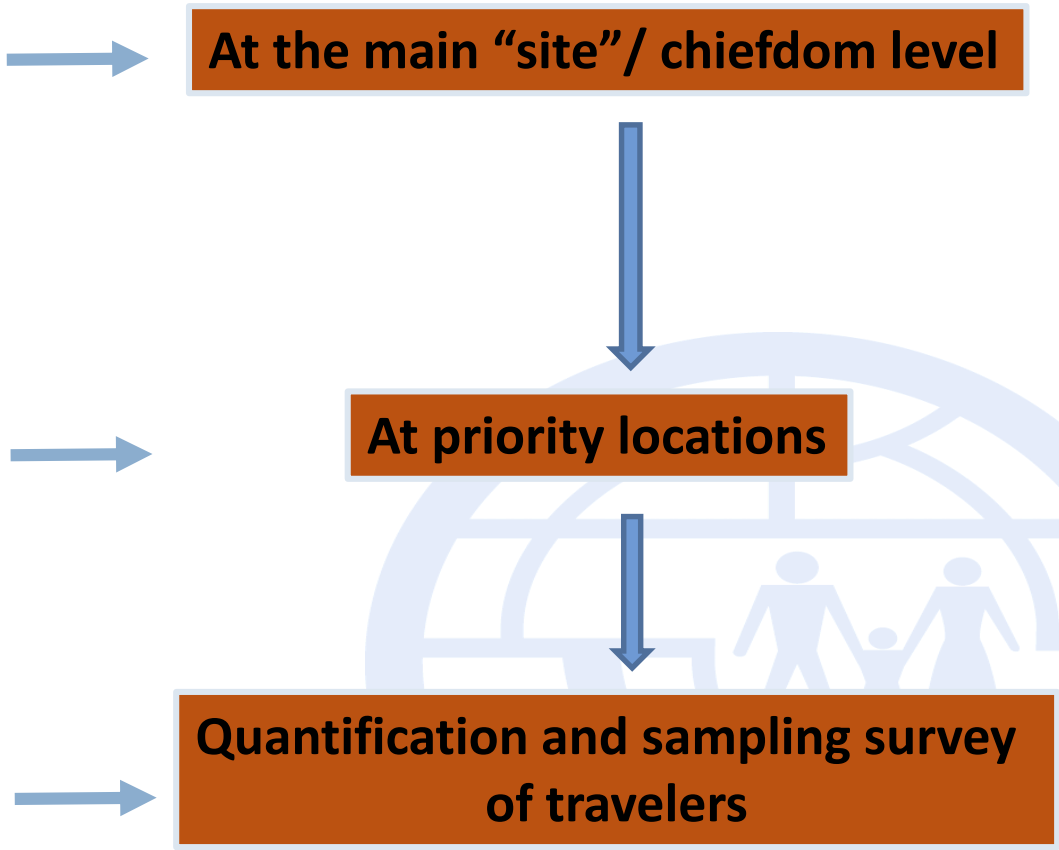
**Better public health outcomes**

# 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




STOP
POLICE

# 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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# 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** |
| | **Detect-5 : Workforce development** |
| | **Detect 4: Reporting** |
| | **Prevent 2: Zoonotic Disease** |
| | **Prevent-3: Biosafety/Biosecurity** |

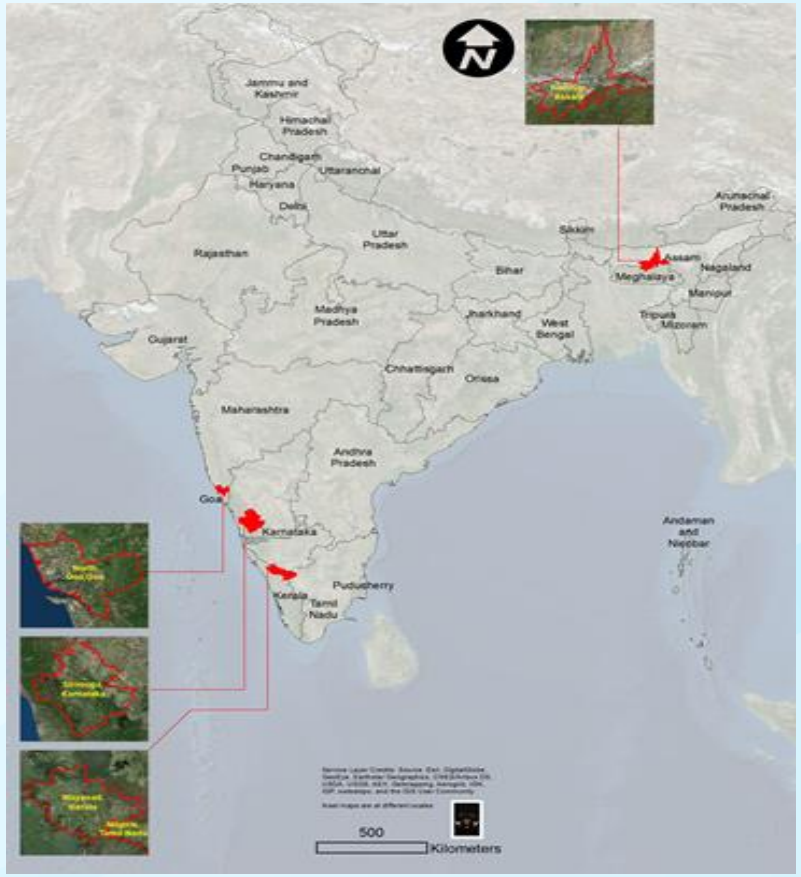
# GHSA Early Successes

## Initiation of AFI Surveillance in 9 sentinel hospitals across 4 states

Goa

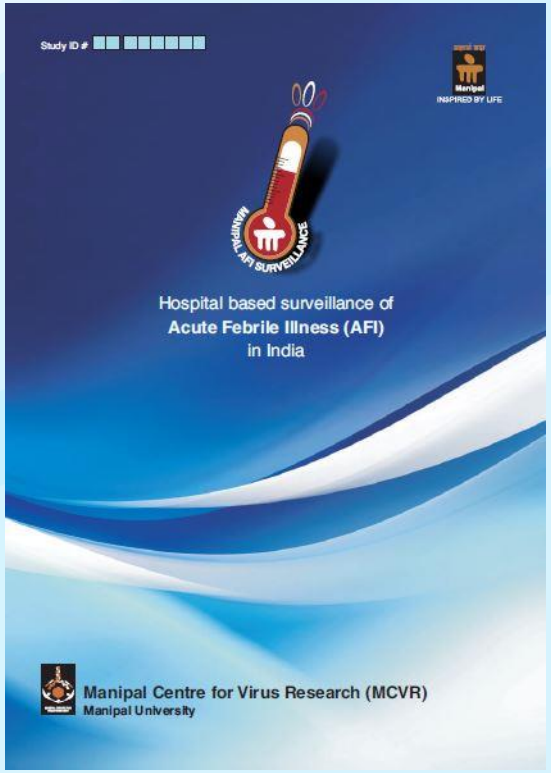
Karnataka

Kerala




Assam

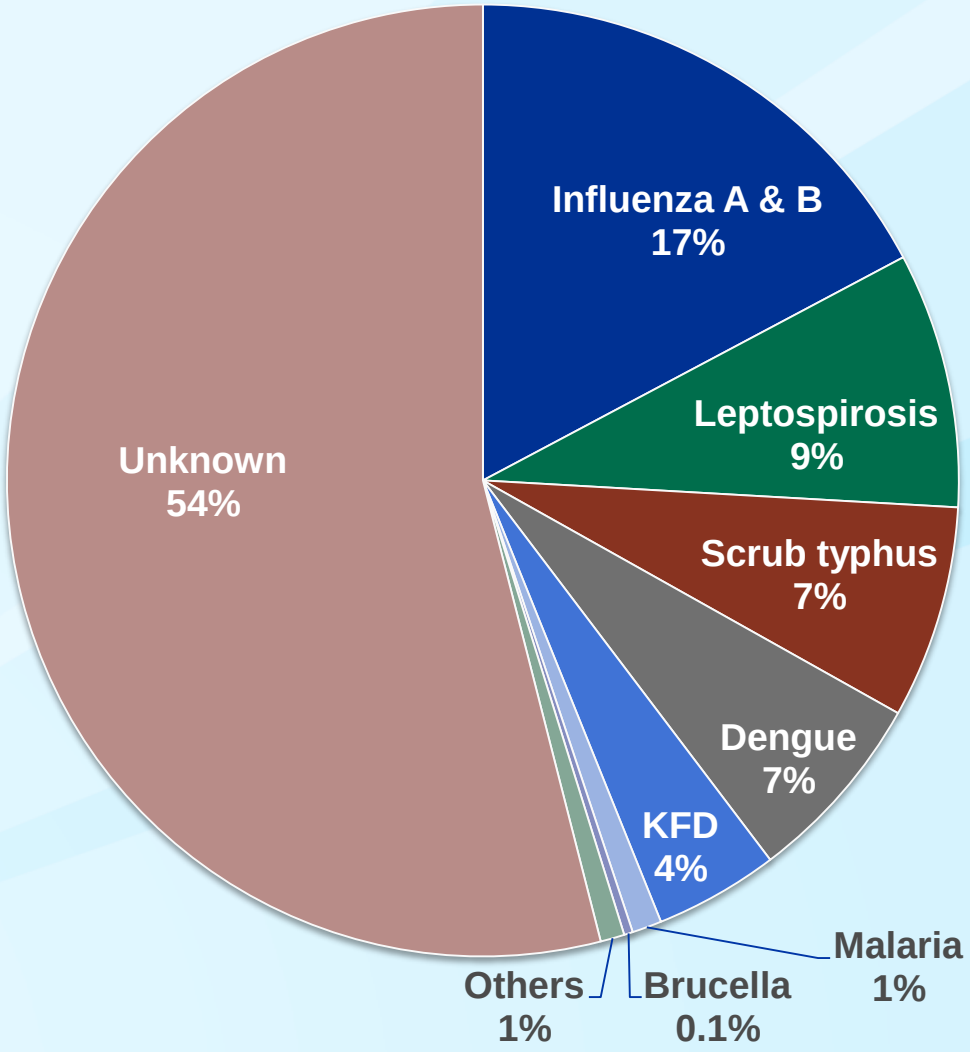
Case Report Form




**GHSA Action Package(s)**

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

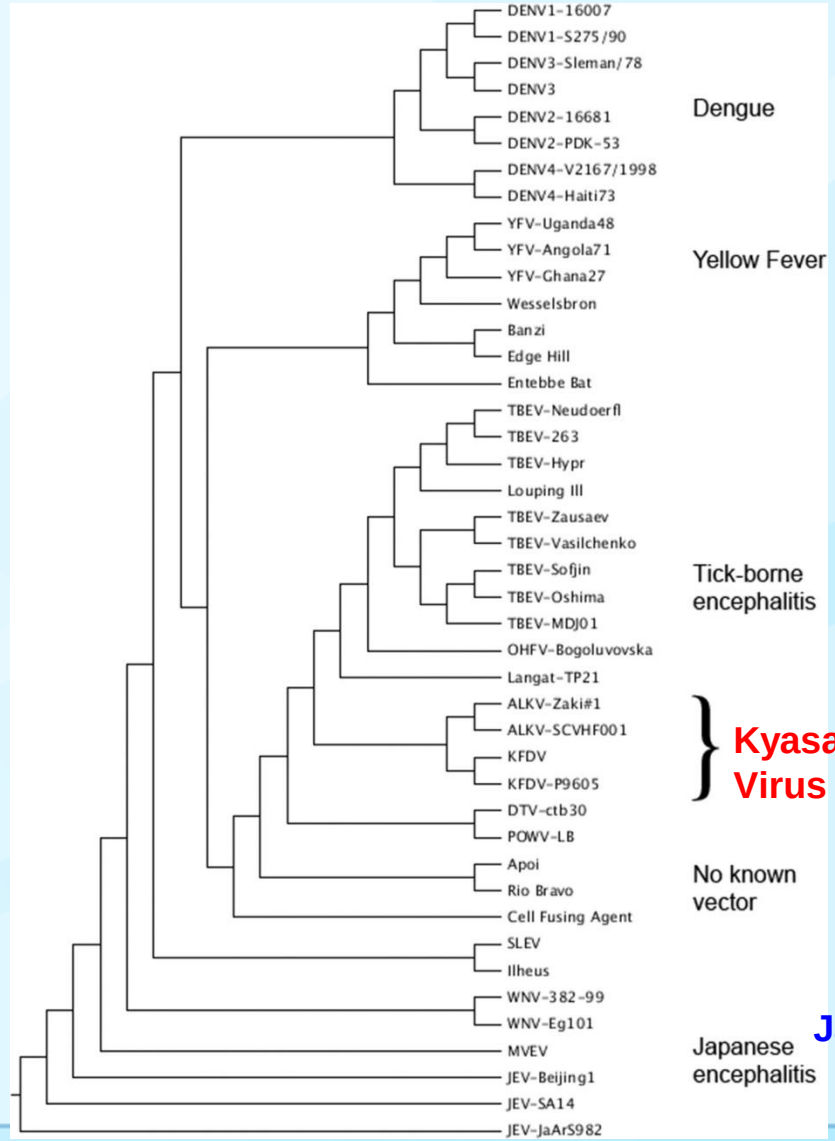
# Aetiology of AFI- Early Results



# 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




**Dengue**

**Yellow Fever**

**Tick –Borne Encephalitis**

**Kyasanur Forest Disease Virus (KFDV)**

**Japanese Encephalitis**

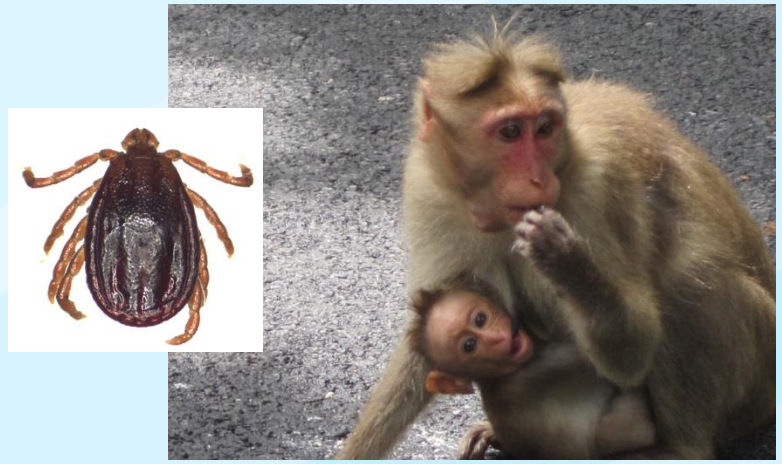
(Knipe and Howley, 2013)

# 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; Transoveraian and Transstadial transmission**
- **Incubation period:**- 3 to 8 days
- **Mortality:** 1-10%; VHF

**Red faced Bonnet Monkey**

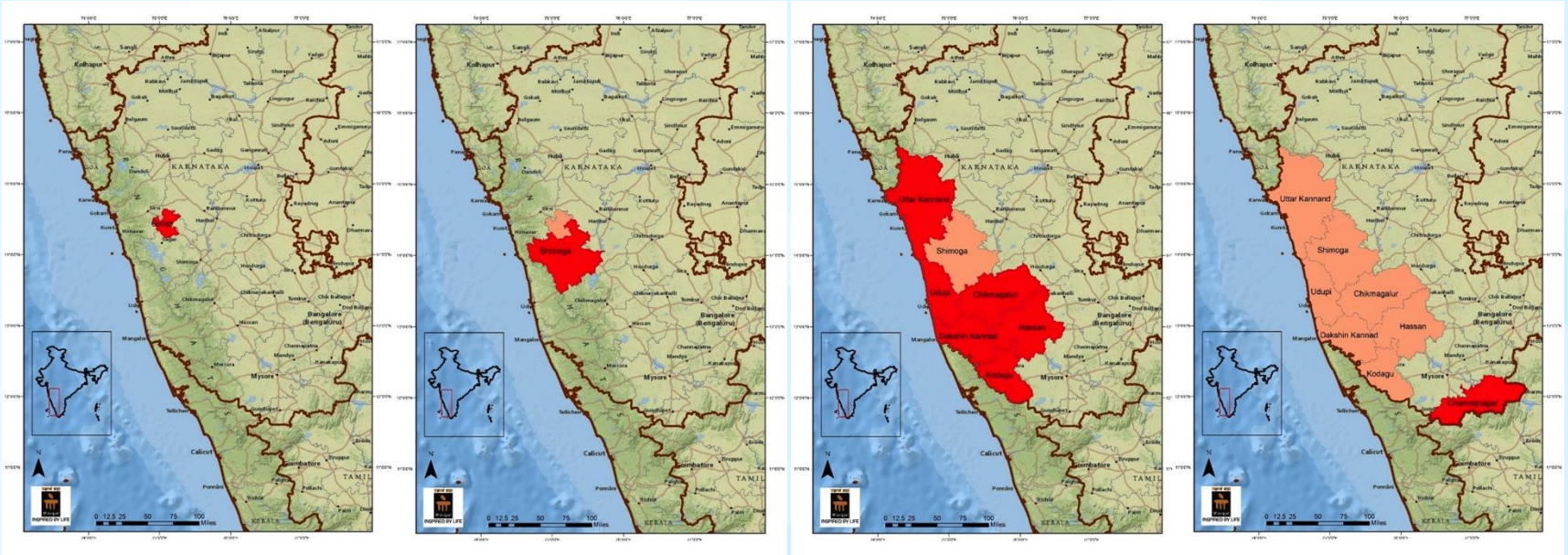


**Black faced Langur Monkey**

# Ecology of KFDV, Karnataka, India

# Geographic Distribution of KFDV 1957 -2012 (Limited to *Karnataka State, India*)

**1957 - 2011** **2012**

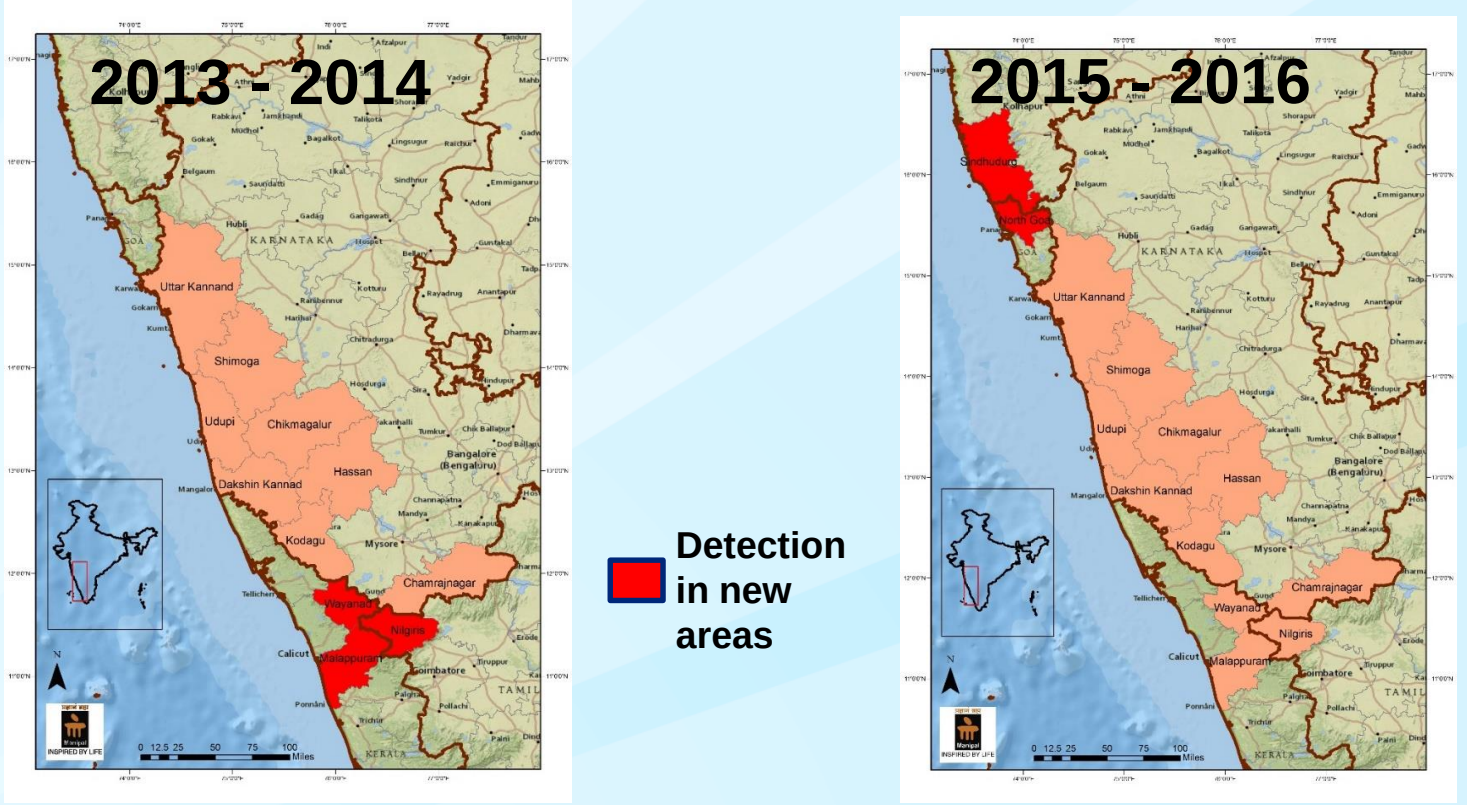



**Detection in new areas**

- **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



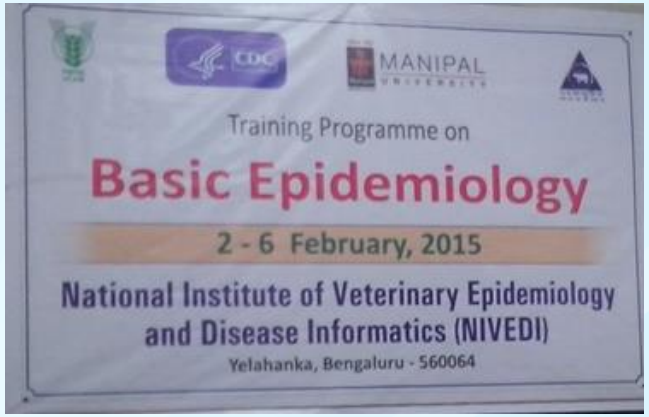

- Resulted in public health response by affected states
- Engaging states to develop guidelines for Prevention, Control and Clinical case management
- Increased attention to research in KFD
- Engagement with KFD vaccine development under Indo-US Vaccine action programme

# 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 |
| | Detect-5 : Workforce development |
| | Detect 4: Reporting |
| | Prevent 2: Zoonotic Disease |
| | Prevent-3: Biosafety and Biosecurity |

# AFI Platform Facilitates Zoonosis Action Package




NIVEDI-National Institute of Veterinary Epidemiology and Disease Informatics

- 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.

# 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

**For additional information about this project, please reach out to:**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- **Dr. Kayla Laserson, CDC- India/ GDD India, kel4@cdc.gov**

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