*REPUBLIC OF LIBERIA*

# NATIONAL EBOLA RESPONSE STRATEGY

**"Scaling up to the challenge"**

## PRESIDENT'SMESSAGE

Every Ebola Virus Disease (EVD) death is a national tragedy. In our communal society, no one is untouched by the epidemic. We are all at-risk. This has significant impact on our psyche and ability to work and participate in family and community life. With the toll of the disease rising so is the cost for our healthcare system and economy.

Experts agree that making these lifestyle and cultural changes will vastly reduce risk of contracting the disease. What is needed urgently are broad-based partnerships beyond the health sector – government, donor partners, stakeholders, the private sector, individual citizens – to support people in making these changes so that we can prevent further spread of the disease.

The impact of EVD on families, friends, communities and the whole nation will be far-reaching in every way. Unfortunately, our health care system was unprepared for the outbreak. It was overwhelmed when the epidemic hit. Although government and our partners have invested heavily in public education and outreach, and our knowledge about EVD prevention has increased, cultural and religious habits such as dead body bathing continue to further the transmission. Moreover, people who start experiencing signs and symptoms of the disease fail to seek help in a timely manner, and by the time they come public with their infection it is too late. Sadly, many of the practices that put us at risk of the disease are within our control, and yet we insist on continuing them. We must avoid touching others and their body fluids. We must wash our hands regularly. We must stop burial rites that involve bathing or touching dead bodies.

The burden of EVD does not rest solely with the health sector. It has multiple impacts on many sectors of Liberian society. This strategy reflects the government's commitment to meet the most urgent public health challenge of our times as a nation. The need to proceed rapidly is made more urgent for many reasons. The primary is that EVD poses an immediate danger for all of our citizens and those residing within our borders and beyond.

Our strategy aims to achieve "No New Transmission." Our Operational Plan, which was launched in July, provides us evidence-based technical guidance to scale up our national response. It is against this background that I present the National Ebola Response Strategy. It is a national, if not, a global imperative for us to combat and end the incidence and prevalence of EVD within our borders and the region at-large.

Qualitative assessments of our initial response revealed that significant differences in Infection and Prevention Control (IPC) practices among healthcare facilities and healthcare workers accounted for many of the infections suffered. Health facilities with improved IPC practices experienced less casualties than those without. Hand hygiene, the most important and basic IPC practice was infrequently practiced in many of our facilities. Worse, our healthcare workers were inadequately trained and there were scarce supplies of PPEs. Our health facilities had inadequate infrastructure. Insufficient staffing levels were also implicated in the disproportionate casualty among our healthcare workforce. We have learned harsh lessons from these experiences. We want to halt and reverse these negative trends.

The successful implementation of our new strategy hinges greatly on changing the organizational structure of how we are managing our intervention systems. We now have a new National Incident Management structure. There are streamlined levels of responsibility and authority for responding to the outbreak.

At the national level, the National Incident Management System comprising a multi-sectorial government team, the Liberia Medical and Dental Council (LMDC) and our donor partners as well as those from specialized agencies are managing the deployment of our array of interventions. The Incident Management System (IMS) now has oversight responsibility for managing our overall strategy.

At the county level, our local Task Force, headed by each county superintendent and the local health officer are responsible for administering our interventions, a system that is replicated to the district and township level. Individual members of communities and community leaders have a responsibility to ensure collaboration in this national effort.

National oversight for the optimal functioning of these integrated response teams resides with a National Consultative Task Force, which I chair, including our leaders in the Legislature, Judiciary, political parties, clergy, business sector, civil society, as well as women and youth-serving institutions. Importantly, we want to deploy our national resources in a targeted manner to achieve maximum impact. For this reason, we plan to utilize our engineering battalion of the military to support the IMS in constructing Ebola Treatment Units (ETUs). We will also deploy all of our teachers who have been furloughed as a result of the school closure to support the social mobilization and community outreach efforts. In addition, the Liberia Institute of Statistics and Geo-Information Services (LISGIS) has been directed to use its population data gathering and analysis expertise to enhance the qualities of our Epi-surveillance, social mobilization, and contact tracing interventions.

Two other critical lynchpins of our interventions are to restore the primary health care system and to provide much needed incentives that will increase the motivation of healthcare workers, who are the frontline professionals carrying out our response. With the support of our partners, we have constructed a command and control center that will bring all of our different response systems under one roof. We believe that this will improve decision making and importantly cut response time in critical areas like timely removal of sick people and corpses, which have been some of our weak performing areas during the epidemic. Lastly, we have committed to building up to 17 ETUs in the next six weeks around the country, including adding at least six more laboratory facilities nationwide. In addition, the number of burial teams will be increased from 6 to 12 in Montserrado County, our disease epic center, and to 6 in the leeward counties, where there has been only 2-3 such units.

Acting in concert, these changes, we believe, are cardinal to slowing, even halting the transmission and then reversing the hostile turn this epidemic has taken. I urge our partners to quickly provide support to these efforts, which can be co-referenced in the context of the WHO Ebola Response Roadmap for the three affected countries. Ebola has wrought high levels of anxiety, and understandably so. We are nonetheless committed to overcoming it and returning the country to normalcy.

Her Excellency Ellen Johnson-Sirleaf
President, Republic of Liberia

## EXECUTIVE SUMMARY

The Ebola outbreak is the first epidemic to hit our urban centers with such magnitude and to cause such a mass casualty. While we cannot predict its incidence and prevalence with certainty, a pattern of at least multiple waves has been noted. The epidemiology of the disease has prepared us to prepare a range of scenarios with respect to its attack rate or how far-reaching it will be in terms of the number of cases within a set time frame. In anticipation of the duration of the epidemic, we have developed a strategy to galvanize and focus national efforts to protect the health and safety of the Liberian people. The strategy, which is simply a framework, establishes an integrated set of interventions to enable us to eradicate this deadly disease. But first, here is a description of the current state of affairs with which we must deal.

- There are a lot of suspected and probable cases of EVD in the communities across Liberia.
- Infected persons and dead bodies continue to be the primary source of the infection.
- The increase in the number of cases in the community has far out exceeded our ability to admit all cases to the ETUs.
- ETUs are full to capacity on a daily basis as such patients cannot be moved from their homes even if they get a call through for help.
- For those desperate to seek care, they take taxis, motorcycles or walk to the treatment units but are unable to get admission.
- ETUs construction has been slow and as it takes time for actual construction work, proper recruitment and training of staff the death toll is increasing and causing public anxiety and anger.
- Patients are dying at home, on the streets, in taxis, thus continuing to pose a high risk for the rapid spread of the infection.
- Dead bodies are left for many days before pick up due to issues of logistics limited number of burial teams and supplies.
- At health care facilities, health workers and patients fear being infected.
- Many more lives are likely to be lost that may not necessarily be because of Ebola infection, if routine health care services are not revitalized to provide essential health care services.

In response, the five basic pillars on which our public health interventions rest are:

- Surveillance: Enhanced efforts to achieve timely and accurate situational awareness of how the disease is evolving and the impact on critical sectors to inform policy and operational decisions.

- Mitigation Measures: Interventions to slow the spread of the disease and reduce impact of infection and illness on individuals, households, and communities.

- Procuring Medications: Actions to secure the needed medications or vaccines to enable us to do voluntary treatment of those who sign consent for vaccines in trial stages.

- Communication and Education: A coordinated campaign to foster a convergence of action across all levels of government, the donor community, private sector, civil society, faith-based and community-based organizations and the larger health care sector.

- Restoration and Strengthening Essential Health Care Services: Actions to restore essential health (curative and preventive) services (in governmental and non-governmental facilities (obstetric and neonatal care, HIV, TB and malaria services emergency and critical care services) as well as to ensure infection prevention and control in all facilities together with quality assurance monitors, while strengthening essential support systems (logistics, supplies, laboratory, incinerators, etc).

Truly, a strong health care system is central to the health of Liberians and, in particular, combating the Ebola outbreak, which has attacked and destroyed a considerable portion of our livelihoods. This strategy provides a clear direction for our National Ebola Response and for the restoration, even an enhancement of our primary health care system. The goal is that such change would result in a more robust response to the epidemic ravaging our society.

There is evidence available that if the quality of our National Ebola Response is enhanced, and the transmission of the disease is curbed, it would improve our primary health care system, which has eroded as a result of the outbreak. Improved health outcomes for non-Ebola patients will certainly bode well for the many Liberians who have died during the outbreak because much of our healthcare resources have been invested in fighting the epidemic.

I fervently hope that our partners will double their efforts and continue to support us against this disease that has eaten at the essence of healthcare delivery in Liberia – our staff and the citizenry.

# ACRONYMS

## TABLE OF CONTENTS

## BACKGROUND

The first reports of suspected cases of hemorrhagic fever in Liberia were reported to the Ministry of Health and Social Welfare (MOHSW) from Foya County on 17th March 2014. Between 22nd March 2014 and 10th April 2014, 6 confirmed and 2 probable cases were reported from 2 counties (Lofa and Margibi). Implementation of high quality response activities resulted in interruption of 1st wave of EVD transmission in Liberia as there were no reported cases between 10th April 2014 and 25th May 2014.

Between 25th May 2014 and 25 July 2014, Liberia reported an additional 301 (86 confirmed, 112 probable cases and 101 suspected cases) from 7 of the 15 counties in the country. During this period, 37 health care workers from 3 counties (Bong, Lofa, and Montserrado) were infected.

By late July 2014, in line with the escalation of the EVD outbreak in Liberia, a number of important outbreak response actions were taken by the Government of Liberia with support of international partners

- Elaboration of a national EVD outbreak response operational plan in line with the Accra Strategy.
- Adoption of additional outbreak response measures in line with Mano River Sub-region Presidential communiqué.
- Broad inter-sectorial EVD outbreak response to the outbreak. Her Excellency the President chairs weekly National Ebola Task Force and the implementation of decisions of the Task Force is done by the relevant Government ministries and departments under the coordination of a National Operations Centre.
- Daily review of implementation of the public health components of the EVD outbreak response by Incident Management System (IMS) chaired by Ministry of Health and Social Welfare and supported by technical partners
- Provision of technical, financial and material responses to support EVD outbreak response by Government (USD 5m Ebola Trust Fund), private sector as well as international community. These resources have been deployed and disbursed at national and county level, with focus on the most affected counties
- Declaration of National State of Emergency on 6th August 2014

The above actions have not had the desired impact on EVD transmission in the country yet. As of 8th September 2014, Liberia reported a total of 2,184 cases (700 confirmed, 1005 probable cases and 479 suspected cases) in 14 of the 15 counties in the country[1]. Five counties account for 93% of all cases (Montserrado-707 cases; Lofa-681 cases; Margibi-338 cases; Bong-173 cases; Nimba-129 cases). A total of 164 Health Care Workers in 8 counties have been infected with EVD.

[1]The number of EVD cases reported in Liberia is expected to increase significantly by 15 September 2014 when Liberia shifts to using data entered into Epiinfo database to prepare daily situation reports

## STRATEGIC PLANNING ASSUMPTIONS

Driven by knowledge acquired from the WHO Ebola Roadmap for the sub-region, this National strategy is built on such assumptions as:

- The initial Ebola Response in March when EVD hit was not adequately resourced and healthcare authorities had no experience dealing with an infectious disease epidemic of such an unprecedented scale in a densely populated urban area. Continued rise in Ebola cases and corresponding death toll are attributed to the inexperience of the health sector with Ebola and a slew of other reasons.

- Liberia has limited capacity in Epi-surveillance, data collection, management, and incidence reporting and is underreporting the incidence and prevalence of the disease. Also, as a country, we lack adequate number of laboratory facilities to match the demand for tests.

- Inadequate infection prevention and control in many facilities are causing unprecedented deaths amongst healthcare workers, which is also furthering the transmission since the nation lacks the requisite human and financial resources to mount an adequate response to the outbreak.

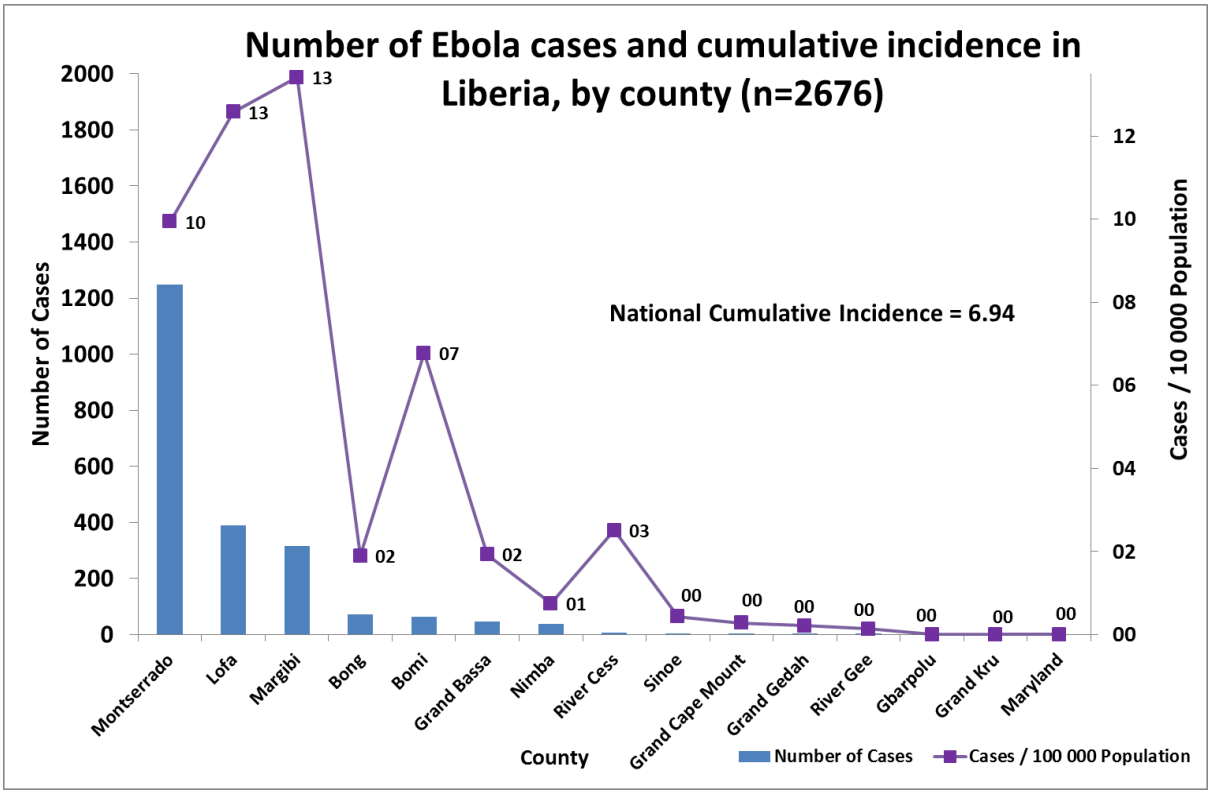
- Denial and public mistrust are fueling transmission of the disease, indeed, EVD has affected the entire country. Furthermore, susceptibility to EVD will be universal among all population groups owing to efficient and sustained person-to-person transmission.

- The typical incubation period (interval between infection and onset of symptoms) for EVD is approximately 2-21 days. Persons who become acutely ill may "shed" virus and the risk of transmission will be greatest. On average, one infected person will generate approximately up to 10-12 contacts (according to MSF).
- EVD will cause untold number of orphans and deepen vulnerability. Liberia is unprepared for the severe psychosocial and economic consequences of the outbreak on affected individuals, households, and communities. In addition, stressors emanating from EVD might cause psychosocial consequences including triggering undiagnosed or untreated mental illnesses.
- Numbers of people will get infected and for a variety of reasons, might not gain admission to ETUs and would need to be cared for at home or in community setting.
- Misconception and inaccurate information might fuel agitation and insecurity and further cause internal and/or external displacements, which might fuel increased transmission of the disease.

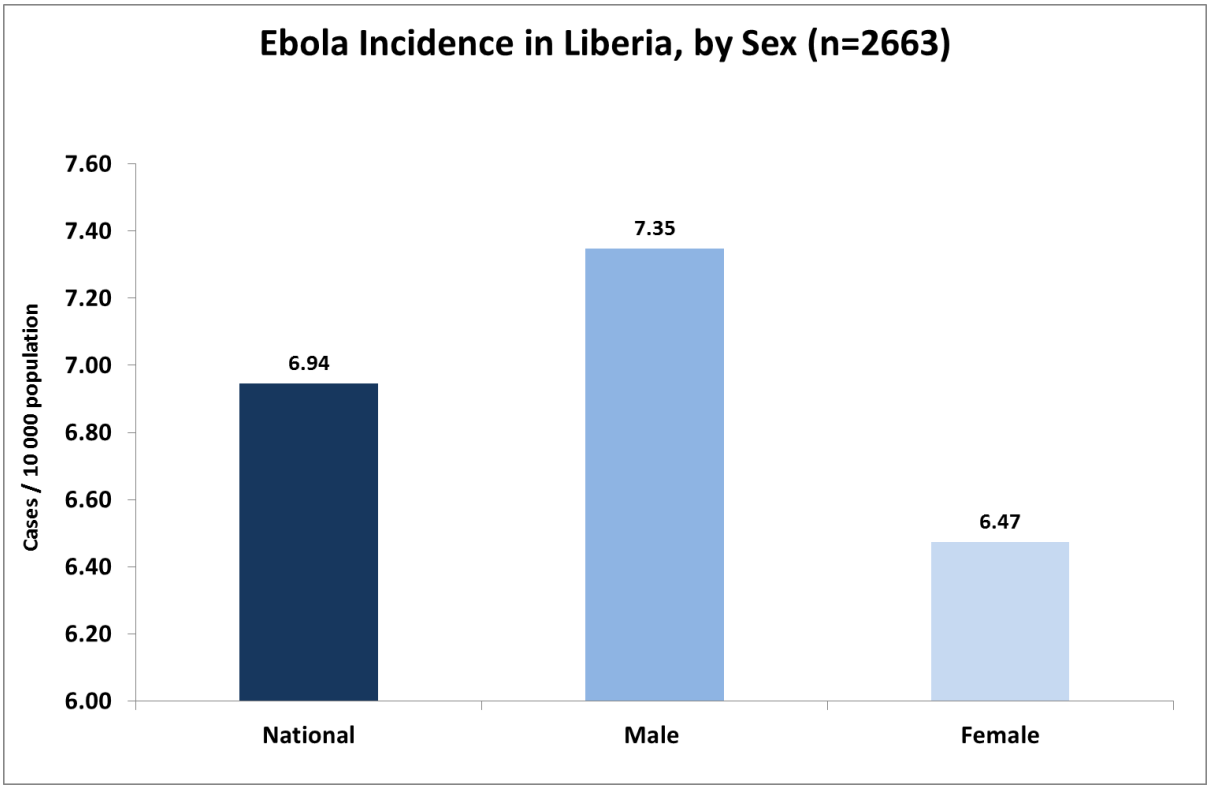
**Attack Rate**

The table below illustrates the estimated number of cases and Attack Rates per county (Source of information for Base attack Rates and Case Fatality Rates (CFR) is cumulative number of cases (Suspected, Probable and confirmed) reported as of 10 September, 2014, Sitrep No. 118.

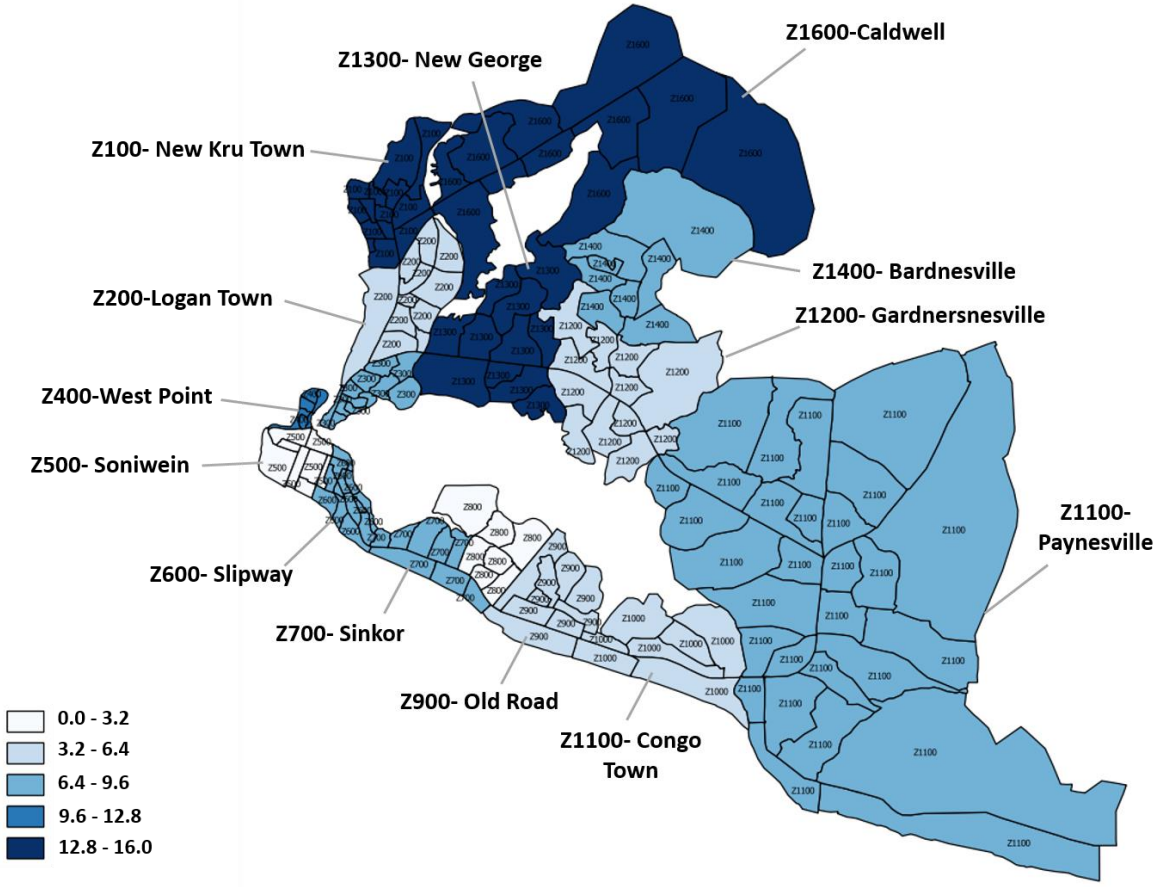
| Liberia – Population 3,938,313 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sn. | Counties | Population | Cases | Deaths | Attack Rate % | CFR % | Est. Pop. at Risk |
| 1 | Montserrado | 1266747 | 849 | 532 | 7% | 63% | 84900 |
| 2 | Bomi | 95290 | 77 | 49 | 8% | 64% | 7700 |
| 3 | Gbarpolu | 94462 | 1 | 0 | 0% | 0% | 100 |
| 4 | Grand Cape Mount | 143952 | 16 | 14 | 1% | 88% | 1600 |
| 5 | Grand Bassa | 251135 | 46 | 19 | 2% | 41% | 4600 |
| 6 | Rivercess | 81006 | 1 | 1 | 0% | 100% | 100 |
| 7 | Sinoe | 115989 | 3 | 1 | 0% | 33% | 300 |
| 8 | Margibi | 237801 | 391 | 162 | 16% | 41% | 39100 |
| 9 | Nimba | 523385 | 134 | 90 | 3% | 67% | 13400 |
| 10 | Lofa | 313631 | 692 | 368 | 22% | 53% | 69200 |
| 11 | Bong | 377768 | 179 | 49 | 5% | 27% | 17900 |
| 12 | RiverGee | 75659 | 9 | 5 | 1% | 56% | 900 |
| 13 | Maryland | 153991 | 6 | 4 | 0% | 67% | 600 |
| 14 | Grand Kru | 65604 | 0 | 0 | 0% | 0% | 0 |
| 15 | Grand Gedeh | 141893 | 3 | 2 | 0% | 67% | 300 |
| | National | 3,938,313 | 2407 | 1296 | 6% | 54% | 240700 |



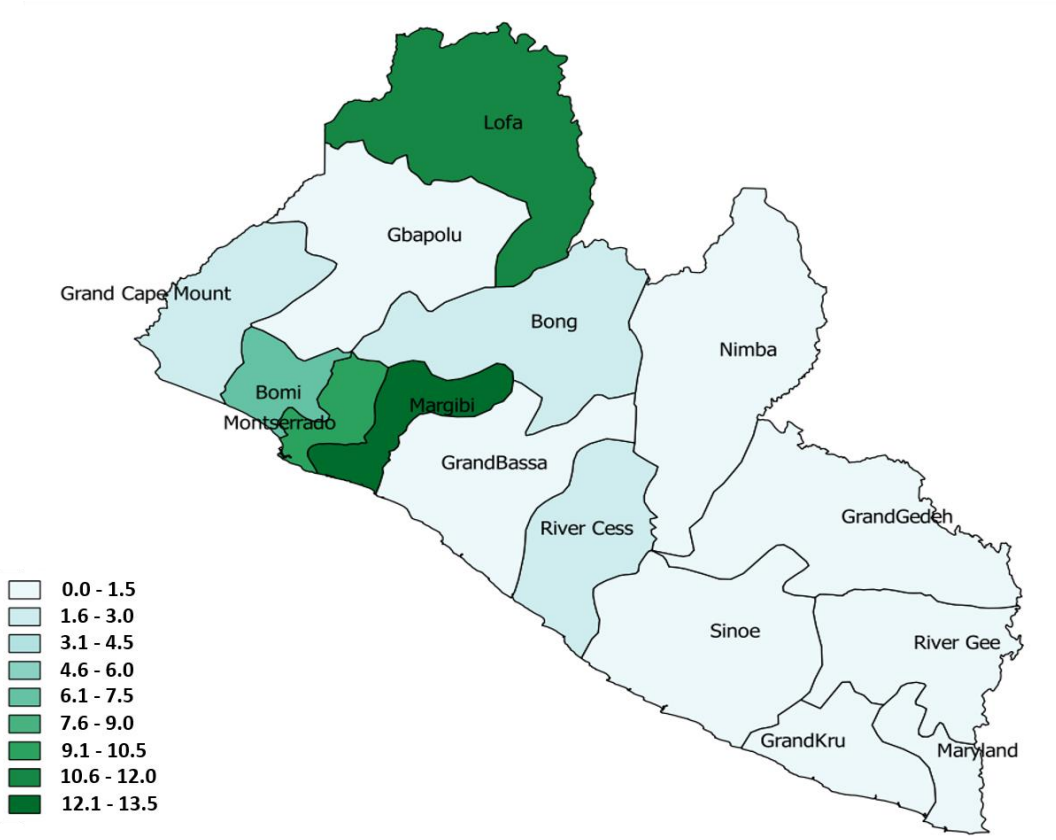
**NOTE:** Cumulative number of cases (probable, suspected and confirmed) May-Sept, 2014.

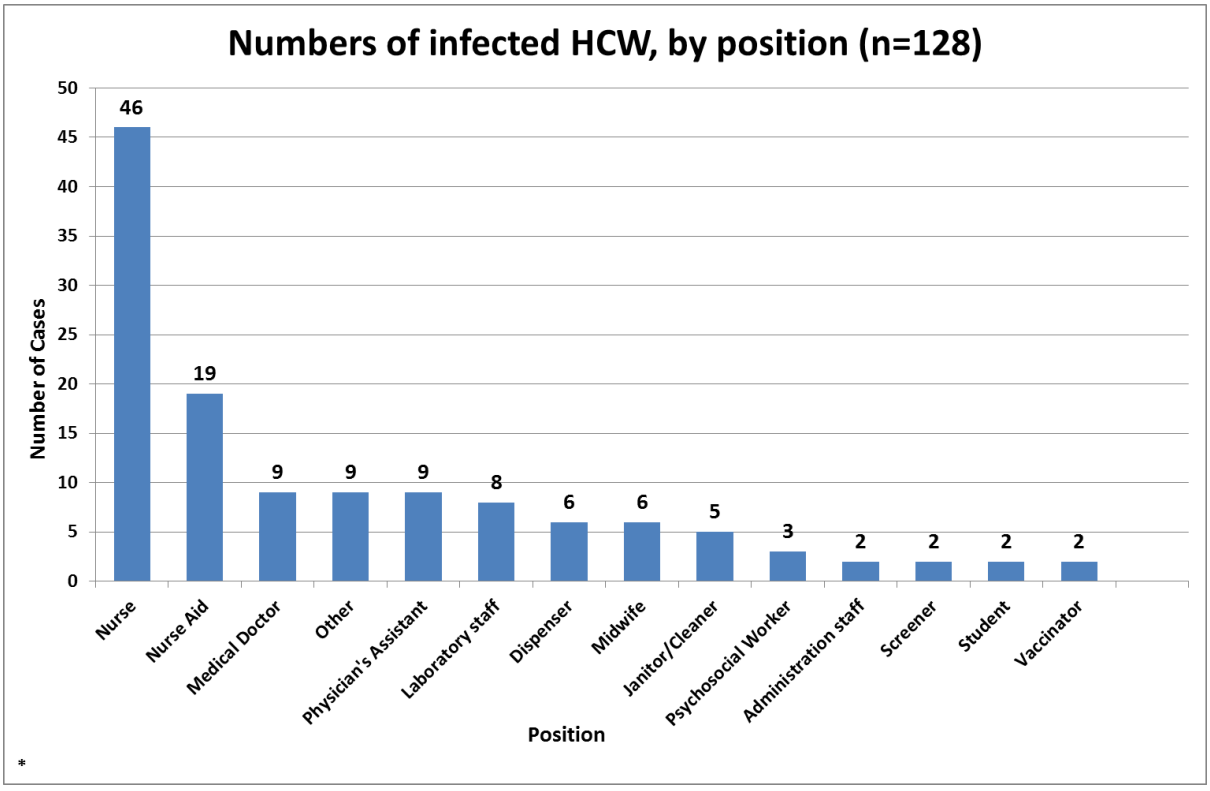


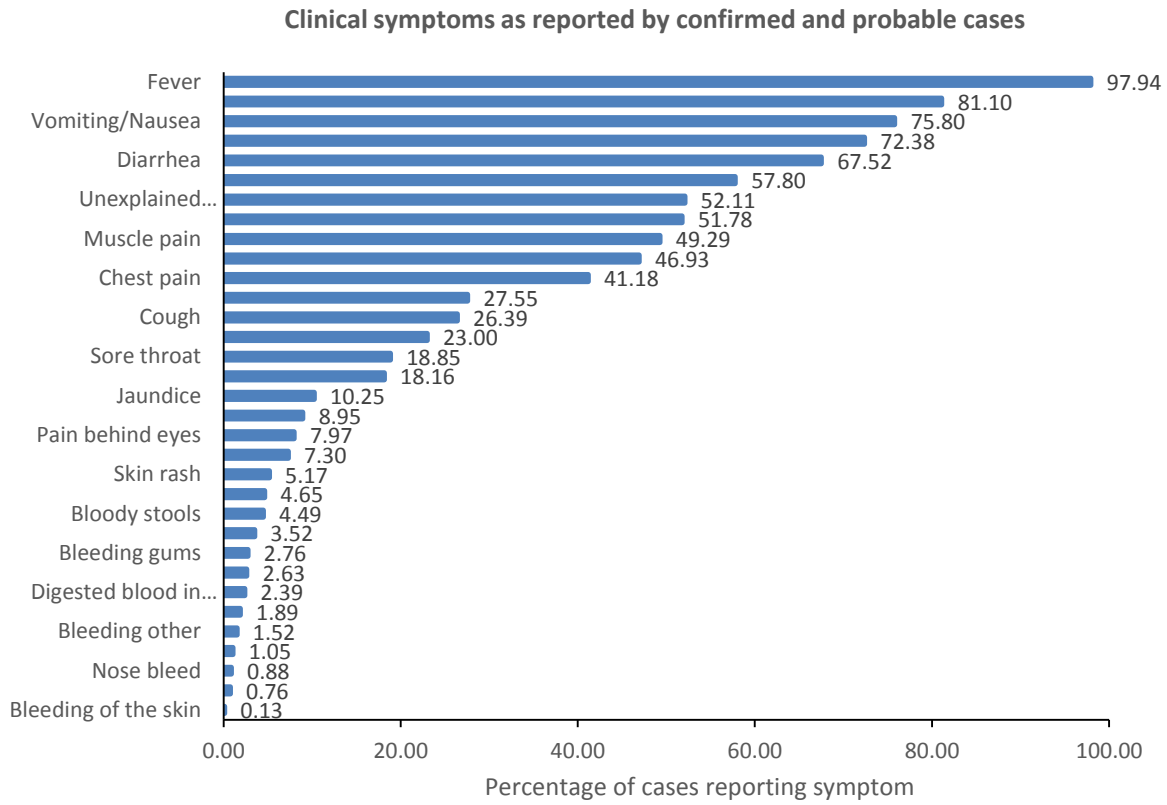
Cumulative Incidence- Greater Monrovia as of 15th September per 10,000 population



Cumulative Incidence- Liberia as of 15th September per 10,000 population



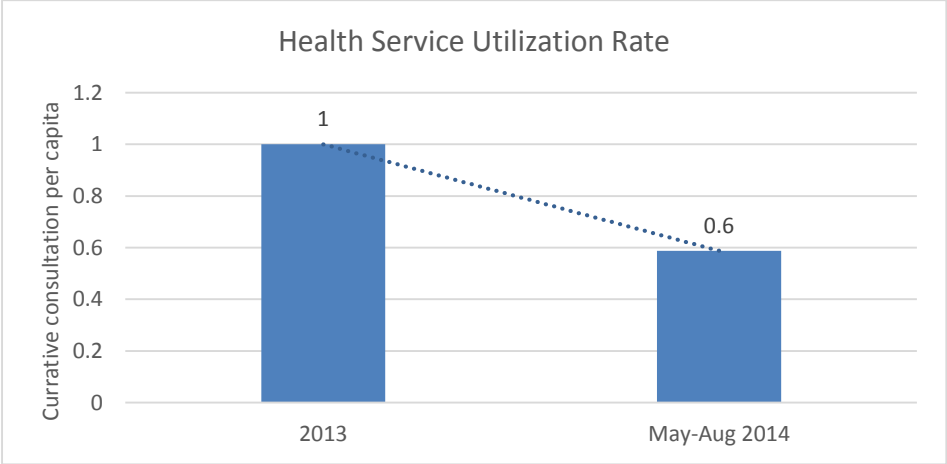



Response ranged from 55 to 11%.

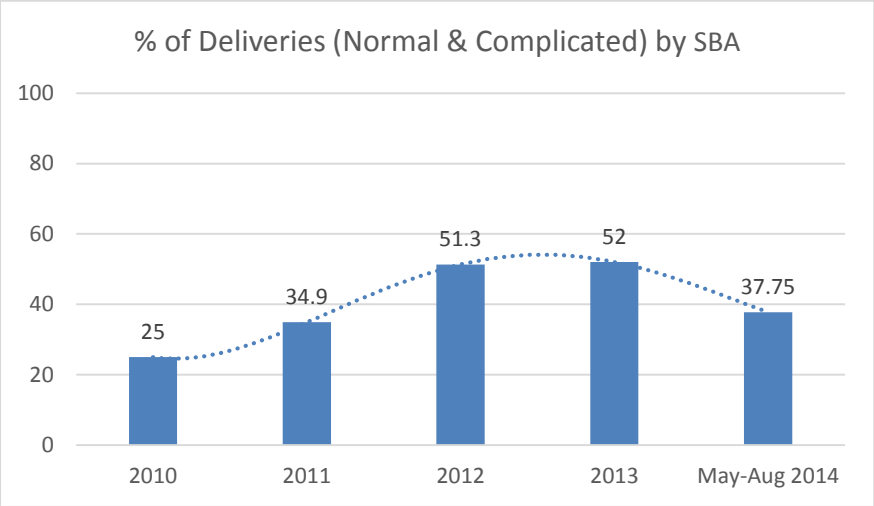
## EFFECTS OF OUTBREAK ON HEALTH SERVICE DELIVERY

The severity of the Ebola epidemic and the duration with no foreseeable end in sight are having profound effect on the health sector. Two-thirds of health facilities are either closed or operating below capacity with compromised quality of care. Health workers' attrition and reluctance to serve is fueled by the number of health care workers that are being affected by the Ebola virus. Health sector indicators that were making progress are now declining at a rapid pace.

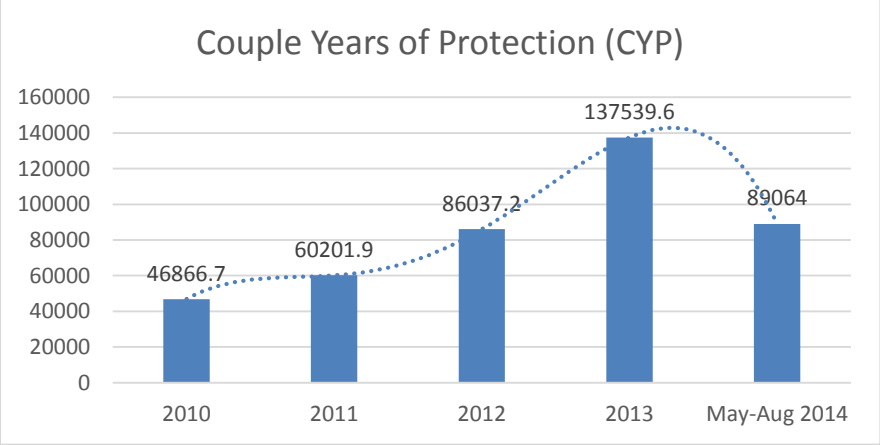
Patients' reluctance or inability to access care at health facilities for multiple reasons has reduced service utilization rate from 1 in 2013 to 0.6 during the period May-August, 2014.

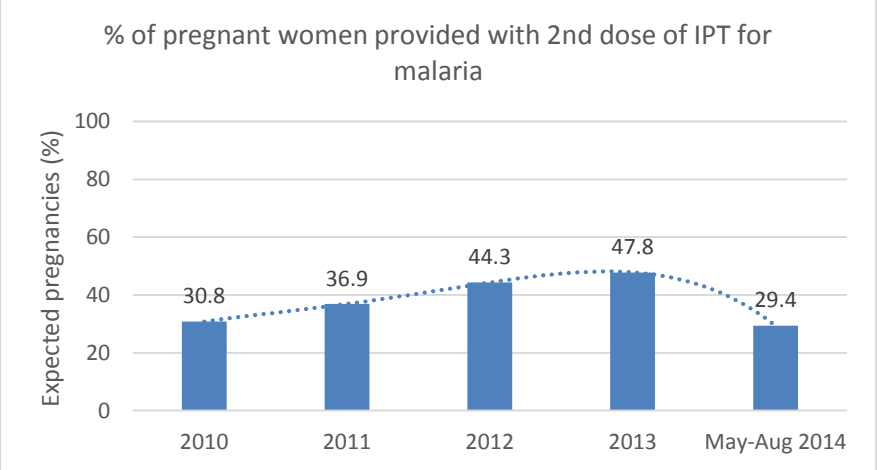


Liberia is now experiencing a reversal of progress made on the Millennium Development Goals (MDG). While an estimation of the maternal mortality ratio is not readily available, decline in other key maternal health indicators tend to buttress the assertion. Delivery by skilled service providers had increased from 25.0% in 2010 to 52.0% in 2013, but has drop sharply around 37% during the outbreak period May-Aug, 2014.

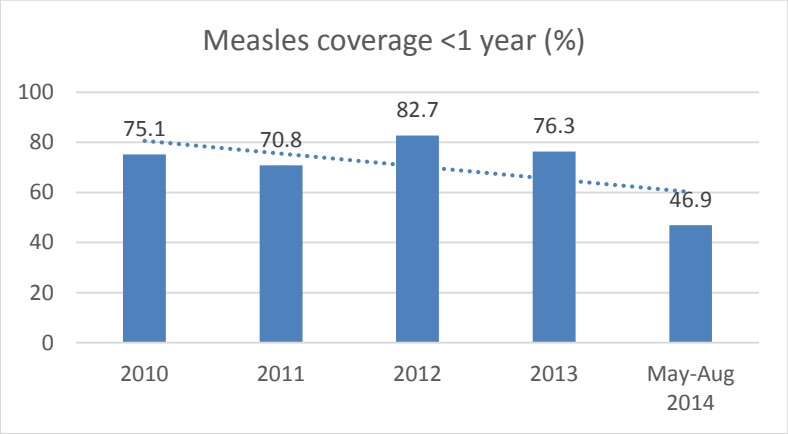


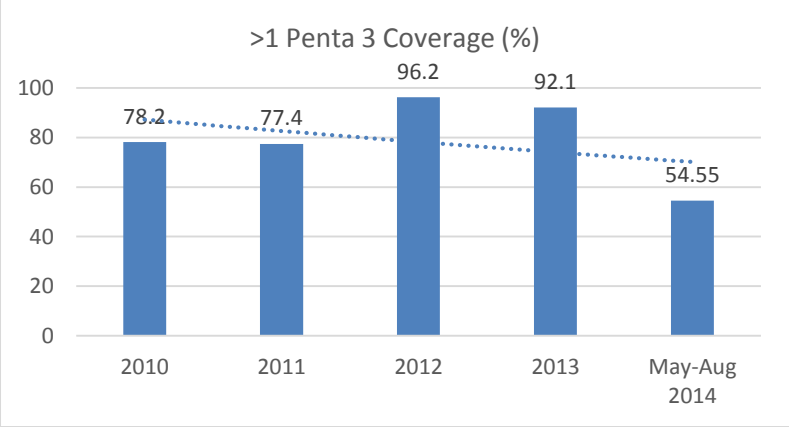

A similar trend is observed in other indicators:

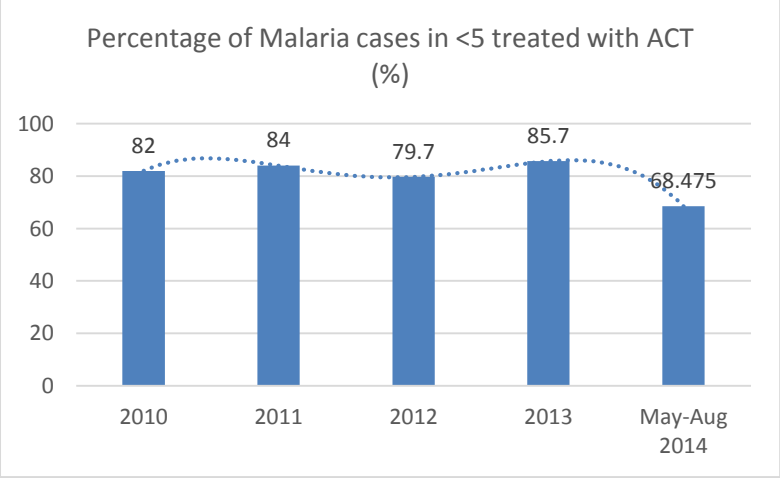


The current state of the health care delivery system has also had a profound effect on indicators associated with child health and development. The percentage of children under the age of one year receiving the measles immunization and the 3rd dose of the pentavalent vaccine have seen a drop during the epidemic while the percentage of children under the age of five with malaria and treated with the artemeter combination therapy is declining.




**Trend in the Ebola Virus Disease Epidemic**

The Republic of Guinea reported the 1st case of the deadly Ebola virus in March 2014. By the end of the month, sporadic cases of the disease were identified and reported from Lofa County in Northern Liberia. The cases remained low and nearly disappeared with only one case

reported in May. By the middle of June, Sierra Leone had experienced an explosion of cases with a corresponding sharp rise in Liberia that has continued to increase.

| | **Cumulative Cases (suspected, probable, confirmed)** | **Deaths (suspected, probable, confirmed)** |
|---|---|---|
| **Total** | 1550 | 867 |
| **Health Care Workers** | 139 | 73 |

***Table 1: Ebola Cases and Deaths (March 22-September 10, 2014)***

## THE STRATEGY

The goal is to eradicate Ebola from the Liberian population - **"no new cases."** The associated strategic actions are as follows:

*Objective I: Strengthen communications and public education to improve general awareness of the threat posed by this disaster event.*

**Social Mobilization and Communications**

- Develop a Risk Communications Plan for the Ebola Disaster Response containing:
  - Protocols to ensure commonality of messaging across all media.
  - Messages to address all targeted audiences.
  - Use of an assortment of media outlets to convey prevention messages to the public.
  - Measures to ensure access to at-risk or hard-to-reach populations
  - Focus on interpersonal behavioral change communication to enable targeted interventions from community to household levels.
  - Education of public about infection control measures and how EVD is spread.
  - Promotion of self-care and home care kits.
  - Utilization of opinion leaders, traditional leaders, town criers, posters, pamphlets, and audiovisuals for public awareness in all relevant settings.
  - Information to the general public and private sector businesses about isolation and quarantine rationale and procedures.
  - Active community participation strategies (excluding large gatherings) to ensure community involvement in communication messaging.
  - Monitoring of media coverage and addressing of misinformation.
  - Coordination methodologies to ensure communication activities are appropriately harmonized.
- Respond to media requests in a timely manner.
- Provide public information concerning location of ETUs and procedures to seek medical attention.
- Establish and maintain a public information "helpline."
- Publicize the Government's method for prioritization of treatment regimens, including any experimental Ebola treatments.
- Coordinate disaster messaging with bordering countries and other key stakeholders.
- Ensure "transmission communications" with all areas of the country, including remote rural areas with limited communications infrastructure.
- Train health promotion practitioners on the various techniques useful for attitude and behavioral change.
- Involve community-based organizations (CBOs) and non-governmental organizations (NGOs) in the outbreak response.
- Organize local community members into watch teams that can identify suspected cases and inform health authorities promptly.

*Objective II: Ensure the timely and appropriate deployment of medical and psychosocial countermeasures.*

**Case Management, Infection Prevention and Control**

- Conduct public health planning to reduce morbidity and mortality.
- Identify adequate isolation and quarantine locations in each county.
- Establish an enhanced surveillance system to identify initial cases, assess viral virulence and identify any unique viral characteristics.
- Establish enhanced laboratory operation protocols to increase capacity at key laboratories.
- Establish a plan to monitor the health alert networks and other sources of epidemic information.
- Conduct reporting of surveillance and epidemiological investigations.
    - Establish a system for accurate and timely reporting to surveillance partners.
    - Provide epidemic surveillance advisories to the health community, including hospitals and other health care providers.
    - Provide periodic updates to key leaders, national and international organizations and other critical stakeholders.
    - Ensure reporting to WHO in accordance with International Health Regulations (IHR).
- Establish protocols to limit contact between isolated patients presenting with ILI symptoms to limit unintended transmission of the Ebola virus to persons with malaria or other diseases that can present with ILI (influenza-like illness) symptoms.
- Establish and implement a program to educate the public about infectious disease infection control measures.
- Establish appropriate guidelines to limit exposure of staff to patients presenting with ILI symptoms at routine medical facilities until diagnosis can be confirmed by laboratory testing or through "rapid testing" procedures.
- Establish procedures to ensure proper disposal of biohazard waste during an Ebola epidemic.
- Establish strict protocols to improve and maintain a nation-wide inventory/tracking system of essential medical resources.
- Establish and maintain a database of current, retired, and volunteer health care personnel.
- Establish procedures for triage, diagnosis, and isolation of possible Ebola patients, including ensuring that patients with influenza-like symptoms but without confirmed Ebola infection are not infected through contact with confirmed Ebola patients.
- Establish a nation-wide system for transportation of Ebola patients to Ebola Treatment Units (ETU), including protocols to provide infection risk safeguards for transport personnel
- Establish potential donors and sources of replenishment of medical resources.
- Establish an assessment plan for the impact of Ebola on health care services and critical medical infrastructure.
- Continuously identify gaps in Ebola-related patient care requirements and develop a strategy to address these gaps.
- Coordinate with health care facilities to address surge capacity requirements and conduct surge planning.
- Ensure staff rotation plan is established to mitigate inattention to detail which may increase infection control risk and fatigue-induced medical errors.

- Coordinate with health care facilities to identify volunteers to expand staffing in professional and non-professional capacities during an epidemic.
- Establish guidelines to equip, staff and the operation of ETU's. This includes stockpiling of supplies and equipment.
- Identify an appropriate number of ETU sites in each county based on demographic data.
- Establish guidelines for care of medical staff and their families that contract the Ebola virus during an Ebola epidemic, to include long-term support for families of deceased staff.
- Establish a security plan for the medical sites, this includes both Ebola and non-Ebola facilities.
- Establish robust and closer to real-time clinical data-sharing that integrates county and national database capabilities.
- Develop and provide a common operating picture for all stakeholders including our international partners.
- Leverage the modeling and mapping capacities of LISGIS to examine the incidence and prevalence rates of the disease on communities.
- Disseminate daily updated situational reports to all stakeholders and constituents.
- Increase numbers of available treatment beds that offers access to a comprehensive menu of treatment services to care for and cure sick patients or provide appropriate levels of care until death.
- Provide food and nutritional support to patients in treatment or isolation centers and within the ETUs as well as communities with widespread transmission.
- Incorporate gender and social safety nets for EVD survivors and affected populations
- Facilitate prompt extraction of suspected cases from the population.
- Promptly test suspected cases for proper triage and follow up.
- Establish a plan to identify, remove, and safely bury or cremate deceased Ebola patients.

**Psychosocial Care**

- Create stress control/resilience teams in coordination with the Carter Center, UNICEF, and the Red Cross to provide counseling or psychotherapy interventions to attend to the anxiety, depression, and other emotional distresses faced by survivors, frontline healthcare workers, and their affected families.
- Establish work rest cycles and necessary recuperation sites.
- Continually assess the need for additional staff rotation to ensure mental health and mitigate fatigue-induced accidents and errors. Maintain operation of confidential telephone support lines.
- Coordinate with faith-based and community-based organizations to support mental health services.
- Provide counseling and other psychological support services to general public and Ebola responders.
- Consider psychosocial care integral and even critical to quality of Ebola care.
- Develop a continuum of care program for affected families, survivors, and frontline professionals.
- Establish diverse placement resources for Ebola affected children including family caregiver, foster homes, group homes, and temporary shelters and respite care.

- Develop mechanisms to link patients and survivors to targeted services, including access to employment opportunities to reactivate economic opportunities lost as a result of being affected by Ebola.
- Reintegrate survivors for community acceptance
- Provide aftercare supportive service (food, nutrition, counseling, survival network etc.)
- Provide non-intrusive, practical care and support;
- Dispel myths, share clear messages about healthy behavior and improve people's understanding of the disease

*Objective III: Maintain the provision of essential (curative and preventive) health services during the epidemic*

**Restoration of essential health care services**

- Restore service delivery, including: availability and accessibility of essential services, restoration of key infrastructure; and restoration of organization and management.
- Restore healthcare leadership and governance: health sector policies; prioritization, harmonization and alignment; oversight and regulation; and coordination mechanisms.
- Restore health work force: national workforce policies and investment plans; human resource norms, numbers and types of health workers, and distribution and competencies of health workers. Ensure adequate supervision mechanisms and address effects on, and capacities of training institutions.
- Restore healthcare information: facility and population based information and surveillance systems and statistical analysis for decision making
- Restore medical products, vaccines and technologies: access to essential medical products, vaccines and technologies, assured quality and safety; procurement and supply chains; health transport and logistics, warehouses, cold chain storage capacity.
- Restore financing: national health financing policies; costing of services; tools and data on health expenditures and financial barriers to access services; ability to pay, catastrophic health expenditures; temporary waiving of user fees during post-disaster periods.
- Restore essential health (curative and preventive) services (in governmental and non-governmental facilities (obstetric and neonatal care, HIV, TB and malaria services emergency and critical care services)
- Ensure infection prevention and control in designated facilities together with quality assurance monitors.
- Strengthen essential support systems (logistics, supplies, laboratory, incinerators, etc)
- Strengthen emergency preparedness and response capacity
- Address household water and sanitation needs
- Properly dispose of Ebola-infected materials and equipment.

*Objective IV: Ensure coordination and resourcing of the national disaster response*

**Command & Control and Coordination**

- Mobilize human, material, and financial resources for response to the disaster event nationwide, to include EVD epidemic prevention and control.
- Prioritize acquisition and distribution of all critical disaster response resources to maximize response effectiveness.

- Ensure maintenance of critical private sector services (i.e. retail food, retail fuel, banking, telecommunications, etc.)
- Provide command and control of disaster response using established methodologies, activation of national disaster operations center and establishment of appropriate facilities at county level.
- Coordinate disaster response activities with other countries impacted by the disaster event and with ECOWAS member nations.
- Provide disaster situation information to key leaders and other critical stakeholders, including UN agencies and NGOs.
- Request appropriate assistance from UN, NGOs and other international partners.
- Coordinate issuance of necessary proclamations and ordinances to support disaster response efforts.
- Ensure maintenance of law and order.
- Ensure maintenance of national security and stability.

**Mass Care and Logistics**

- Conduct refugee and internally displaced persons (IDP) operations.
- Activate community shelters, as required.
- Conduct feeding operation, as required.
- Coordinate with welfare, faith-based and community organizations to identify populations requiring support.
- Conduct logistics operations to support disaster response, including procurement and distribution of aid supplies and medical materiel.
- Ensure adequate security at mass care and logistics sites.
- Ensure expeditious processing of aid supplies at ports and borders.

**Mass Fatalities Management**

- Establish a plan to ensure adequate stocks of mass fatality supplies.
- Ensure availability of Personal Protective Equipment (PPE) and PPE training for personnel whose duties include processing of infected human remains.
- Establish and utilize protocols to collect human remains of suspected or confirmed Ebola victims, including those that die outside of an ETU.
- Establish internment operations of infected remains to preclude spread of disease.
- Release appropriate information to the media and the public.
- Expedite issuance of death certificates.
- Continue to ensure security of body collection and internment operations and all burial sites.
- Identify burial sites in coordination with the EPA.

**Financial**

- Mobilize financial resources to address specific disaster response requirements.
- Request appropriate assistance from UN, NGOs and other international partners.
- Develop appropriate memoranda of agreement with donors.
- Capture and track cost of disaster response operations.
- Coordinate with international financial institutions to address availability of capital and stability of capital markets, including during disaster recovery operations.
- Prioritize financial resources to address disaster requirements and maximize effectiveness of response actions.

- Ensure funding of post-disaster recovery operations.
- Monitor and report on distribution of funds, as required.
- Conduct appropriate audit operations in accordance with M&E framework.

*Objective V: Identify and mobilize appropriate human resources; conduct training; provide appropriate incentives; and motivate to ensure effective performance.*

**Human resource mobilization and utilization**

- Identify and consolidate personnel requirements for all disaster response sectors.
- Identify sources of government response personnel and task to meet requirements, as appropriate (Healthcare workers, Armed Forces, technical personnel, etc.)
- Recruit temporary hire and volunteer personnel to assist with appropriate response tasks.
- Prioritize the deployment of response personnel to critical disaster impact areas.
- Identify required financial resources to hire temporary personnel for disaster response tasks, and to incentivize existing response personnel to perform dangerous response duties.
- Request financial assistance from UN, NGO and other international partners to provide necessary staffing of disaster response positions.

**Training of response personnel**

- Conduct appropriate disaster response training of all responders, depending on their required duties.
- Ensure all personnel are trained on infection control measures and are prepared to properly utilize personal protective equipment (PPE).
- Continue periodic refresher training of response personnel and provide appropriate training when personnel are reassigned to new duties.

**Motivation of response personnel**

- Provide financial and non-financial incentives to motivate disaster response personnel and encourage them to endure harsh or dangerous working conditions.
- Ensure disaster response personnel are provided the best possible medical support when injured or infected while performing duties. If sufficient resources are available, provide similar medical support for family members of response personnel.
- Ensure key leaders visit work locations to provide support and motivation of response personnel to encourage continued dedication in performance of their duties.

*Objective VI: Create linkages and take measures that will prevent import and/or export of the disease.*

**Effective measures to prevent import/export of EVD**

- Employ stringent measures to manage travelers arriving at major land, air, river and sea crossing points including screening and assessment aimed at identifying persons with high and unexplained temperature or presenting with Ebola-like symptoms.
- Collaborate with neighboring states through frequent engagements and information sharing to harmonize interventions.

- Enhance dissemination of health messages/information to travelers (e.g. in flight information, distribution of leaflets, promulgating travel health news on government and business websites and use of posters).
- Assess inbound travelers with fever or other symptoms at border control points or ports.
- Identify inbound travelers from affected countries and enhance health education or surveillance of these travelers, as necessary.
- Keep the travel sectors and border control point stakeholders updated about the disease situation.
- Review and modify existing port health measures and enact additional legislation or regulations, as required.
- Obtain flight manifests for all arriving and departing flights to facilitate tracing of flight contacts.
- Establish adequate isolation and quarantine facilities at key border and port locations.

*Objective VII: Assess the incidence and prevalence of the disease, and use associated data and information to inform when to activate community containment measures.*

**Community Containment:**

- Develop and implement isolation and quarantine protocols, including possible community-level quarantine operations (cordon sanitaire).
- Develop scalable border measures including entry and exit screening protocols to be implemented at all airports, seaports, and ground crossings.
- Identify adequate isolation and quarantine locations in each county.
- Establish an enhanced surveillance system to rapidly identify cases and conduct appropriate tracing of contacts.
- Ensure adequate laboratory surveillance and/or rapid testing procedures to rapidly confirm EVD infection.
- Ensure access to rapid test kits to support confirmation of EVD infection.
- Provide epidemic surveillance advisories to key community leaders to support community mitigation strategies.
- Separate and restrict the movement of persons suspected of having EVD or those who have had contact with infectious EVD patients.
- Limit social interactions especially in public places to reduce the overall risk of transmission at larger population levels.
- Temporarily close schools, business, offices and other facilities as warranted by disaster situation and recommendation of public health authorities.
- Cancel large public venues (cinema, concerts, sport events, etc.) as warranted by disaster situation and recommendation of public health authorities.

*Objective VIII: Develop practical indicators and use them to measure the effectiveness and optimize disaster response actions.*

**Monitoring, Evaluation, and Reporting**

- Develop a monitoring and evaluation framework, to include parameters for determining whether the response is achieving desired results.
- Establish roles and responsibilities for capture of data and timelines for reporting.
- Ensure that monitoring and evaluation framework is established at all levels of the response, from local to national.

- Develop report templates and provide reports in accordance with established timeline.
- Develop and implement appropriate audit methodologies.

*Objective IX: Strengthen the post-Ebola healthcare delivery system.*

**Strengthening Post-Ebola Healthcare Delivery System**

- Validate case incidence timeline to ensure reporting and statistical analysis are accurate and that at least 42 days has passed since the resolution of the last confirmed case of Ebola.
- Restore service delivery, including: availability and accessibility of essential services, restoration of key infrastructure; and restoration of organization and management.
- Restore healthcare leadership and governance: health sector policies; prioritization, harmonization and alignment; oversight and regulation; and coordination mechanisms.
- Restore health work force: national workforce policies and investment plans; human resource norms, numbers and types of health workers, and distribution and competencies of health workers. Ensure adequate supervision mechanisms and address effects on, and capacities of training institutions.
- Restore healthcare information: facility and population based information & surveillance systems and statistical analysis for decision making
- Restore medical products, vaccines and technologies: access to essential medical products, vaccines and technologies, assured quality and safety; procurement and supply chains; health transport and logistics, warehouses, cold chain storage capacity.
- Restore financing: national health financing policies; costing of services; tools and data on health expenditures and financial barriers to access services; ability to pay, catastrophic health expenditures; temporary waiving of user fees during post-disaster periods.
- Conduct post-Ebola health systems strengthening assessment built on 5 building blocks of healthcare delivery systems.
- Rectify irrationalities and inefficiencies that developed under existing centralized planning system.
- Decentralize social spending including healthcare spending to county and district levels.
- Establish Liberia CDC with regional and local offices and give them requisite financial and organizational levers.
- Build epidemic prevention solutions at different administrative levels.
- Conduct health surveillance at county level including collecting information on infectious diseases from hospitals.
- Strengthen technical capabilities to supervise and guide public health work at regional/local levels.
- Establish performance-based compensations standards that incentivize workers competitively
- Address dearth of healthcare professionals with emphasis on: prevention, education, infant and maternal care, immunization, geriatric medicine
- Consolidate and digitize medical records
- Increase insurance coverage

## CONCLUSIONS

These strategies are expected to be dynamic in nature and should be continuously reviewed, given the fluid nature of the disease and methods to manage it. The involvement of various stakeholders will also be determined by the nature of the epidemic.

The mitigation measures described in this document are poised to slow the spread of the disease and reduce the impact of infection and illness while the search is ongoing for a vaccine to cure the disease. Reducing the disease burden through mitigation will enable the communities and the country at large to allocate resources more effectively to manage the impact of the disease. The mitigation measures encompass a number of related strategies:

1) Appropriate management of the medical needs of patients within the community and after they present to the healthcare systems.

2) Community mitigation measures that promote appropriate social distancing in an effort to reduce transmission. Where necessary, government will facilitate targeted public assistance to mitigate the potential collateral effects of implementing community mitigation measures.

3) Medical countermeasures including the use of drugs in trial. Noteworthy, as the condition warrants, government will facilitate targeted public assistance to mitigate the potential collateral effects of implementing community mitigation measures to increase the effectiveness of selected interventions.

4) Monitoring and Evaluation of the strategy will aim to assure that the different levels of responsibility and authority conform to the strategy and that intended action steps and processes are performed as planned and results achieved are aligned to the quantified objectives.

## APPENDIXES

### Appendix 1: Roles of other Government Institutions

| Role | Lead Agency |
|---|---|
| ▪ Ensure maintenance of national security, including assessment of potential threats.<br>▪ Provide logistical support for construction of ETUs.<br>▪ Support MOHSW adjustment of locations and size of ETUs nationwide.<br>▪ Support civil authority to implement Ebola patient transport systems.<br>▪ Support civil authority to ensure security of all Ebola and non-Ebola medical facilities.<br>▪ Support the enforcement of orders for isolations and quarantine of all Ebola patients, as appropriate.<br>▪ Support civil authority in ensuring proper disposal of biohazard waste.<br>▪ Adhere to existing procedures for the collection and internment of confirmed and suspected Ebola infected human remains.<br>▪ Support civil authority IDP and refugee operations.<br>▪ Provide mass care logistical support to civil authorities.<br>▪ Employ communication capabilities to assist civil authorities' disaster response as appropriate. | Ministry of Defense |
| ▪ Develop a comprehensive system for fund development and financial support of the Ebola Response.<br>▪ Make emergency funding available for the Ebola response.<br>▪ Request appropriate assistance from national and international organizations and institutions.<br>▪ Support GoL efforts to activate mutual aid agreements from ECOWAS member countries to address resource shortfalls. | Ministry of Finance and Development Planning |
| ▪ Limit the transmission of EVD by enforcing adherence to existing transport regulations.<br>▪ Restrict mass transit as recommended by MOHSW.<br>▪ Support GoL efforts to conduct logistic operations, as required. | Ministry of Transport |
| ▪ Ensure law enforcement and security – address public disorder.<br>▪ Control movements across the borders, as required.<br>▪ Enforce infection control measures in prisons to limit disease spread.<br>▪ Improve health promotion activities within the prisons. | Ministry of Justice |

| | |
|---|---|
| ▪ Arrange for case management, hospital admissions and isolation for prisoners.<br>▪ Provide legal support to MIA and MOHSW for drafting and issuance of necessary proclamation and ordinances to support disaster requirements.<br>▪ Provide legal counsel to MIA for commandeering of private resources for public use, if required to address resource shortfalls.<br>▪ Provide legal counsel for approval of targeted temporary closures of public and private facilities. | |
| ▪ Support efforts to educate the public about infection control measures.<br>▪ Implement MOHSW updated Ebola precaution guidelines for medical and non-medical epidemic response.<br>▪ Adhere to GoL decision for temporary cancellation of large public gatherings and recreation activities, especially those found in academic environments.<br>▪ Support identification of children orphaned by the Ebola epidemic. | Ministry of Education |
| ▪ Coordinate with foreign diplomatic missions concerning Ebola response activities and assist with coordination of cross border activities.<br>▪ Engage the Liberian Diaspora on Ebola response.<br>▪ Engage international community for support of Ebola response. | Ministry of Foreign Affairs |
| ▪ Provide leadership of National Disaster Relief Commission (NDRC) in controlling national disaster response activities.<br>▪ Ensure proper execution of National Ebola Preparedness and Response Plan.<br>▪ Coordinate disaster response activities at the county, district, and community levels.<br>▪ Assist with proper disposal of biohazard waste.<br>▪ Continue to ensure availability of PPEs and appropriate training for personnel whose duties include processing of infected human remains.<br>▪ Assist with deployment of stress control and resilience teams.<br>▪ Assist in establishing and maintaining rest and recuperation sites.<br>▪ Assist with establishment of confidential mental health telephone support lines.<br>▪ Assist MOHSW coordination with faith-based and community based organizations to support mental health services.<br>▪ Conduct refugee and IDP operations, as required.<br>▪ Activate community shelters, as required.<br>▪ Conduct logistics operations, as required. | Ministry of Internal Affairs |

| | |
|---|---|
| ▪ Continue to ensure the expeditious processing of aid supplies by customs and finance authorities.<br>▪ Review MICAT media and public information messages.<br>▪ Work with MICAT to coordinate with bordering countries to synchronize messaging.<br>▪ Maintain regular updates and briefings to senior GoL officials.<br>▪ Coordinate disaster response activities with disaster representatives of neighboring and ECOWAS member countries.<br>▪ Prioritize the maintenance and protection of critical infrastructure and public safety services.<br>▪ Request appropriate assistance from local and international partners to address resource shortfalls.<br>▪ Obtain approval for targeted, temporary closure of schools, private sector offices and other similar facilities, as well as cancellation of large public venues.<br>▪ Coordinate issuance of necessary proclamations and ordnances. | |
| ▪ Enforce regulations to prevent food-borne transmission of Ebola.<br>▪ Address food security requirements for disaster response, including establishment of food distribution sites, as required.<br>▪ Coordinate with appropriate international organizations to obtain food aid. | Ministry of Agriculture |
| ▪ Ensure that all ports remain fully functional to support disaster response activities.<br>▪ Ensure that all ports maintain international health, safety, and security standards that will address the potential for EVD transmission while limiting impact on trade.<br>▪ Conduct regular health screening at all port entry points in accordance with established regulations. | National Port Authority |
| ▪ Conduct regular health screening at all port entry points in accordance with established regulations, to include entrance and exit screening of all passengers.<br>▪ Ensure procedures for isolation passengers with symptoms of EVD.<br>▪ Restrict access to specific areas of the airport through establishment of protocols that ensure only ticketed passengers and authorized staff gain access torestricted areas.<br>▪ Establish protocols to identify passengers and staff that have symptoms of EVD, including use of close circuit monitors.<br>▪ Fast-track all disaster-related cargo to ensure that supplies reach end users in a timely manner.<br>▪ Coordinate with partners (CDC, ISOS, etc.) to obtain expert advice and technical training of staff to build individual and institutional capacity. | Liberia Airport Authority |

| | |
|---|---|
| ▪ Establish appropriate regulations for disposal of infectious waste, including EVD waste.<br>▪ Support MOHSW adjustment of locations and size of ETUs nationwide.<br>▪ Establish appropriate regulations for the collection and disposal of human remains of suspected or confirmed EVD victims. | Environmental Protection Agency (EPA) |
| ▪ Assist establishment and maintenance of stress control and resilience teams.<br>▪ Assist MIA in activation of community shelters, as required.<br>▪ Assist MIA in providing mass care to impacted populations. | Ministry of Gender |
| ▪ Assist MOHSW and MIA in stress control and workforce resilience efforts for key private sector service providers. | Ministry of Labor |
| ▪ Identify personnel to staff disaster response positions.<br>▪ Coordinate with MIA and MOHSW to fill temporary disaster response positions.<br>▪ Provide support of disaster response volunteers, as required.<br>▪ Assist MOHSW and MIA in stress control and workforce resilience efforts for government personnel.<br>▪ Facilitate infection control training of government personnel.<br>▪ Provide incentives for government employees tasked to perform special tasks during a disaster response, especially those in positions of higher risk. | Civil Service Agency |
| ▪ Ensure transportation infrastructure supports disaster response activities.<br>▪ Maintain transportation infrastructure throughout disaster response periods and repair damage as required. | Ministry of Public Works |
| ▪ Support GoLlogistics requirements for refugee and IDP operations.<br>▪ Locate and procure facilities for disaster response, as required.<br>▪ Provide equipment, supplies and vehicles to support GoL disaster response activities, as required. | General Services Agency |
| ▪ Ensure maintenance of law and order, including security of critical infrastructures and assessment of potential threats.<br>▪ Ensure the security of body collection and internment operations, as well as all burial sites.<br>▪ Ensure security at mass care sites, including food distribution sites.<br>▪ Ensure security of logistics operations, including warehouses, distribution sites and convoys.<br>▪ Utilize police communication teams to support communications with remote rural areas impacted by the disaster.<br>▪ Enforce temporary closure of public and private institutions and facilities.<br>▪ Enforce isolation and quarantine directed by MOHSW. | Liberia National Police |

| | |
|---|---|
| ▪ Develop and implement a media and public information plan to support disaster operations.<br>▪ Conduct public information and education operations, as required.<br>▪ Conduct media messaging operations, as required.<br>▪ Respond to media inquiries and conduct periodic press briefings, as required.<br>▪ Establish and maintain a general public information "helpline." | Ministry of Information, Culture, and Tourism (MICAT) |
| ▪ Provide epidemic advisories to the health community, including hospitals and other health care providers.<br>▪ Continue emphasizing accurate and timely reporting to all surveillance partners.<br>▪ Conduct laboratory operations to support disease surveillance.<br>▪ Monitor health information networks and other sources of epidemic information.<br>▪ Provide epidemic updates to key leaders and other stakeholders.<br>▪ Ensure reporting to WHO in accordance with International Health Regulations (IHR).<br>▪ Develop and disseminate Ebolainfection prevention procedures.<br>▪ Identify potential ETU locations in each county and mobilize locations as required by EVD occurrence.<br>▪ Coordinate with UN and other international organizations for Ebola disaster response support.<br>▪ Identify and prioritize the use of experimental or proven treatment regimens for the Ebola virus and request access, as appropriate.<br>▪ Explain quarantine/isolation rationale and procedures to all public and private sector stakeholders.<br>▪ Ensure issuance of death certificates for Ebola victims.<br>▪ Ensure healthcare staff rotations are sufficient to mitigate stress and fatigue-induced accidents and errors.<br>▪ Provide mental health counseling and other psychological support services to general public and Ebola responders.<br>▪ Provide routine non-Ebola medical care to the general public.<br>▪ Ensure care for children orphaned by the disaster event. | Ministry of Health and Social Welfare (MOHSW) |
| ▪ Support refugee and IDP operations. | Liberian Refugee Repatriation and Resettlement Commission (LRRRC) |

| | |
|---|---|
| ▪ Assist MOHSW efforts to educate public about infection control measures.<br>▪ Support feeding operations for disaster victims.<br>▪ Assist MIA with refugee and IDP operations.<br>▪ Assist MOHSW coordination with regional health care representatives.<br>▪ Assist GoL in accessing appropriate assistance from national and international organizations to address resource shortfalls. | Liberia National Red Cross |