

Liberia field simulation exercise (SimEx) report



April 28 to 30, 2021

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Executive summary

Liberia conducted a field simulation exercise (SimEx) from April 28-30, 2021 with funding support from WHO aimed at assessing and strengthening the country's EVD outbreak preparedness and response capacities. The field SimEx was conducted in three counties bordering Guinea (Bong, Lofa and Nimba) due to their high risk for EVD transmission following the ongoing EVD outbreak in the neighbourhood Guinea.

With a participation of over 200 persons, the SIMEX assessed the Incident Management System, Rapid Response teams at all levels, Point of entry (POE), County Referral Hospitals (triage and Isolation); Laboratory confirmation System, the International Health Regulations (IHR) notification process and the coordination roles of the national and county public health emergency operations centres (PHEOC).

Results showed that the surveillance and reporting structures, Incident Management System, laboratory and specimens transport system, and Rapid Response Teams (RRTs) are in place and were aware of their roles and responsibilities, county and national PHEOCs demonstrated good coordination, communication and information sharing while four (4) radio stations kept engaging the public about the SimEx in order to avoid panic among community members and upon realizing, the SimEx case was EVD case, all counties demonstrated good coordination and adherence to SoPs at isolation units.

Key gaps identified include lack of constant water at triages and isolation units, fuel for ambulances to operate, thermos cans for screening at PoEs and health facilities, IDSR recording ledgers and reporting forms at facilities and PoEs and IPC supplies (inadequate gloves, soap, chlorine). Knowledge gap was in appropriate triage, hand hygiene, risk appropriate PPE, ambulances and spills decontamination and health workers not being familiar with reference documents like EVD contingency plan, EVD case definition, and IDSR technical guidelines which led to SimEx case being initially missed in all the 3 counties at first contact (trriages). Injects were placed to enable the SimEx to proceed.

The next steps included the counties developing their action plans that are shared with senior management at NPHIL, Ministry of Health and key partners and lessons learnt used to improve the country readiness for EVD outbreak and update county specific and national EPR plans. The objective of the simulation was achieved.

Acronyms

ABHR	Alcohol Based Hand Rub
CHO	County Health Officer
CHT	County Health Team
CSO	County Surveillance Officer
EOC	Emergency Operation Center
EVD	Ebola Virus Disease
HQMU	Healthcare Quality Management Unit
IHR	International Health Regulation
IMS	Incidence Management System
IPC	Infection Prevention and Control
MOA	Ministry of Agriculture
MOH	Ministry of Health
MSF	Medicines Sans Frontiers
NPHIL	National Public Health Institute of Liberia
NRL	National Reference Laboratory
PHEOC	Public Health Emergency Operation Center
POE	Port of Entry
PPE	Personal Protective Equipment
RRTs	Rapid Response Teams
SMEs	Subject Matter Experts
SOP	Standard Operating Procedures
US-CDC	United State Centre for Disease Control and Prevention
WHO	World Health Organization
WCO	World Health Organization Country Office

Background

Simulation exercises provide evidence-based assessments to monitor and strengthen emergency preparedness. A key recommendation for Liberia from the IHR Joint External Evaluation (JEE) 2016 was to undertake regular simulation exercises.

The national and county Rapid Response Teams (RRTs) were established and trained in 2016 and approximately 50% of those trained have since either left or changed positions making them no longer part of the original cohort of trained and tested national and county RRTs. The latest full scale Ebola Virus Disease (EVD) field simulation exercise involving multiple counties in Liberia was conducted in May 2018.

Location of SimEx sites (Lofa Bong and Nimba Counties)



On 14 February 2021, the Government of Guinea declared an EVD outbreak in Nzérékoré Prefecture about 45 km from the Liberia- Guinea border which has numerous official and unofficial ground crossing points. As of 4th April 2021 there have been recorded 23 cases (16 laboratory confirmed cases, 7 probable) and 12 deaths reported in the Nzérékoré prefecture. With the ongoing Guinea EVD outbreak, the need for strengthening preparedness through simulation exercises and addressing identified gaps cannot be overemphasized.

The unprecedented EVD outbreak of March 2014 to June 2016 in West Africa had serious devastating impact on the health system, the population and the economic fabric of the people of Liberia against a backdrop of extreme poverty, weak health systems and social customs that made breaking human-to-human transmission difficult. Guinea, Liberia and Sierra Leone were all immensely affected. Five (5) years post Ebola in West Africa, EVD re-emerged in Guinea against the backdrop of concurrent outbreaks of COVID19 Pandemic, Lassa fever, Measles, Yellow Fever and cVDPV2.

Rationale

In order to further strengthen EVD timely case detection, investigation, reporting and case management, Liberia conducted a controlled field SimEx from April 28-30, 2021 in three counties bordering Guinea (Bong, Lofa and Nimba) due to their high risk for EVD transmission following the ongoing EVD outbreak due to population movement across the porous borders with Guinea for trade, health care services, similar cultural practices and intermarriages among the border population. The coordination roles of the national public health emergency operations centre (PHEOC) was also tested.

The findings and lessons learnt from this exercise will guide country ongoing EVD preparedness efforts to address identified gaps, build more vigilance and resilience for EVD alerts reporting, investigation and Laboratory testing and updating the county specific and national EPR plans.

To date, active EVD surveillance activities in the counties bordering Guinea had been strengthened with support from national authorities and partners.

SimEx linkage with IHR and EVD preparedness

In keeping with other exercises in the region to ensure high risk countries bordering a country with active transmission of EVD are operationally ready and prepared to implement timely and effective risk mitigation, detection and response measures for EVD; this exercise programme was part of Liberia and AFRO regional EVD preparedness programme. The exercise also looked at core capacities under the international health regulations, in particularly; IHR coordination and national response (C2), Laboratory (C5), Surveillance and the alert system (C6), Human resources (C7), National Health Emergency Framework (C8), Health service provision (C9) and Points of Entry (C11).

Objectives

The purpose of this exercise was to evaluate the country's readiness capacity to respond to EVD outbreak following the ongoing EVD outbreak in neighboring Guinea, identify existing capacities, gaps and recommend solutions to address them; update the county specific and national EVD readiness and EPR plans based on lessons learnt.

Specific objectives

1. To Assess the county and district Rapid Response Team (RRT) capabilities for EVD outbreak response
2. To evaluate the process of detection, reporting, triage and isolation of EVD suspected cases in Lofa Bong and Nimba counties;
3. To evaluate Infection Prevention & Control (IPC), availability and appropriate use of personal protection equipment (PPE); and other logistical needs for EVD operational response.
4. To assess the existing IHR notification process from county to national and to WHO
5. To develop county specific EVD action plans based on gaps identified and ultimately update county specific and national EPR plans

SimEx scope

This was a controlled full-scale field SimEx held simultaneously in three counties (Lofa, Bong and Nimba) and National PHEOC from 28 to 30 April 2021. The scenario involved importation of initial cases of EVD from neighboring Guinea to Nimba County and some cases escape through the Yekepa border spilling over to other two (2) counties Bong and Lofa. Radio stations were engaged for public communications to prevent the community from panicking. The county specific debriefing sessions, national debrief session and a key stakeholders meeting to look at the SimEx recommendations were held.

Methodology

The 3 days SIMEX was held in Lofa, Bong and Nimba Counties, with the national PHEOC providing oversight control of the exercise. Participants included IPC, Surveillance, Point of Entry (POE), case management, laboratory and Risk Communication & Community Engagement (RCCE) pillars. The WHO country office provided both technical and financial support for this activity.



*SimEx management team in Bong County
(MoH/NPHIL and WHO: 28 May 2021)*

The SimEx package was developed through a technical working group led by NPHIL supported by WHO, US-CDC and other partners. Facilitators, observers, actors and key stakeholder partners were identified and oriented. The media was also invited and oriented to ensure rumor mitigation and control.

A facilitator, participant and actor's guides to the exercise with clear roles and responsibilities were used. The team of facilitators was drawn from the One Health platform ministries and agencies, WHO country office, US CDC, IOM, USAID national offices to support the exercise. **Two (2) experts invited by the country from WHO AFRO and HQ) served as evaluators of the exercise.**

During the exercise, activation and deactivation of Rapid Response Teams (RRTs) at district, county, and national levels including the Incident Management systems (IMS) was observed as well as IHR notification.



Ambulance with SimEx patient at Phebe Isolation unit (R), Patient received by attending doctor at the isolation unit (L)

The SIMEX assessed the following response capacities and capabilities:

Key Testing Areas
Patient identification and triage at arrival
Availability and use of EVD case definition, reporting tools, SoPs, guidelines
Transport of Patients (as applicable) / ambulance services
Patient Isolation and management
IPC: Correct use of PPE and Barrier techniques
Rapid Response Teams, PHEOCs
County IMS activation, coordination, communication/situation reporting
IHR Notification
Laboratory confirmation and Results reporting
Points of Entry (ground crossing)

The exercise was convened by the National Public Health Institute of Liberia with technical and financial support from WHO, US-CDC and rolled out in Lofa, Bong and Nimba counties prioritized PoEs and referral hospitals. Prior to the conduct of this exercise, consultative meetings were held with the exercise management team to ensure adequate preparation.

The SIMEX referenced key documents include:

a) Liberia’s Integrated Disease Surveillance and Response IDSR technical guideline 2020; b) Liberia Epidemic Preparedness and Response plan, 2016; c) National EVD case management guidelines; d) SOPs and Contingency plans for Point of entry (Ground, Air and Sea), 2018; e) National Infection and Prevention Guidelines, 2018; f) the National EVD Contingency Plan, 2018; and g) WHO Simulation Exercise Manual, 2017.



SimEx team at one of the PoEs in Nimba County

Core capacities tested

IHR Core capacities	Tasks
Infection Prevention & Control	<ul style="list-style-type: none"> - Donning and Doffing of risk appropriate PPEs - Cleaning and decontamination - Hand washing at the designated stations and PoEs - Risk assessment and triaging - Availability of PPEs
Surveillance	<ul style="list-style-type: none"> - Availability and use of EVD case definitions (community, suspect, probable and confirmed) - Availability and use of case based IDSR forms, IDSR ledgers and other reporting tools at health facilities and PoEs
Laboratory	<ul style="list-style-type: none"> - Availability of specimen collection kits and SOPs for collection and transportation - Specimen collection, packaging, and transportation - Functionality of sample tracking system
Isolation of suspected and confirmed cases	<ul style="list-style-type: none"> - Availability of IPC compliant isolation facility - SoPs for EVD case management - Availability of staff, supplies and logistics - Ambulances services
Coordination	<ul style="list-style-type: none"> - IMS meetings - Activation of pillars - Production and dissemination of situation reports
Risk communication	<ul style="list-style-type: none"> - Airing of messages related to the exercise and a talk show

	- Community engagement EVD alerts/rumor reporting
Rapid Response Teams	- Preparedness and response contingency plans - Clear roles and responsibilities of response team members
Points of entry	- Triage facilities, holding area for suspected cases - Case definitions, SOPs, recording ledgers and reporting and referral pathway - Thermos cans and their appropriate use, - IPC: Supplies, handwashing facilities



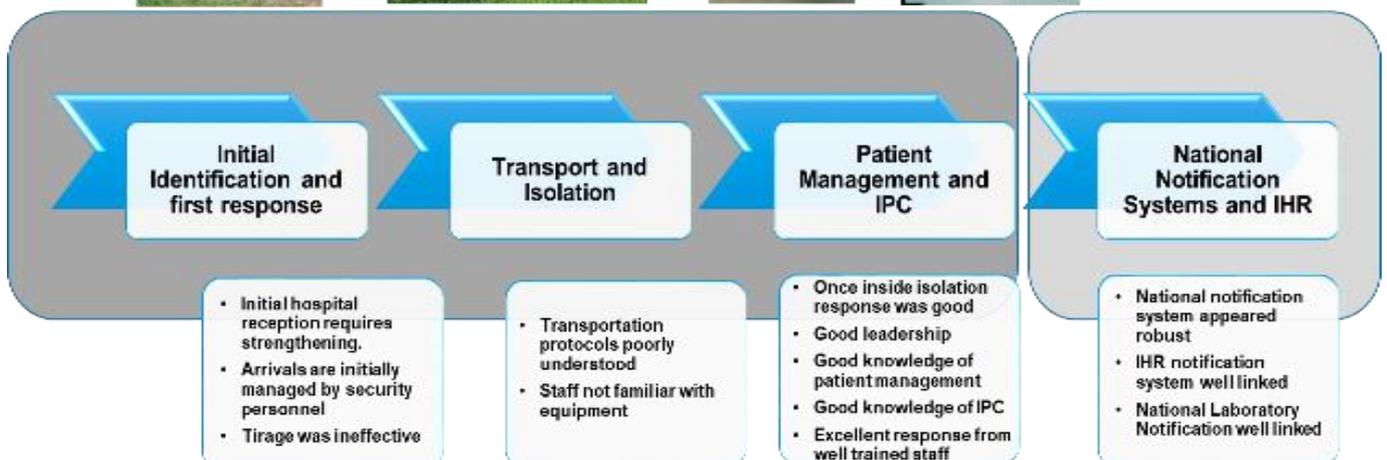
Isolation Unit-Phebe hospital, Bong County



Triage at Yekepa PoE in Nimba County

Key findings

The field SimEx that was observed by national and international evaluators, facilitators, participants and actors key findings categorized into strengths, gaps, and best practices.



Strengths

Coordination/PHEOC

1. There is high commitment of MOH and NPHIL to strengthen EVD preparedness, there was observed coordination by CHTs in all the 3 counties and national PHEOC during the SimEx
2. Public Health Emergency Operations Centers (PHEOC) exist in all the 3 counties and National PHEOC exist with SoP and coordinate preparedness and response to public health events.
3. PHEOC allocated staff understand the roles of PHEOC in outbreak preparedness and response
4. Clear coordination mechanism from district to national, though updates are irregular e.g. situation reports.

Triage area

5. All the 3 county level hospitals have triage structures for screening patients with donning and doffing areas and holding area for suspected cases
6. EVD case definition, IPC reminders were seen posted on the walls

IPC

7. There is Front-line health workers that have been trained on IPC practices,
8. National IPC guidelines and material have been distributed to health facilities
9. There is designated IPC focal points at every health facility and a quality management committee formerly called IPC committees at each of the 3 hospitals where the SimEx tool place

Surveillance

10. The surveillance system exists from community to national level with clear reporting and notification pathways,
11. Surveillance officers at hospital, district, and county level are trained in field epidemiology and IDSR.
12. The IHR reporting channel and focal points are in place from district (district surveillance officer), county (county surveillance officer) and at national level the IHR focal point is a team of 4 people.
13. IHR notification from the point of detection to the national level with feedback was demonstrated.

EVD confirmation

14. EVD specimens and other priority diseases transport system in place (Riders for Health) and testing capacity at National Reference Laboratory (NRL) with turnaround time of 24-48hrs

RRTs

15. Rapid Response teams exist at district, county and national levels; though some people have left leaving some positions vacant or filled with new people that require orientation.

Point of entry (POE)

16. Availability of immigration staff ready to conduct travelers screening for EVD once oriented and provided with the requisite materials.

Human Resources at Health facilities

17. Bong county has a strong emergency care team once the patient is identified and admitted. They are competent and familiar with IPC

18. Border health facilities had a small staff but dedicated in doing their work, and well knowledgeable on detection and referral of suspected EVD and priority diseases cases. There is need to increase the health work force.

Risk communication

19. Radios as the quickest means to reach the community members was used in all the 3 counties to update the public on the SimEx exercise
20. RCCE focal points exist at district, county and national level with SoPs.

Key gaps

1. **Case detection:** Delay in case detection at simulated facilities leading to high HCWs and other frontline workers exposure to the infectious SimEx patients;
2. **Infrastructural:** Lack of constant water at the triage, isolation units and PoEs; there is no national standardized blue print for triage facilities. The triage facility at Phebe hospital location does not favor triage of patients going to hospital.
3. **Reporting tools and reference documents:** Lack of IDSR ledgers, case definitions and reporting forms, IPC and waste management reminder posters at health facilities, and POEs
4. **PHEOCs:** Lack of SOPs and guidelines at county PHEOC for IMS activation and deactivation, no communication cards and fuel support for generator
5. **Logistics/operations:** lack of thermos cans at PoE and health facilities, fuel for ambulances to operate in Phebe, Bong County, while Nimba and Lofa require ambulances and some border Health facilities have no telephone network (VHF or base radios is recommended for such facilities)
6. **Essential medicines and supplies:** IPC supplies (inadequate gloves, soap, chlorine)
7. Not familiarization with reference documents: EVD contingency plan
8. **Knowledge gap:** IPC (in appropriate triage, hand hygiene, risk appropriate PPE, ambulances and spills decontamination),
9. **Laboratory confirmation:** Inadequate specimen collection, packaging and transportation materials
10. **Point of entry (POE);** No EVD case definitions, IDSR record and reporting ledgers, SOPs and guidelines; Limited IPC supplies and non-compliance of IPC protocols (Gloves, Masks, Gowns); No holding rooms for suspected cases while waiting for referral; Water and soap not available all the time; Inadequate waste disposal.
Points of entry are weak with many informal entry points. The first point of detection is likely to be the local clinics along the border. With free medical care in Liberia, people will cross the border if able and will likely avoid formal crossing points to avoid being turned back

Debrief sessions

The county level debrief sessions were held on 30 April 2021, national debrief session on 1 May 2021 while the key stakeholders meeting was held on 7 May 2021.

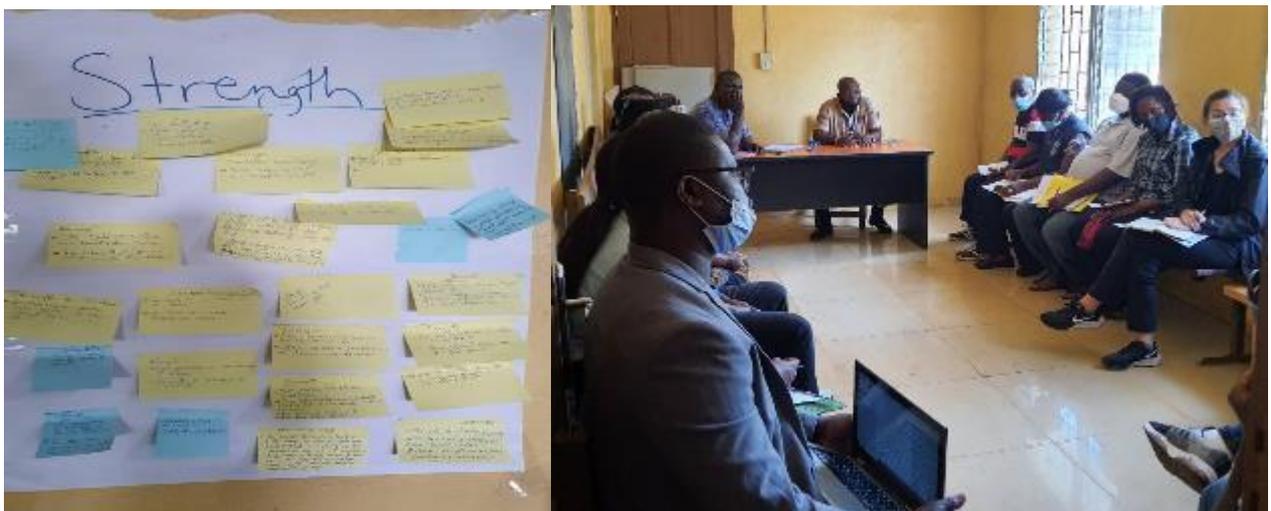
Bong County



Bong County debrief session 29 April 2021.

The meeting emphasized the need to ensure that all required adequate IPC supplies are deployed at all levels of health care delivery system with monitoring framework in place; strengthening the referral pathway through the provision of designated response ambulance and ensuring all reference documents, SOPs, IDSR reporting tools and guidelines for case detection, case referral and management are available at service delivery points and PoEs.

Nimba County



SimEx debrief in Nimba county (process and debrief session) 30 April 2021

There was delay in case detection at the health facility. There is need to conduct orientation for new clinicians EVD case definitions, community health workers on the simplified (community) case definition as well as provision of IDSR reporting tools. Inadequate Water supply, IPC supplies, thermos cans, waste management were key challenges for both health facilities and PoEs

Lofa County



Lofa county debrief meeting 29 April 2021

The debrief session in Lofa county was attended by participants from the CHT, DHTs, Teleweyan Hospital staff, County and district authorities, the media and national facilitators. Key highlighted was many PoEs have no health workers posted, many new RRT team members that require orientation on their roles, inadequate IPC supplies, weak CEBS, IDSR tools at Health facilities and PoEs, logistical supplies for surveillance officers, challenging telephone and road network.

National debrief 1 May 2021



WR Dr Peter Clement (Left back), DG NPHIL (in red suit) Hon Jane and USAID representative Dr Fatma follow at the national debrief session: 1 May 2021.

The national debrief was attended by one health platform government ministries and agencies and partners. County presentations and honest plenary discussions formed center stage.

At the end of the one day debrief, there was general understanding of the EVD readiness status in Lofa, Bong and Nimba counties as well the national level readiness status.



National SimEx debrief session held at CORINA Hotel-Monrovia on 1 May 2021

The call to health workers to put the country first than incentives was emphasized,

The counties were encouraged to leverage on other existing services from other programs, line ministries to address the some of the identified gaps

The need to build resilience for communities and county level for EVD timely alerts reporting and investigations was emphasized as well as putting in place a track mechanism for resilience built.

Need to address preparedness in an integrated and utilizing all available opportunities at county level to detect, investigate and prevent EVD outbreak and other priority diseases.

Action points with timelines, responsible persons were developed for presentation at key stakeholders meeting on 7 May 2021.

Key stakeholders debrief 7 May 2021



Key stakeholders meeting post EVD SimEx: 7 May 2021

The meeting chaired by Director General NPHIL Hon. Jane and co-chaired by WR Dr Clement was attended by Hon Minister for health Dr Jallah, USAID, US-CDC, IOM, MoH and NPHIL heads of departments among others noted that the SimEx achieved its objectives and there was need for address the gaps identified, some of which require no resources, others require minimal resources and others require health system investment. Key recommendations made include;

Ensure a repository of all validated EVD, COVID-19 and other infectious diseases SoPs, guidelines, case definitions and relevant reference tools is in place for both soft and hard copies

Ensure printing and distribution of all IDSR reporting tools, ledgers, IPC reminder messages are in all health facilities and PoEs as well community ledgers for recording of new visitors in the communities.

The MoH to have a standard blue print for triage and isolation units which should to be used for constructions these facilities in the country.

Trainings, orientations be catalogued based on competencies and an annual schedule be made for their implementation as anon paid activity for all health workers across the country.

Liberia health security should be addressed is a health system broader approach and spanning beyond the ministry of health (One health approach)

The 3 counties of Lofa Bong and Nimba need to take more active roles like trainings, on job mentorships, regular supportive supervision, among others should be their responsibility.

Need to strategies opportunities for funding e.g. leveraging on COVID-19 global fund support and other programs support to strengthen EVD readiness.

Best Practices

1. Allowing all the participants, facilitators and evaluators of the exercise to speak their minds during the county, debrief helped to give honest reflection picture of the EVD readiness, reflection key gaps and possible solution
2. The debrief sessions and emergency meetings following the SimEx allowed stakeholders at all levels of the health systems to identify actual and potential lapses in the EVD outbreak preparedness and readiness and how to collectively resolve them.
3. Involvement of local county authorities in the implementation of SimEx strengthened coordination and informed advocacy on addressing the identified gaps.
4. The multidisciplinary approach to responding to preparedness and responding to outbreak provided an opportunity for cross-pollination of ideas among different sectors including Agriculture and the media, which prevented panics within the general population during the exercise. This however needs further strengthening at subnational level.
5. Strong will and commitment from the leadership at the county (CHTs and county superintendents) and national level (MoH and NPHIL) to enhance preparedness and response for EVD outbreak and other infectious diseases outbreaks.

Recommendations

1. All the 3 counties should re-organization the patient flow steps to facilitate triage for infectious diseases
2. There is need to improve isolation facilities management (cleanliness of premises, water, electricity, IPC, waste management, security) in all the 3 counties.
3. There is need to improve the existing triage and Isolation facilities in Phebe-Bong County, Nimba and Lofa with provision of running water for better utilization of the facilities.
4. Provide SoPs, guidelines, case definitions, job aids, reporting ledgers, thermos cans, hand washing facilities to POEs and Health service delivery points where they don't exist.
5. Targeted refresher training on IPC SoPs and practices for triage staff, EVD case detection for health workers to increase their index of suspicion and inpatients to be screened for EVD on daily basis.
6. Strengthen the reporting mechanisms from health facilities and major ground PoEs with poor mobile network coverage to district, county and national level; provide VHF or base radios to facilitate timely reporting in such facilities.
7. Ensure availability of a nationally approved blue print of standard triage at health facilities and PoEs and Isolation units for standardization across the country.
8. Strengthen CEBs in the 3 counties with provision of community case definitions for EVD, Liberia priority diseases job aids, means of communication to CHVs/CHAs and orient them on the use to improve reporting of priority disease alerts.

9. Strengthen capacity for laboratory confirmation of EVD and other IDSR priority diseases, conditions and events to support syndromic surveillance through provision of specimen's collection, packaging and transport medias to all the counties.
10. Ensure availability of buffer stock of emergency supplies (medical & non-medical) are deployed at county hospitals isolation units for emergency care of suspected EVD case;
11. Strengthen referral pathway through the provision of designated response ambulance;
12. Targeted capacity building for case detection, case management and IPC as part of the routine continuous medical education (CME); orient immigration team at major PoE on EVD case definition and screening.
13. Strengthen the operations of county PHEOC with provision of logistical support for coordination, communication and timely information sharing with all stakeholders.
14. Mobilize adequate resources for preparedness and response and provide adequate stockpile and storage capacity (including PPE, etc.).
15. Simulation exercise notification; there is need to review strategy on sharing information preceding simulation

Conclusions

In general, from the observations, Liberia could manage isolated cases of Ebola if detected early enough and referred quickly into the formal health care setting. However, the surveillance and hospital management needs strengthening, for systems, procedures and SOP's implementation to improve timely detection, triage, investigation, isolation and management of suspected and confirmed EVD cases.

Acknowledgement



Jhpiego

STATP

AAH

MSF

AAH

Annexes

The tools used for the organization of the activity (agenda, injects, script, participants' guide, facilitators' guide, etc.): <https://www.dropbox.com/sh/jgh6agm5welswk1/AAalywrrp1n4N3pFIV11eoFYa?dl=0>

The presentations of the three counties during the debriefing:

<https://www.dropbox.com/sh/0a0xbth37c8ne3m/AAACGQMVofBGkqu1xDhgHC1Oa?dl=0>

Pictures taken during the activity:

https://www.dropbox.com/sh/mvqi9mh1ukot3nh/AAAA4EBoq4fkxkN_wen75H03a?dl=0

Debrief participants listing at national level

<https://docs.google.com/spreadsheets/d/1AgX0s6jXU95kHfOaloZH9kWG2hls4NFq/edit#gid=1102648664>

County specific Action plans

https://docs.google.com/document/d/1E_-cAHkCOXpkCaMImNdRTZzSPobeJOSsvP35yrnC2-o/edit?usp=sharing

Pictures



Director General NPHIL Hon. Jane M. opening the National debrief SimEx session 1 May 2021 at Corina Hotel-Monrovia.



WHO AFRO and HQ Experts Debriefing with WR Liberia (Dr Clement-3rd from right), 26 April 2021



International experts (Dr Primous (AFRO-IST) and Dr Allan Bell (WHO-HQ) with Dr Monday from WCO Liberia (R) 28 April 2021 and WHO team with CHOs of Nimba, Bong and Lofa (on the left) 1 May 2021



Bong SimEx team 29 May 2021



Lofa County debrief meeting 30 May 2021



SimEx team (MoH, NPHIL representative, National Reference Lab WHO, US-CDC, and CHT) at one of the PoEs in Nimba County 28 April 2021.



Key stakeholders debrief (WHO, US CDC, USAID, IOM, Hon Minister for Health, MoA); 7 May 2021



Group picture at the national debrief meeting 1 May 2021

Map Showing County Districts and Crossing Points Bordering Guinea

