Are we prepared for the next Pandemic?: Using the lenses of the WHO African region

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Disclosure

- No Conflicts of Interest

- Apologies from Dr Ibrahima Soce Fall
  ADG Emergency Response WHE
  On a mission to DRC for Ebola response with WHO DG and AFRO RD
Pandemic: Old and new definitions

- Technical definition
  - World wide spread of an epidemic: Cholera, influenza, HIV

- Widely accepted definition
  - A scary infectious event that kills a lot of people
e.g. Ebola in West Africa with exportation to other countries (6)
# Influenza pandemics

<table>
<thead>
<tr>
<th>Year</th>
<th>Pandemic</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1918</td>
<td>« Grippe espagnole »</td>
<td>50-100 millions de décès</td>
</tr>
<tr>
<td>1957</td>
<td>« Grippe asiatique »</td>
<td>1-4 millions de décès</td>
</tr>
<tr>
<td>1968</td>
<td>« Grippe de Hong Kong »</td>
<td>1 million de décès</td>
</tr>
<tr>
<td>2009</td>
<td>« Grippe A (H1N1) »</td>
<td>≈ 400-200,000 décès</td>
</tr>
</tbody>
</table>

*Credit: US National Museum of Health and Medicine*
Impact of pandemics?

- High morbidity, mortality and socioeconomic disruption
- Health systems stretched and impact on routine health services
- Impact on trade and other sectors
Economic impact

Economic Impact of Selected Infectious Disease Outbreaks

- **EVD 2014**: $53.1bn
- **Zika**: $7-18bn

Source: Eco health alliance and journal of infectious diseases
**Stark reminder:** the unprecedented West Africa Ebola Virus Disease outbreak, 2013-2016

Over 28,652 cases
Over 11,325 deaths

“Those who cannot remember the past are condemned to repeat it”

George Santayana, in the “Life of reason”, 1905
A key outcome of the 2015 Cape Town meeting on “Building Health Security beyond Ebola” was a call for a global focus for addressing health security with priority countries identified in Africa.
Why prioritise Africa

- ~3 Acute public health events (PHE) every week!!!
- 2018:
- Top three outbreaks:
  - Cholera (n=31 or 25%),
  - Viral Haemorrhagic Diseases (n=26 or 21%)
  - Measles (n=14 or 11%)
Is burden increasing or is it better reporting? WHO, 2016-2018
Highest burden countries in Africa

[Map showing the highest burden countries in Africa with different shading levels to indicate the number of outbreaks per country.]
Are we prepared for the next pandemic?
Timeline
Major infectious threats in the 21st Century & collaboration mechanisms to fight against them

- Yellow fever (Brazil)
- Zika (Central Africa, Brazil)
- H7N9
- Ebola (West Africa)
- H1N1
- MERS-CoV
- SARS
- Cholera (Haiti)

**Major Epidemic Threats Since 2000**

**GAVI**
Gavi, the Vaccine Alliance, is an international organisation that was created in 2000 to improve access to new and underused vaccines for children living in the world's poorest countries.

**GOARN**
The Global Outbreak Alert and Response Network (GOARN) is a technical collaboration of existing institutions and networks who pool human and technical resources for the rapid identification, confirmation and response to outbreaks of international importance.

**IHR (2005)**
The International Health Regulations (2005) or IHR (2005) are an international law which helps countries work together to save lives and livelihoods caused by the international spread of diseases and other health risks. The IHR (2005) aim to prevent, protect against, control and respond to the international spread of disease while avoiding unnecessary interference with international traffic and trade.

**PIP Framework**
The Pandemic Influenza Preparedness (PIP) Framework brings together Member States, Industry, other stakeholders and WHO to implement a global approach to pandemic influenza preparedness and response. Its key goals include:
- to improve and strengthen the sharing of influenza viruses with human pandemic potential; and
- to increase the access of developing countries to vaccines and other pandemic related supplies.

**LEGEND**
- Pandemic
- Epidemic
- Pandemic

**World Health Organization**
Global health security framework to:

- Prevent
- Protect against
- Provide a public health response

…for ALL public health threats

A legally-binding global health security framework agreed to by 196 States Parties, including all World Health Organization (WHO) Member States.
### Status of preparedness in the WHO African region from IHR JEEs, 2016-2019

#### PREVENT
1. National Legislation, Policy and Financing
2. IHR Coordination, Communication and Advocacy
3. Anti-microbial Resistance (AMR)
4. Zoonotic Disease
5. Food Safety
6. Biosafety and Biosecurity
7. Immunization

#### DETECT
1. National Laboratory System
2. Real Time Surveillance
3. Reporting
4. Workforce Development

#### RESPOND
1. Preparedness
2. Emergency Response Operations
3. Linking Public Health and Security Authorities
4. Medical Countermeasures and Personnel Deployment
5. Risk Communication

#### Other IHR related HAZARDS and PoEs
1. Point of Entries (PoEs)
2. Chemical Events
3. Radiation Emergencies
Coverage of JEEs & summary of JEE scores

• JEEs have been conducted in 39 of 47 countries between February 2016 and March 2019

• Separate JEE for Zanzibar

JEE Scores

• 1=No capacity
• 2=Limited capacity
• 3=Developed capacity
• 4=Demonstrated capacity
• 5=Sustainable capacity
Immunization, Surveillance and National Laboratory Systems technical areas are a common strength for 20-40% of the countries.

National Legislation and Financing & IHR coordination is weak for over 80% of the countries.

Major gaps are in: Antimicrobial resistance, Biosafety and Biosecurity, Preparedness, Emergency Response Operations, Medical Countermeasures and Personnel Deployment, Points of Entry, Chemical Events and Radiation Emergencies.
IHR Capacities for 19 JEE technical area by Country in Africa
IHR JEE Maps, Africa: A=Average JEE score; B= Average for Prevent, C=Average for Detect, 
D= Average for Respond, E= Average for PoE, Chemical & Radiation
Status of preparedness, IHR self assessment annual report, 2018

Country Capacity by IHR technical area-WHO African Region

- Legislation and Financing: 10 (Prevent), 19 (Detect), 12 (Respond), 4 (Others), 2 (Others)
- Coordination and focal points function: 6 (Prevent), 15 (Detect), 19 (Respond), 3 (Others), 4 (Others)
- Zoonotic events and human-animal interference: 16 (Prevent), 4 (Detect), 16 (Respond), 9 (Others), 2 (Others)
- Food safety: 19 (Prevent), 16 (Detect), 3 (Respond), 9 (Others)
- Laboratory: 2 (Prevent), 11 (Detect), 21 (Respond), 10 (Others), 3 (Others)
- Surveillance: 3 (Prevent), 9 (Detect), 14 (Respond), 20 (Others), 1 (Others)
- Human resources: 12 (Prevent), 12 (Detect), 13 (Respond), 10 (Others)
- National Health Emergency Framework: 12 (Prevent), 20 (Detect), 12 (Respond), 3 (Others)
- Health Service Provision: 5 (Prevent), 26 (Detect), 12 (Respond), 3 (Others), 1 (Others)
- Risk Communication: 24 (Prevent), 9 (Detect), 6 (Respond), 7 (Others), 1 (Others)
- Points of entry: 19 (Prevent), 23 (Detect), 4 (Respond), 4 (Others), 1 (Others)
- Chemical events: 30 (Prevent), 11 (Detect), 1 (Respond), 3 (Others), 2 (Others)
- Radiation emergencies: 28 (Prevent), 15 (Detect), 2 (Respond), 1 (Others), 1 (Others)
From Assessments to National Action Plans

- 21 Countries have revised/developed NAPHS
- 11 in process
- 2 planned

- NAPHS is a multi-year, multi-sectoral plan to accelerate the implementation of IHR (2005)
- Under pinned on an all-hazards and one health approach
- Aligned with national health sector plans & other relevant national sectoral plans

- Major challenge is mobilising required resources to implement NAPHS

NAPHS = National Action Plan for Health Security
## 3-5 Year Financial Estimates-16 countries, plus Zanzibar

<table>
<thead>
<tr>
<th>Country</th>
<th>Prevent</th>
<th>Detect</th>
<th>Respond</th>
<th>PoE and other IHR</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benin</td>
<td>3,217,571</td>
<td>3,138,823</td>
<td>11,204,376</td>
<td>3,205,750</td>
<td>20,766,520</td>
</tr>
<tr>
<td>Chad</td>
<td>27,574,961</td>
<td>15,153,863</td>
<td>9,362,313</td>
<td>1,850,414</td>
<td>53,941,550</td>
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<tr>
<td>Comoros</td>
<td>4,278,743</td>
<td>495,951</td>
<td>1,463,697</td>
<td>1,315,624</td>
<td>7,554,014</td>
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<tr>
<td>Cote d'Ivoire</td>
<td>4,076,831</td>
<td>145,524,915</td>
<td>1,349,245</td>
<td>5,266,563</td>
<td>156,217,554</td>
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<tr>
<td>Eritrea</td>
<td>7,838,678</td>
<td>9,257,718</td>
<td>21,414,511</td>
<td>15,184,826</td>
<td>53,695,733</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>307,020,810</td>
<td>45,181,169</td>
<td>13,624,367</td>
<td>2,938,431</td>
<td>368,764,777</td>
</tr>
<tr>
<td>Ghana</td>
<td>20,018,629</td>
<td>43,611,240</td>
<td>23,988,472</td>
<td>8,758,419</td>
<td>96,376,760</td>
</tr>
<tr>
<td>Kenya</td>
<td>18,970,940</td>
<td>25,348,091</td>
<td>5,994,921</td>
<td>4,068,703</td>
<td>54,382,655</td>
</tr>
<tr>
<td>Liberia</td>
<td>101,108,705</td>
<td>24,771,843</td>
<td>21,141,244</td>
<td>7,370,885</td>
<td>154,392,677</td>
</tr>
<tr>
<td>Mauritania</td>
<td>11,053,178</td>
<td>6,974,962</td>
<td>4,512,785</td>
<td>3,882,416</td>
<td>26,423,341</td>
</tr>
<tr>
<td>Namibia</td>
<td>14,016,279</td>
<td>17,963,222</td>
<td>3,016,518</td>
<td>4,800,923</td>
<td>39,796,942</td>
</tr>
<tr>
<td>Nigeria</td>
<td>283,543,477</td>
<td>101,828,504</td>
<td>46,762,190</td>
<td>6,989,168</td>
<td>439,123,340</td>
</tr>
<tr>
<td>Senegal</td>
<td>49,803,167</td>
<td>8,826,324</td>
<td>12,904,820</td>
<td>4,888,961</td>
<td>76,423,272</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>89,402,916</td>
<td>155,594,238</td>
<td>10,588,395</td>
<td>35,544,777</td>
<td>291,130,326</td>
</tr>
<tr>
<td>United Rep of. Tanzania</td>
<td>538,626,948</td>
<td>50,329,373</td>
<td>4,850,782</td>
<td>9,351,455</td>
<td>603,158,558</td>
</tr>
<tr>
<td>Zanzibar</td>
<td>3,249,042</td>
<td>6,210,128</td>
<td>3,157,904</td>
<td>5,265,029</td>
<td>17,882,104</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,483,800,875</strong></td>
<td><strong>660,210,364</strong></td>
<td><strong>195,336,540.4</strong></td>
<td><strong>120,682,344.4</strong></td>
<td><strong>2, 460, 030,123</strong></td>
</tr>
</tbody>
</table>

NB. The costs of all NAPHS are subject to change

Estimated investment needs over five years = 7-10 billion USD

NB. Actions plans in Mainland Tanzania and Zanzibar were developed separately

NB. Ethiopia & Nigeria excluded costs of the immunization technical area, these costs are covered in separate GAVI proposals
Synergy between IHR (2005) and Strong Health Systems

SYSTEM BUILDING BLOCKS

- SERVICE DELIVERY
- HEALTH WORKFORCE
- INFORMATION
- MEDICAL PRODUCTS, VACCINES & TECHNOLOGIES
- FINANCING
- LEADERSHIP / GOVERNANCE

OVERALL GOALS / OUTCOMES

- ACCESS
- COVERAGE
- QUALITY
- SAFETY
- IMPROVED HEALTH (LEVEL AND EQUITY)
- RESPONSIVENESS
- SOCIAL AND FINANCIAL RISK PROTECTION
- IMPROVED EFFICIENCY

IHR STATE PARTY SELF-ASSESSMENT ANNUAL REPORTING TOOL

- C1. Legislation and Financing
- C2. IHR Coordination and National IHR Focal Point Functions
- C3. Zoonotic events and the human-animal interface
- C4. Food safety
- C5. Laboratory
- C6. Surveillance
- C7. Human resources
- C8. National Health Emergency Framework
- C9. Health Service Provision
- C10. Risk Communication
- C11. Points of entry
  - Section 1. Information by type of points of entry
  - Section 2. Overall national profile of the implementation of core capacities at Points of Entry
- C12. Chemical events
- C13. Radiation emergencies
## Cross walk of Preparedness and Health Systems Building Blocks

### All hazards Preparedness Capacity

<table>
<thead>
<tr>
<th>Governance</th>
<th>Finance</th>
<th>Workforce</th>
<th>Information</th>
<th>Medical Products, Vaccines, technologies</th>
<th>Health Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Legislation, Policies, strategies, Administrative requirements, Multi-sectoral coordination, partnerships (all hazards and whole of government)</td>
<td>- Financing preparedness capacities, Development, Strengthening and Sustaining, Financing emergency response</td>
<td>- Multi-disciplinary, multi-sectoral workforce, Distribution of workforces, Trainings, Clear carrier path, Performance evaluation, Deployment</td>
<td>- Surveillance (threats and events detection), Reporting and sharing information, M&amp;E of the implementation and Updating the national action plan for health security</td>
<td>- Medical countermeasures (vaccines, drugs, other logistics), Laboratory resources, Logistic management, Development and research</td>
<td>- Infrastructures, Access to service delivery, Health care (primary and specialized), Laboratory, Risk communication, Immunization</td>
</tr>
</tbody>
</table>

### PREVENT

### DETECT

### RESPOND
WHO’s GPW 13 Triple billion goals

- Countries prepared for health emergencies
- Epidemics and pandemic prevented
- Rapid detection and response to health emergencies
What we need to do? Some thoughts!

- Collective strategic thinking on pandemics of the 21\textsuperscript{st} century
  - Urban outbreaks (new partnerships)
  - Improved access to pharmaceutical interventions
  - Cultural acceptability of response interventions
  - Multisectoral approach in an interconnected world
  - Better risk communication/infodemic
  - Innovation (new technologies)

- Strengthen WHO’s own preparedness-WHO reforms!
Multisectoral approach for pandemic preparedness is out of necessity and common sense!

- A single entity cannot make the world better protected
- A “whole of government and whole of society” approach
- Health security is everybody’s business
Summing up

- Health security and universal health coverage are two sides of the same coin

- WHO is engaging countries and strengthening partnerships

- Investment in pandemic preparedness has high returns

Are we ready?
Thank you