Ebola: The Nigerian Experience

Clement Adebamowo BM ChB, FWACS, FACS, ScD
Professor, Dept. of Epidemiology and Public Health, University of Maryland
Chairman, National Health Research Ethics Committee of Nigeria
Director, West African Bioethics Training Program
Director, West African Framework Program for Global Health
cadebamowo@som.umaryland.edu
Nigeria is the most populous and largest economy in Africa

- Population over 170m
- Ranked globally as the 26th largest economy in the world.
- Agriculture, services (banking, IT), oil and gas are the main industries
- Huge disparity in socio-economic parameters comparing northern and southern parts of the country
Prevalent Infectious Diseases in Nigeria

i. Malaria
ii. Measles
iii. Cerebro-spinal meningitis (CSM)
iv. TB
v. Yellow Fever
vi. Cholera
vii. Lassa fever
viii. HIV AIDS
ix. Ebola
Ebola Virus Disease Epidemic in West Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Cases</th>
<th>*New Cases</th>
<th>Total Deaths</th>
<th>*New Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberia</td>
<td>6,878</td>
<td>None reported</td>
<td>2,812</td>
<td>None reported</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>5,586</td>
<td>None reported</td>
<td>1,187</td>
<td>None reported</td>
</tr>
<tr>
<td>Guinea</td>
<td>1,919</td>
<td>None reported</td>
<td>1,166</td>
<td>None reported</td>
</tr>
<tr>
<td>Nigeria</td>
<td>20</td>
<td>0</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Senegal</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>USA</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Mali</td>
<td>4</td>
<td>None reported</td>
<td>3</td>
<td>None reported</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>14,413</strong></td>
<td></td>
<td><strong>5,177</strong></td>
<td></td>
</tr>
</tbody>
</table>

Sources: WHO, UN; The Economist

*Declared Ebola-free   †To October 28th
Ebola outbreak: Preparedness, alert, control and evaluation

1. Preparedness
- VHF surveillance system
- Infection control precautions
- Health promotion programme
- Collaboration with animal health services
- Animal early warning: what should be done?

2. Alert
- Epidemiological investigation
- Specimen collection and shipment
- Assess local resources and needs
- Interpret laboratory results
- Take a decision

3. Control
- Adopt and implement control strategies
  - Coordination
  - Surveillance and laboratory
  - Social Interventions
    - Media
    - Case management
    - Psychosocial support
  - Ethical issues
  - Logistics
  - Environment

4. Evaluation
- Announce the end of the epidemic
- Resume social activities and address stigma
- Resume activities of the preparedness phase
- Prepare end-of-epidemic report
- Keep records
- Evaluate outbreak management
General strategy to control Ebola outbreak

- Epidemiological investigation, surveillance and laboratory
  - Specimens
  - Laboratory testing
  - Search the source
  - Database analysis
  - Clinical case Management

- Logistics
  - Control of vectors and reservoirs in nature
  - Sandfly larvae
  - Stomach contents of host species
  - Interviews with patients and contacts
  - Environmental samples
  - Behavioural and social interventions
  - Control of vectors and reservoirs in nature
  - Triage In/out

- Medias
  - Medias
  - Coordination

- Anthropological evaluation
  - Infection control
  - Infection control
  - Clinical trials
  - Ethics committee
  - Ethical aspects
  - Duty of care
  - Research

- Formal and informal modes of communication
  - Medias
  - Medias
  - Medias

- Communication
  - Press
  - Journalists

- Security
  - Police

- Lodging
  - Food

- Social and Cultural practices
  - Women associations
  - Traditional healers
  - Opinion leaders

- Social and Epidemiological mobile teams
  - Salaries
  - Finances
  - Transport
  - Vehicles

- Finances
  - Salaries

- Transport
  - Vehicles

- Behavourial and social interventions
  - Psycho-social support

- Coordination
  - Control of vectors and reservoirs in nature
  - Triage In/out
Characterizing the outbreak in Nigeria

- What did we do
- How did we do it
- What did we use
- What worked and what did not work
- Where are we now
Index case was a US citizen of Liberian origin who travelled from Monrovia to Lagos on July 20, 2014.

Was ill during the flight and collapsed on arrival at the Lagos airport where he was helped by several unsuspecting individuals.

He was admitted to a hospital and EVD was confirmed on July 23 and died on July 25, 2014.

The Federal Government working with the Lagos State government declared a national public health emergency which granted health authorities wide powers to protect public health.

Several individuals got infected by this index case.
Nigeria’s Ebola Virus disease (EVD) outbreak

- The manifest of the flight that the index patient traveled on was immediately retrieved, all listed were contacted and informed. Same was done for all the health care and airport staff who came in contact with him totaling 526.
- They were placed on quarantine at home and visited once or twice daily to have their temperature checked for 21 days.
- Once a contact fell ill, he/she was moved into isolation and tested for EVD.
- If EVD is confirmed, individual is isolated and treated.
- One of the contacts who got ill, travelled to Rivers State and infected two people.
Nigeria’s response to EVD Epidemic

• Primary response agencies
  – Nigerian Center for Disease Control and the Ebola Emergency Operation Center (EEOC)
  – Treatment Research Group (TRG) for Ebola Virus Disease co-chaired by Directors General of the Nigerian Institute for Pharmaceutical Research and Development and the Nigerian Institute for Medical Research
  – National Health Research Ethics Committee

• Other agencies
  – The Nigerian National Agency for Food and Drugs Administration and Control (NAFDAC)
  – Inter-ministerial council on information and mobilization
Management of the public health emergency and the Ebola Emergency Operation Center (EEOC)

- The Federal and Lagos State Ministries of Health in collaboration with partner development agencies established an Ebola Emergency Operations Centre (EEOC) at the Nigerian Center for Diseases Control (NCDC) to coordinate all outbreak response activities.
- The EEOC was led by an Incident Manager (IM) from the Federal Ministry of Health and comprised staff from WHO, UNICEF, CDC, MSF and the Red Cross.
- EEOC held twice daily meetings to coordinate all activities and share information.
- The EEOC operated 24 hours a day, seven days a week.
Organizational structure of the EEOC
Management of the public health emergency and the Ebola Emergency Operation Center (EEOC)

Terms of Reference

1. Case Management
   - Strict implementation of standard operating procedures for assessing, treating and caring for suspected and confirmed cases of EVD
   - Ensure management of other illnesses that present during the time of EVD clinical management

2. Epidemiology/Surveillance
   - Analyze and map chains of transmission
   - Conduct a tracing exercise of everyone who comes in contact with a suspected/confirmed case
   - Line list of all contacts as indicated
   - Decontamination of homes and other facilities from where cases are evacuated
   - Ensure the collection of clinical specimens from suspected and confirmed patients
   - Conduct counseling of all EVD suspects and confirmed cases
   - Conduct daily assessments of each contact’s symptoms inclusive of temperature monitoring
   - Management of all rumors and alerts through proper investigation and triaging.
Management of the public health emergency and the Ebola Emergency Operation Center (EEOC)

Terms of Reference

3. Point of Entry
   - Ensuring screening of all arrivals/departures in and out of the country by land, air and sea to prevent importation/exportation of EVD
   - Screening includes temperature monitoring and analysis of the entrant’s threat to the public health situation in the country

4. Social Mobilization
   - Conducting house to house interpersonal communication
   - Social Mobilization that harnesses the leadership and influence of religious, traditional, informal and professional bodies towards preventing the spread of EVD

- Ensure capacity is available at all border points to properly manage passengers presenting with symptoms of EVD including ability to isolate
- Ensure the various airlines adhere to ‘No Flight’ lists of contacts under surveillance
- Communication that targets risk behaviors to contracting EVD
- Development and dissemination of IEC materials that build awareness and knowledge around EVD
- Social media platforms e.g. Facebook, Twitter and EbolaAlert website
Contact Tracing Dashboard
We also developed dashboard indicators to assess performance.

### Ebola Outbreak Response Dashboard

Select Month from list: September-14

<table>
<thead>
<tr>
<th>Point of Entry Dashboard</th>
<th>Epid/Surveillance Dashboard</th>
<th>Case Management Dashboard</th>
<th>Social Mobilisation Dashboard</th>
</tr>
</thead>
</table>

### Social Mobilisation Indicators

<table>
<thead>
<tr>
<th>Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of Calls Resolved by Soc Mob</td>
<td>100%</td>
<td>99%</td>
<td>100%</td>
<td>98%</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>Proportion of calls of Clinical Nature referred to surveillance Team</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Proportion of Households sensitized by Mobilizers</td>
<td>107%</td>
<td>119%</td>
<td>125%</td>
<td>129%</td>
<td>124%</td>
<td>95%</td>
</tr>
<tr>
<td>Total # of Target Households</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>Proportion of Positive Media Reports on EVD</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Resources

- Federal and Lagos State Ministries of Health
- Global Polio Eradication Initiative’s Emergency Operations Center (EOC) – became the core of the EEOC
- CDC funded Nigeria Field Epidemiology and Laboratory Training Program
- PEPFAR program resources
- NIH funded H3Africa research project at Redeemer’s University
Current status of the outbreak in Nigeria

- During the outbreak, there were over 800 contacts listed in Lagos and Rivers states.
- All of these have been followed up for 21 days.
- From September 25, 2014, there were no cases, no suspects for EVD in Nigeria.
- There were 19 confirmed cases, 12 discharges and 7 deaths.
- Using an Incident Management Approach, the EOC harnessed resources to contain the spread of the virus in two major cities.
- Due to the continued outbreak in the sub-region, Nigeria maintains a high level of vigilance to forestall importation.
Avoiding pitfalls......

What worked

- Rapid action, delay is dangerous
- Leadership - to ensure cohesive action towards set targets
- Implementation of an incident command system through the EOC which ensures a comprehensive approach to resource management
- Engender accountability for all activities
- Human resource availability

What did not work

- Assuming that contacts will comply with guidelines to practice social distancing once they have been listed and counseled
- Developing outbreak plans without follow-up to ensure supplies are pre-positioned, human resources are trained and simulation exercises are done.
Lessons learned

- There is no alternative for adequate preparedness
  - States have to be ready at all times
  - Designate Isolation facility
  - Emergency operation center needed
- Fear and panic can slow response
  - Health care workers and public
  - Rumors, misinformation spreads very fast – counter them early
- Contact tracing critically important
  - Identify cases early and isolate – thorough investigation
  - Follow up contacts meticulously
  - Requires organization and resources
- Outcome improves dramatically with good clinical care
Lessons learned

• Timely investigation and response to the outbreak accelerates containment of the epidemic
• Review response plan and initiate donor dialogue to mobilize additional resources and broaden partnership
• Involve all concessions and the private sector in areas where they operate
• Involvement of local communities in all steps of management (including burial rites)
Next steps……(1/2)

Description

1. Strengthen capacity of national and state level teams
   - Identifying key systems, networks and personnel to which the Ebola emergency response operations can be transferred.
   - Reinforce a system of real-time information sharing and feedback loops between the State EEOC and National EEOC
   - Training will continue as needed

2. Maintaining a core team at the EEOCs
   - A core team to monitor and act on warning signals by rapidly scaling up activities
   - Team leads of the four key areas of work will regularly have coordination and strategy meetings with the state Incident managers
Next steps……(2/2)

Description

- Conducting active surveillance for EVD
- Strengthening screening activities at the ports of Entry
- Increasing public awareness, and sustaining alertness and vigilance on Ebola

- Developing simple modules to train trainers on Infection prevention and other critical areas of EVD response
- Disseminating guidelines and SOPs for the interventions in the various thematic areas
- Assess and monitor level of preparedness by the States and provide periodic feedback
Recommendations

- High level engagement of political leaders and all levels of government
- Ensure active participation of traditional leaders right from the beginning of the epidemic is paramount for the effective response.
- Coordination & information management as the outbreak is cross border related.
- Document best practices & lessons learned and post epidemic evaluation
- Strengthen infection prevention and control in all health facilities to minimize nosocomial infection
- Provide support to strengthen the health system: regular supplies of PPEs, supplies, HR issues including trainings
- Involve all stakeholders including private sector, religious leaders, traditional healers, hunters, including forestry and wildlife authorities
CONCLUSIONS

• Emergence of Ebola in the West African region is a big Public Health Threat to Nigeria and the entire region
• Nosocomial transmission is involved virtually in all reported outbreaks with Healthcare workers serving as amplicators of the transmission in the Urban setting
• More cases still being reported from all countries affected (meaning we have not been able to interrupt transmission)
• Laboratory and Treatment capacity in the country still weak to meet the challenge
• Need to increase our preparedness by prepositioning drugs and training of HCW on treatment, prevention and control (NFELTP)
• Need to establish more treatment and diagnostic centers and
• Continue sensitizing healthcare workers on the danger of Ebola
Acknowledgment

- Dr. Faisal Shuaib – Incidence Manager, Nigeria Ebola EOC team
- Dr. A. Nasidi – Project Director, Nigerian CDC
- Dr. Onyebuchi Chukwu – Minister of Health, FRN