Response to Ebola Virus Disease Outbreak in West Africa

--China’s efforts and experiences

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Outline

• Background

• China’s response
  – Deployment of mobile labs, response teams and supplies
  – Field public health training program
  – BSL-3 lab construction in Sierra Leone

• Conclusions and future perspectives
BACKGROUND:

-- Ebola virus and EVD situation
Ebola virus and EVD

- Ebola virus belongs to the filovirus family which causes hemorrhagic fever
- First outbreaks occurred in 1976 in the Democratic Republic of Congo (formerly Zaire) and South Sudan
- 1976 - Dec 2013: 23 outbreaks, 2388 human cases including 1590 deaths
- One of the most fatal infectious diseases:
  - Case Fatality Ratio up to 89%
- Treatment is supportive
  - Some potential specific treatment
    - Monoclonal antibodies: Very limited availability, limited information on safety & efficacy
  - Other candidate drugs also in early stages of testing

- The largest recorded Ebola outbreak in history
  - Guinea, Liberia and Sierra Leone: a total of 28,616 cases with 11,310 deaths reported
  - Affected countries are conflict-ravaged with limited infrastructure including low health system capacity
    - Was evolved to be a humanitarian emergency

- WHO declared the Public Health Emergency of International Concern (PHEIC) on 8 Aug 2014

- PHEIC related to Ebola in West Africa was lifted on 29 March 2016.

- Sierra Leone, Guinea and Liberia declared the end of Ebola transmission on 17 March, 1 and 9 June 2016, respectively.
CHINA’S RESPONSE:

-- contribution to the global efforts
Domestic Ebola preparedness actions

- A coordinated government framework for health emergency response was immediately activated: 22 ministries involved
- Public health measures were enhanced to improve the overall emergency preparedness capacity to respond to the potential introduction of Ebola virus
Simultaneously, China immediately echoed to the urgent call for global aid

- **Chinese Government’s aids to West Africa:** 5 rounds, RMB 750 million (USD 122 million).
- More than 1200 medical/public health staff were deployed to SL: 20 are currently still in the field.
  - China CDC: 120 staff were deployed in 19 batches of teams
  - 2 China CDC staffs were deployed as part of WHO WPRO field team
  - 5 of 7 DGs of CCDC visited/worked in the affected countries
  - 1 China CDC DG was assigned as a senior consultant to UNMEER in Liberia for 3 months to support the implementation of local control strategies
China’s major public health activities in the field

- Construction of fixed P3 Lab
- Testing of Ebola samples
- Training for the community
Lab testing capacity for Ebola virus:
  - is critical for case confirmation, contact tracing and outbreak control

Mobile BSL-3 lab testing teams: 3 teams with 15 persons from China CDC

Lab testing started on Sep. 28, 2014: 4867 samples were tested by March 10, 2015, 1484 were Ebola positive
Construction of the fixed BSL-3 Lab in SL

• **A fixed BSL Lab will:**
  
  – provide on-site accessible EVD testing capacity to SL
  
  – be a legacy for long-term capacity building for infectious pathogens detection in West Africa

• **3 teams of 19 persons from China CDC, NHFPC, constructing institution and commercial company were sent for the construction**

• **On Feb. 7 and 14, 2015, testing teams arrived SL to prepare the lab opening**
The fixed Lab construction was completed with ‘China speed’

- 383 m²: BSL-3 and BSL-2 working area
- Met the WHO criteria - ‘Laboratory Biosafety Manual-3rd Edition’

Construction completed in 87 days

- Sep. 2014 Site selection
- Nov. 16, 2014 Groundbreaking
- Nov. 21, 2014 Foundation stone laying ceremony
- Dec. 19, 2014 Roof-sealing completion
- Jan. 26, 2015 Building completion
- Feb. 5, 2015 Debugging completion
- Feb. 10, 2015 Project accreditation
- Feb. 11, 2015 Completion ceremony
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The fixed lab replaced the testing functions of mobile lab

- MOH, UNMEER and WHO SL CO visited the lab
- On Mar. 10, 2015, SL president visited the laboratory
- On Mar. 11, 2015, the lab started to receive samples and replaced the mobile BSL-3 laboratory
- A total of 1984 samples were tested: 72 Ebola positive, 114 Malaria positive
Training program in African Countries

- **A strong commitment by Chinese government**
  - The 4th round aid was announced in October 2014 to train *10,000* health workers for 9 Ebola-affected countries.
  - The first Chinese public health training team arrived in Sierra Leone on 10 Nov 2014.

- **Goal of training**
  - To strengthen community involvement for better implementation of Ebola control strategies.
• **Tiered training of trainer (TOT) strategy**
  – *Basic Training*: community members, stakeholders
  – *Expanded Training*: special groups, e.g. police, scouts
  – *Intensified Training*: public health workers
### No. of trainee by China Training Program
(As of Apr. 19, 2015)

<table>
<thead>
<tr>
<th>Type of population</th>
<th>Number of trainee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainer</td>
<td>40</td>
</tr>
<tr>
<td>Community or medical worker</td>
<td>4547</td>
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<tr>
<td>Police</td>
<td>593</td>
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<tr>
<td>Boy Scouts</td>
<td>324</td>
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<tr>
<td>NGO</td>
<td>227</td>
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<tr>
<td>Community leader</td>
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<td>Forces’ Wives</td>
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<tr>
<td>Nurse</td>
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<tr>
<td>Soldier</td>
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<tr>
<td>Social worker</td>
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<tr>
<td>Contact tracing worker</td>
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<tr>
<td>Supervisor</td>
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<tr>
<td>Teacher</td>
<td>97</td>
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<tr>
<td>PHU worker</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6095</strong></td>
</tr>
</tbody>
</table>
Training bag (hand sterilizer), PPE

T-shirt with slogan

Brochure, leaflet
Expanded trainings

Policeman

Boy Scout

Forces wives

Farmers
Intensified training for Public Health Workers: a demonstration project

- 3 selected communities:
  - Jui, Kosso Town and Grafton in Western Rural Area, Jan 13-- Mar 16, 2015

- To explore long-term approach and provide best practices for infectious disease control for local public health system in SL
Intensified training

- Lectures
- Group discussion
- Questionnaires
Social Mobilization

Early Detection, Early Reporting, Early Diagnosis, Early Isolation and Early Treatment.

The “Five Early” Keys to Eliminate Ebola.

China Public Health Team
TV SLBC

Concord Times

First Lady urges police wives to serve as watchdogs for Ebola cases

Exclusive

Awoko

China trains over 500 in Port Loko

EBOLA RESPONSE

China CDC trains members of the Sierra Leone Forces Wives Association on Ebola prevention.

CHRISTINA (16)

+23276536877 Sierra Leone

370, SL International Magaret Sesay who plays for Alabama University in USA is named best newcomer after scoring 8 goals in 6 matches. Chinese CDC trains 300 scouts on combating ebola from communities (Awoko)

SMS
Leadership Advocacy
International Collaboration

• Share information with international agencies
  – NERC pillar meeting
  – Training workshop
  – Site visit
  – Group meeting
The project area became the first area to END Ebola transmission in West Area Rural, SL

- Active case finding and contact tracing
  - 68 alert cases, 14 confirmed
  - Contact tracing: 607
  - Tracing rate: 100%

- Ebola knowledge awareness: 99%
- Safe funeral: 100%

- A coordinated effort from the engagement of 100 local persons, e.g. CMO, DMO, HCW and villagers
CONCLUSIONS AND FUTURE PERSPECTIVES:
Experiences

• Political will, strong government commitment and accountability are the keys for the management of international crisis

• The milestone for China moving forward to Global Health
  – The biggest international public health action of Chinese government
  – The first BSL-3 lab deployed to overseas

• The previous international collaboration experiences is the good basis for China’s future oversea public health actions
Lessons Learnt

• No single country can be 100% safe to emerging infectious diseases and terrorism attacks including chemical and biological

• Public health is one of the most important components in national security issues

• One-time off donation is not the solution to improve the public health infrastructure and systems in affected countries

• A better coordination mechanism is needed for international response activities
  – To ensure funds and deployment procedures
  – Under the internationally authorized umbrella, e.g. UN, WHO/EMT/PHRRT

• Capability building is essential
  – Qualified international RRTs: language, oversea working experience and capacities
  – Advanced facilities/equipment: e.g. mobile laboratory and camp
  – Self-sufficient and security under extreme circumstances/environment
Future activities

- **Ongoing Activities in Serra Leone**
  - Fixed BSL-3 Lab (SL-China Friendship Lab)
    - Testing of Ebola and other infectious diseases (e.g., Malaria) based on field requirement
    - Training of local laboratory technicians

- **Planned Activities**
  - Sierra Leone-China Etiology and Tropical Diseases Research Center is under development
  - Technical cooperation through SL-China Friendship Lab
Future Perspectives

• Bilateral and multilateral mechanisms for a more in-depth cooperation to enhance the global health security
  – a number of international collaborative public health actions:
    • facilitating the implementation of IHR(2005)
    • supports to African CDC
    • Coordinated response to international public health emergencies
Thank you for your attention!