Emerging & re-emerging infections on the African Continent-the Public Health Aspect: Is Africa Prepared?

International Conference on (Re) Emerging Infectious Diseases, 12-14 March, African Union Commission, Addis Ababa, Ethiopia

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This talk

- Overview of outbreaks and other PHEs in the WHO African region
- Risk of emerging and re-emerging infections
- Drivers of Epidemic Disease Risk
- Early Warning & Risk Assessments
- Existing Strategies, Frameworks and Guidelines
- State of preparedness in the WHO African region
- Key take home messages
- Summing up
Outbreaks and other public health risks - Annual Burden

• ~3 Acute public health events (PHE) every week

2017
• WHE screened over 2,500 unverified media reports on health threats
• Detected 562 signals of potential PHEs in 42 countries
• 152 were true events across 39 countries
• 134 (88%) were outbreaks and 18 (12%) were humanitarian crises

Top three outbreaks - Viral Haemorrhagic Diseases (n=37 or 28%), Cholera (n=14 or 10%) & Measles (n=11 or 8%)
Epidemic Diseases in 21st Century

- **Emergence** of new or newly recognised pathogens (Avian flu (H5N1), SARS, Ebola, Marburg, H1N1, MERS-CoV, Zika.....)

- **Resurgence** of old diseases (Plague, Cholera, Dengue, Measles, Meningitis, Leptospirosis, Shigellosis, Yellow Fever, Lassa Fever)

- **Release** (accidental or deliberate) of a biological agent (Smallpox, SARS, Anthrax)

Nigeria Lassa Fever: Health Worker Infections & Deaths reflect gaps in IPC
Emerging & re-emerging pathogens are of particular concern
Cholera & Meningitis

Cholera has become endemic in many parts & Meningitis belt is expanding
Entire region is at risk
International Airline Routes

NO COUNTRY IS SAFE FROM DISEASE OUTBREAKS
Drivers of Epidemic Disease Risk

**Epidemic Amplification**
- Human encroachment
- Exploitation of ecosystems
- Translocation
- Climate variability & change
- Vector density and distribution
- Ecological Pressure

**Global travel and trade**
- Travel & Migration:
- Vector and animal movement
- Trade: animal and their products

**Amplification**
- Dense populations
- Poor living conditions (water & sanitation)
- Agricultural Intensification
- Technology And Industry
- Vector distribution and densities
- Unsafe health care settings

**Outbreak Emergence**
- Human to human transmission

**Human Ecosystem Environment Interface**
- Climate Vegetation Environment
- Animal Amplification
- Human Amplification

**Number of Cases**
- November - July
Early Warning & Risk Assessments - 2017

Global

- Event based surveillance information: 480,000 information pieces detected per month
- Signal: 5,000 signals screened per month
- Event: 300 events followed up per month, 30 events investigated per month
- Interpreted/assess: Formalized rapid risk assessment 10 per month

Filter/triage*

WHO/AFRO

- 2,500+ Rumours Assessed
- 562 Signals verified
- 152 True Events
- 74 Rapid Risk Assessments
To strengthen and sustain the capacity of all the Member States health systems to **prevent** outbreaks and other health emergencies

To strengthen and sustain the capacity of all the Member States health systems to **promptly detect and confirm** outbreaks

To strengthen and sustain the capacity of all the Member States health systems to **promptly respond to and recover from** the negative effects of outbreaks and health emergencies
1. PREVENT

- Support vaccination campaigns (Meningitis, Yellow Fever, Measles, Ebola.....etc.) through enhancing national vaccine access and delivery

- Develop a network/database of regional vaccination specialists to assist with rapid response to vaccination campaigns during emergencies

- Develop and disseminate A-Z knowledge packs on high-risk pathogens for the detection and management of disease outbreaks
  - Ebola, Measles, Yellow Fever, Meningitis, Plague

- Develop & deliver training of health care workers on clinical management and infection prevention and control for epidemic diseases to reduce mortality due to dangerous pathogens and impact on health systems
2. DETECT

- Conduct training for the laboratory diagnosis of priority pathogens
  - Yellow Fever, Ebola, Lassa Fever, Marburg, Meningitis, MERS, Zika, Plague, Dengue, Tularemia, Monkey-Pox ..... 

- Implement Field Epidemiology Training Programmes (FETP)

- Develop & provide training for epidemic intelligence with different stakeholders

- Develop tools, guidelines & conduct regional & country-level training in surveillance-IDSR

- Improve laboratory capacity
  - Diagnostic capacity, quality management, biosafety and biosecurity, specimen collection and transport through functional referral mechanisms
3. RESPOND

- Support countries to develop response strategies and plan with partners to improve national & international response

- Support countries to develop national rapid response teams that are composed of clinical management, public health, animal health and laboratory experts—One Health approach, RRTs and EMTs)

- Support countries to establish Health Emergency Operation Centres & to develop strong operational Incident Management Systems

- Development and rollout robust event management systems for emerging disease outbreaks
Available Guiding Frameworks/Tools
WHO International Health Regulations (IHR 2005)

...enables the international community to detect, assess, notify, report and respond to public health emergencies of international concern

Human infectious pathogens

Food safety / Zoonoses

Radio nuclear hazards

Chemical hazards
NEW IHR Monitoring and Evaluation Framework

Principles of a new IHR Monitoring and Evaluation Framework (IHR-MEF)

- Annual Reporting (to WHA)
- Independent/External Evaluation (4-5 years)
- After action Review (yearly)
- Simulation Exercises
- Transparency
- Mutual accountability
- Trust building
- Appreciation of public health benefits
- Dialogue
- Sustainability
Joint External Evaluation-JEE

- **19 technical areas arranged according to core elements:**
  - Prevent
  - Detect
  - Respond
  - Other IHR Hazards and PoE

- **48 indicators**

<table>
<thead>
<tr>
<th>PREVENT</th>
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</thead>
<tbody>
<tr>
<td>1. National Legislation, Policy and Financing</td>
</tr>
<tr>
<td>2. IHR Coordination, Communication and Advocacy</td>
</tr>
<tr>
<td>3. Anti-microbial Resistance (AMR)</td>
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<td>4. Zoonotic Disease</td>
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<tr>
<td>5. Food Safety</td>
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<tr>
<td>6. Biosafety and Biosecurity</td>
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<tr>
<td>7. Immunization</td>
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<table>
<thead>
<tr>
<th>DETECT</th>
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</thead>
<tbody>
<tr>
<td>1. National Laboratory System</td>
</tr>
<tr>
<td>2. Real Time Surveillance</td>
</tr>
<tr>
<td>3. Reporting</td>
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<tr>
<td>4. Workforce Development</td>
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<thead>
<tr>
<th>RESPOND</th>
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<tbody>
<tr>
<td>1. Preparedness</td>
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<tr>
<td>2. Emergency Response Operations</td>
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<tr>
<td>3. Linking Public Health and Security Authorities</td>
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<td>4. Medical Countermeasures and Personnel Deployment</td>
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<tr>
<td>5. Risk Communication</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Other IHR related HAZARDs and PoEs</th>
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</thead>
<tbody>
<tr>
<td>1. Point of Entries (PoEs)</td>
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<tr>
<td>2. Chemical Events</td>
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<tr>
<td>3. Radiation Emergencies</td>
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</tbody>
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## JEE Assessment Grading and Scores

<table>
<thead>
<tr>
<th>Score</th>
<th>Capacity and color code</th>
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<tbody>
<tr>
<td>5</td>
<td>Sustainable</td>
</tr>
<tr>
<td>4</td>
<td>Demonstrated</td>
</tr>
<tr>
<td>3</td>
<td>Developed</td>
</tr>
<tr>
<td>2</td>
<td>Limited</td>
</tr>
<tr>
<td>1</td>
<td>No Capacity</td>
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### Proportion of countries with IHR capacities that are developed (Level 3) and above

<table>
<thead>
<tr>
<th>Core capacity area</th>
<th>Median Average Score</th>
<th>Score Range</th>
<th>Number of countries with core capacity level 3 or above, N=28</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td><strong>PREVENT</strong></td>
<td></td>
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<tr>
<td>National Legislation, Policy and Financing</td>
<td>2</td>
<td>1-3</td>
<td>3</td>
<td>10.7</td>
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<tr>
<td>IHR Coordination, Communication and Advocacy</td>
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<td>1-4</td>
<td>4</td>
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<td>AMR</td>
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<td>1-4</td>
<td>1</td>
<td>3.6</td>
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<tr>
<td>Zoonotic Disease</td>
<td>2.7</td>
<td>1-4</td>
<td>10</td>
<td>35.7</td>
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<tr>
<td>Food Safety</td>
<td>2</td>
<td>1-4</td>
<td>4</td>
<td>14.3</td>
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<tr>
<td>Biosafety and Biosecurity</td>
<td>1.8</td>
<td>1-4</td>
<td>1</td>
<td>3.6</td>
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<tr>
<td>Immunization</td>
<td>3.5</td>
<td>1-5</td>
<td>26</td>
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<th>2.5</th>
<th>1-4</th>
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<tbody>
<tr>
<td></td>
<td>Real-Time Surveillance</td>
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<td>60.7</td>
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<td></td>
<td>Reporting</td>
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<td>1-4</td>
<td>5</td>
<td>17.9</td>
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<td></td>
<td>Workforce Development</td>
<td>2.7</td>
<td>1-4</td>
<td>10</td>
<td>35.7</td>
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<table>
<thead>
<tr>
<th>RESPOND</th>
<th>Preparedness</th>
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<th>0</th>
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<tbody>
<tr>
<td>Emergency Operations Centers</td>
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<td>1-2</td>
<td>5</td>
<td>17.9</td>
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<tr>
<td>Linking Public Health with Law and Multisectoral Rapid Response</td>
<td>2</td>
<td>1-4</td>
<td>4</td>
<td>14.3</td>
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<tr>
<td>Medical Countermeasures and Personnel Deployment</td>
<td>1.5</td>
<td>1-3</td>
<td>4</td>
<td>14.3</td>
</tr>
<tr>
<td>Risk Communication</td>
<td>2.2</td>
<td>1-4</td>
<td>8</td>
<td>28.6</td>
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## Proportion of countries with IHR capacities that are developed (Level 3) and above

<table>
<thead>
<tr>
<th>Category</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Total</th>
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<tbody>
<tr>
<td>Points of Entry</td>
<td>1.5</td>
<td>1-5</td>
<td>2</td>
<td>7.1</td>
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<tr>
<td>Chemical Events</td>
<td>1.5</td>
<td>1-3</td>
<td>2</td>
<td>7.1</td>
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<tr>
<td>Radiation Emergencies</td>
<td>2</td>
<td>1-3</td>
<td>1</td>
<td>3.6</td>
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</table>
Key take home messages

• All countries in Africa are at risk - **Need to better prepare**

• Commendable achievements by countries:
  • IHR annual reporting in 2017 was 100%-the first ever since IHR (2005) came into force in 2007

• Over 42% of JEEs conducted globally have been in the WHO African region

• Urgent need to develop, cost and implement National Action Plans for health security that are aligned with country planning and budget cycles

• Adequate domestic and external resources is fundamental for implementation in order to build and sustain IHR core capacities

• National and sub-national Risk Assessments and Mapping to guide prevention, preparedness and prioritization
Summing up

• Outbreaks & pandemics have major consequences when health systems are weak

• Building IHR core capacities should use horizontal rather than vertical approaches for sustainable & resilient health systems

• Strategies for health security should be implemented in synergy with strategies to achieve UHC 2030 and sustainable development goals (SDGs)

• We need collective action now to stop preventable deaths from pandemics

• The people dying are NOT just statistics-They are REAL PEOPLE!!
THANK YOU