

Capacity assessment of the Gambia's emergency preparedness and response system

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Abstract

Introduction: West Africa continues to experience recurrent epidemics of infectious diseases and other public health emergencies. The consequences of their disasters have been worsening of health, increased morbidity and mortality, livelihoods and property posing a threat to global health security. Assessment of levels of preparedness and response enables countries identify the gaps in the system and what needs to be done to fill these gaps and address bottlenecks in the system. **Objective:** We evaluated The Gambia's mechanisms for preparedness and response to epidemics and health emergencies in the ECOWAS region. **Methods:** We conducted a desk review of Gambia's IHR scores, JEE report and actions taken after JEE. We conducted interviews with on IHR core capacities with key staff of the Ministry of Health and other relevant stakeholder organisations who were involved in surveillance and response activities **Results:** The Gambia doesn't have a functional national public health institute but has policy framework documents that guides the provision of health activities in the country. The country has a Field Epidemiology Training Programme which strengthens real time surveillance activities and also builds capacity to respond to public health emergencies. However, the country has no dedicated funding or budget line for preparedness and response. **Conclusion:** The Gambia has fully developed a number of health policies and plans for various aspects of health. However, there is no functional public health institute to coordinate and fully implement them. The lack of a dedicated budget line also impedes the implementation.

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Introduction

Globally, epidemic and natural disasters continue to emerge and re-emerge with little or no warning. The consequences of their disasters have been worsening of health, increased morbidity and mortality, livelihoods and property posing a threat to global health security [1-3]. The effects of these public health emergencies are not limited to the health systems only; they affect other sectors of the economy such as tourism, trade, agriculture, transport etc. These events have devastating social, economic and political consequences that are detrimental to regional stability. The 2014 Ebola outbreak alone, cost the West African region about US \$ 2. 2 billion [4-6].

West Africa continues to experience recurrent epidemics of infectious diseases and other public health emergencies. Over the years, the region has seen several epidemics/outbreaks of infectious diseases which has resulted in several deaths, disabilities and loss of property due to the weak system including low capacity to respond, a lack of a preparedness plan or inadequate execution where it exists [7-10]. There have been several public health emergencies in the region including the Ebola Virus Diseases (EVD) epidemic that devastated the region between 2014 and 2016 in high morbidity and mortality in Liberia, Sierra Leone, and Guinea with its subsequent adverse impact on the health systems of these countries [11-13].

Since the Ebola Virus Disease epidemic revealed weak regional response capacities to outbreaks in terms of disease surveillance, early warning, preparedness and response, it is important countries strengthen their health systems in preparedness in the event of any public health emergency. There is a need to prepare for emergencies as a country to reduce the cost spent in rectifying problems that arise from them. Assessment of levels of preparedness and response enables countries identify the gaps in the system and what has to be done to fill these gaps and address bottlenecks in the system.

The Economic Community of West African States (ECOWAS) members have adopted various approaches such as strengthening of their disease surveillance systems through capacity development and implementing the International Health Regulations, 2005 by developing their core capacities to detect, assess, and report public health events [7]. We evaluated The Gambia's mechanisms for preparedness and response to epidemics and health emergencies in the ECOWAS region as part of an exercise conducted by the West African Health Organisation.

Methods

Study site

The Gambia, the smallest country within mainland Africa is surrounded by Senegal except for its western coastline along the Atlantic Ocean. The Gambia is less than 50 kilometers (31 miles) wide at its widest point, with a total area of 11,295 km² (4,361 sq mi). About 1,300 square kilometers (500 square miles) (11.5%) of The Gambia's area are covered by water. Banjul is the Gambian capital and the largest cities are Serekunda and Brikama. Gambia has a population of 2.1 million people.

The Health Sector Strategic focus in The Gambia is anchored on the National Health Policy 2012-2020, with the aim of providing adequate, effective and affordable health care for all Gambians. Frequent changes within the top management positions have hindered policy implementation in Gambia. Insufficient supply of drugs, basic equipment, consumables and other logistics including inadequate health and ICT Infrastructure hinders efforts to reduce the burden of communicable and non-communicable diseases. The Gambia health sector operates a three-tier system namely: Primary, Secondary and Tertiary levels. The primary level consists of the Village Health Services and Community clinics; the Secondary comprises the Minor and Major Health centers whilst the Tertiary consists of the General Hospitals and the Teaching Hospital.

The Ministry of Health and Social Welfare (MOH) is the main government institution responsible for healthcare delivery and provision of social welfare services in The Gambia. The health sector is managed at two levels, the central and regional levels. The MOH has six directorates: Basic Health Services, Planning and Information, Health Promotion and Education, National Pharmaceutical services, National Public Health Laboratory and Human Resources for Health².

Study design

We conducted a cross-sectional study which involved desk reviews and interviews with key stakeholders of health in Gambia. Data collection was done in-country from April to July 2018.

Study population

The Ministry of Health, all major health agencies, stakeholders and partners in health in the country were involved in the assessment. Representatives from the Animal Health, National Public Health Laboratory, National Disaster Management Organization, Ministry of Health and the Field Epidemiology and Laboratory Training Programme were also interviewed.

Data collection tools

A data review tool, a structured questionnaire and interview guide were developed based on the WHO IHR core capacities under sixteen (16) major areas.

- Coordination, Policy and Plans
- Structure and Function of Disease Surveillance Institute and Epidemic Response and Recovery
- Cross-Border Response
- Laboratory
- Public Health Emergency Communication/Risk communication
- Logistics
- Rapid Response Capacity, IPC, Clinical Case Management
- Medical Countermeasures and Personnel Deployment
- Vector Control
- Availability of Epidemiology/ Surveillance and Related Capacity (Institutional Capacity)
- Health Sector Workforce Development Plan
- International Health Regulation (IHR) and Joint External Evaluation (JEE)
- Stakeholder Engagement
- One Health Approach
- Resource Mobilization and Sustainability
- Monitoring and Evaluation and Research

These tools were tested and validated by the West African Health Organizations and Ministers of Health in West Africa.

Data collection

Data collection was in two phases. The first phase was the desk review of the country's IHR capacity scores, Joint External Evaluation (JEE) report and actions implemented after JEE assessment. Desk review of the national surveillance and response documents (policies, systems, plans, structures, coordination mechanisms, documents on simulation exercises, responsibilities and

procedure, guidelines including available assessment reports) at the regional and country level was carried out.

In the second phase we conducted interviews using a structured questionnaire based on the IHR core capacities with representative within the Ministry of Health and other relevant stakeholders on the status of the country's surveillance and response capacity and their respective roles in health emergency preparedness and response. All relevant data on the policies, plans, guidelines and relevant literature available were verified during data collection.

Data analysis

Data from key informant interviews was transcribed and analysed under the sixteen (16) major areas. Data from reviews was also analysed under the sixteen (16) major areas and triangulated with the interviews.

Ethical considerations

Since this study formed part of a larger assessment in the West African region, approval was obtained from Ministries of Health of all West African countries in ECOWAS through WAHO. In the country, permission was sought from the head of National Coordinating Institutes. Consent was obtained from participants before interviews were conducted. The purpose of the assessment was explained to participants who were interviewed and their approval was obtained before interviews were conducted. Participants were free to opt out of the assessment at any point they like and they were assured it would not affect them in any way as an individual or organisation.

Results

In all, nine key staff from the major health agencies in Gambia were interviewed. Most of them were heads of health units. Ref [Table 1](#) in the annex

Summary of Key Findings under 16 Sections

Coordination, Policy and Plans

The Gambia doesn't have a functional national public health institute but has policy framework documents that guide the provision of health activities in the country. Though the country has a detailed budget for carrying out activities in these documents, there are no dedicated funds for that. The Gambia depends mainly on international partners to support country's activities.

The country has a National multisectoral steering committee to manage health emergencies made up of line minister, UN agency representatives, WHO, civil societies and National Security. The committee meets when there is an outbreak in the sub-region.

The country is still in the process of setting up a fully functional Emergency Operation Center (EOC) at the national level.

Structure and Function of Disease Surveillance unit and Epidemic Response and Recovery

The Gambia has a functional group called the health steering committee that coordinates all public health emergencies and related activities in the country. Post impact surveillance of public health epidemics are documented by the committee. The data is analysed weekly and published in weekly bulletins. The country is prone to diseases like meningitis, yellow fever, hemorrhagic fever, Dengue fever and cholera.

Cross-Border Response

The Gambia has a specific Point of Entry (PoE) contingency plan and a concept note on cross-border preparedness and response for the country. SOPs have been developed to safely identify, manage and refer potential outbreaks from PoEs to a designated hospital or isolation facility. However, no formal communication network exists between PoE health authorities, surveillance systems and the general public.

Laboratory

The Gambia has a public health reference laboratory. Regional laboratories designated as reference laboratories are not fully functional. The One-Health concept is applied in laboratory testing. There are two dedicated veterinary laboratories and four Agro

laboratories. However, there is no dedicated toxicology laboratories in the country. There is an inventory of all laboratories in the country. Enrolment into laboratory training institutions is gender sensitive and gives consideration to female candidates. There exists a well outlined laboratory transportation referral network. The average turnaround time for sample collection and delivery for epidemic prone diseases is 24 -72 hours.

Public Health Emergency Communication/Risk communication

The Gambia has a public health emergency and response plan in place. The country also has systems and mechanism in place to provide health education and improve awareness of the public on public health emergencies to help reduce epidemic and health emergency risk in country. However, there is no standalone risk communication plan that outline communication before, during and after a public health emergency.

Logistics

There is an inventory of resources needed to manage disasters and/or epidemics. The National Pharmaceutical Services Directorate is in charge of this. The Public Health Epidemiology and Disease Control unit is responsible for ensuring the availability of logistics before, during, and after health emergencies. However, there are no available stockpiles in the country. There is procurement team which handles all forms of procurement. A supply chain management system exists. Resources are distributed according to needs. A logistician is situated at the ministry and helps during the procurement process.

Rapid Response Capacity, IPC, Clinical Case Management

Infection Prevention Control (IPC) are at the hospitals. From there the processes are evaluated, to find out more about the IPC of the hospital. During and after an outbreak, PoEs are sensitized to know how to handle issues. The country has set up facilities with adequate supplies and isolation rooms. Standard Operating Procedures (SOPs) have been defined and developed but implementation in relation to the logistics component during out-breaks has a lot of limitations. Clinicians have been trained. Six medical doctors were sent to Uganda for training. SOPs from WHO have

been adapted and these clinicians do train others. The ambulance team has not received any training on transportation, handling and management of serious emergency cases.

Medical Countermeasures and Personnel Deployment

The Gambia has a system in place for activating and coordinating medical countermeasures during a public health emergency. They also have a draft of national countermeasures and personnel plan. However, they do not have plan that outlines a system for sending and receiving medical countermeasures and personnel during public health emergencies. Neither do they conduct table top exercises to demonstrate decision making and protocols for that. The country has guidelines for epidemic prone diseases and other IHR relevant hazards at applicable health system levels.

Vector Control

The country has written guidelines for vector control and these are being implemented. The targeted vectors in the country are Mosquitoes (*Anopheles* and *Aedes* species) and Tsetse fly.

Availability of Epidemiological Surveillance and Related Capacity (Institutional Capacity)

The country has a functional hotline for reporting and managing alerts. At the national and sub-national level, the country has the basic required care of human resource available. However, epidemiologist in the country are not enough.

Health Sector Workforce Development Plan

The Gambia has a health sector strategic plan 2017-2019. The plan addresses the one health agenda and takes gender into consideration. However, it does not contain a human resource plan for public health emergency preparedness and response. There is frontline field epidemiology training programme (FETP). The frontline programme has graduated 173 trainees in the past 2 years. Four Gambians have been trained in the Advanced FELTP in Ghana. The numbers of trainees by year and gender is available.

International Health Regulation (IHR) and Joint External Evaluation (JEE)

The Gambia performed averagely in the recent JEE conducted in September 2017. A national action plan for health security addressing these and other IHR core capacities is being drafted.

The priority areas to work on to improve the indicators include the legislation of antibiotic resistance and their diagnostic capacity.

To address gaps identified during the JEE, the external evaluators would return to Gambia to meet the stakeholders on ways they can work to improve upon gaps identified. Post JEE action plan would be drawn with them.

Stakeholder Engagement

The Gambia has engagement with many stakeholders who are mostly international partners providing financial and technical support in the area of public health emergency preparedness and response.

Overall, the sustained support from many stakeholders has enhanced both the human resource and infrastructure capacity from the national to the subnational level. Donor fatigue remains a major challenge in stakeholder engagement for the Gambia.

One Health Approach

The Gambia has not yet developed a national One Health action plan/policy document. It also has no documentation for the One Health Approach but work is done together by all organisations. During a zoonotic disease outbreak, the Veterinary Department meets the Ministry of Health and plans together and all work together to solve the problem. Gambia has a Veterinary Epidemiology unit with a single veterinary epidemiologist on call.

Resource Mobilization and Sustainability

There is no formal document or framework or plan for mobilizing resources towards disaster and epidemic preparedness and response. No budget line for resource mobilization. An adhoc strategy is used. The Gambia has a complement of the minimum human resource requirements at both national and subnational level.

Monitoring and Evaluation

The Gambia has a monitoring and evaluation plan in place to track the progress of activities in health and not necessarily in epidemic preparedness and response. They have surveillance indicators for tracking public health events at the national level and a national weekly epidemic bulletins.

Research

Research forms part of work in public health emergency preparedness and response but is still in its juvenile stages. The Medical Research Center (MRC) and the University of Gambia support research. However, they lack human resource capacity, funding and office materials.

Situational analysis The Gambia's Emergency Preparedness and Response System

The situational analysis of the country has been captured as strengths, weakness, opportunities and threats of epidemic preparedness and response in the country.

Strengths

- Establishment of the FETP has strengthened real time surveillance in the country.
- Community engagement
- Strengthened laboratory capacity by WHO and partners
- Presence of national steering committee
- Presence and availability of national plans

Weaknesses

- Lack of logistics i.e. kits for lab tests, rapid diagnostic test
- No dedicated funding or budget line for preparedness and response (obtains state funding from a broader budget line for NPHL)
- Lack of dedicated transportation for health emergencies
- Very low Veterinary laboratory capacity
- Weak linkages between the human and animal health sector

Opportunities

- Presence of donor partners i.e. UN and USAID systems for health
- Support from the Global Health Security Agenda
- EOC, though it is still at the level of being operationalized
- Political will
- WAHO support to train health officials in advance field epidemiology

Threats

- Limited capacity of diagnostic equipment
- Very low capacity of veterinary laboratory
- One-health concept not been incorporated into the operation of the public health surveillance
- Lack of budget line when an emergency occurs
- Attrition rate of train personnel
- Frequent change of leadership at the ministry

Other Observations

Gender was always considered when plans, policies or frameworks are being drafted.

Discussion

Emergency preparedness and response to epidemics is key in determining the outcome of the epidemic. Waiting till public health emergencies to identify critical gaps in the system could lead to devastating outcomes [14,15]. We therefore assessed the epidemic preparedness and response capacity of The Gambia using a tool modified from the IHR core capacity indicators.

National Public health institutes are major leadership coordinating bodies for public health activities in a country [16]. Implementation and oversight of public health policies and regulations are mainly based on these institutions. In Gambia, there is no functional National public health institute. Therefore, most policy documents remain either in their draft stages or have not yet been implemented. Generally, most African countries have been found to lack fully functional national public health institutes making them

inadequately prepared to handle public health threats that the countries faces [17].

Lessons learnt from the 2014 Ebola outbreak in West Africa and the outbreak in D.R Congo have highlighted the need for efficient cross-border activities among countries to prevent the spread of outbreaks across country borders. Though the Gambia has a PoE contingency plan with existing SOPs, there is no formal communication structure among stakeholders. Therefore, should an outbreak occur, the various stakeholders would not be able to communicate effectively to address the issue. During the recent endorsement of the cross-border collaboration framework on Ebola preparedness and response, it was revealed that building good cross border collaborations and sharing assets across borders could lead to reducing the impact of the outbreak [18].

Though formal documents for One-Health Approach are not fully developed or currently being enforced for practice in epidemic situation, all stakeholders from animal health, human health and environmental work hand in hand as they perform their daily activities. Application of the One-Health concept in emergency preparedness and response is noted to help in tackling the problem from its roots thereby reducing cost and improving prevention of epidemics [19,20]. The country needs to establish formal working documents in order to build stronger working relationships between various stakeholders as the one-health approach is implemented. Intersectoral collaborations with various organisations would be best fostered by formal documents since their differences in work ethics need to be taken into consideration [21].

Implementation and sustainability of preparedness and response strategies rest mainly on the availability of workforce capacity and personnel development. Currently, the Gambia lacks epidemiologists and other trained health staff for IPC. A trained and competent and resilient workforce form the critical mass for responding effectively to epidemic and are a major component of a good public health system [22]. In order to achieve this, the country has a health sector strategic plan which includes a workforce development plan and runs the frontline field epidemiology training programme for health workers. Sustaining preparedness and response capacity of the country can only be achieved if the country consistently invests in training and educating the public health workforce they have [23].

Stakeholders in the country are mainly international agencies who offer financial and technical support to the health system. Over the years, these international agencies have been the main funding agencies of the health activities of the nation. This possess a great threat to sustainability of the health system of the country. Resource mobilization is key to sustaining public health activities and structures. In places with no resource mobilization structures, the progress of activities are likely to be affected negatively if income fails. In epidemic situations, this could lead to detrimental consequences since emergencies occur unannounced. Health financing is extremely critical in epidemic preparedness and response.

Limitations

Due to competing activities, some key stakeholders were unavailable for scheduled interviews. To reduce this limitation, we interview other people participants recommended could be of help, using teleconferencing and email options to obtain all the information required.

Conclusion

The assessment of epidemic preparedness and response capacity in the Gambia revealed that the country either had fully developed or drafted a number of health policies and plans for workforce development, and other aspects of health. However, there is no functional public health institute to coordinate and fully implement most of these policy documents. Though the current workforce capacity of the country is below what is expected, there is a strategic plan being followed to ensure that the required workforce is trained for the country. The greatest challenge with the epidemic response of the country is the heavy reliance on donor funds for financing of most health activities.

What is known about this topic

- The Health Sector Strategic focus in The Gambia is anchored on the National Health Policy 2012-2020;

- Frequent changes within the top management positions have hindered policy implementation.

Tables

Table 1: Cadre of Staff Interviewed

What this study adds

- Gambia has either had fully developed or drafted a number of health policies;
- There is no functional public health institute to coordinate and fully implement most of these policy documents;
- The current public Health workforce capacity of the country is below what is expected.

Competing interests

The authors declare no competing interests.

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Authors' contributions

Conceptualization: SS, DAB, EK, KMN, VL. Data collection: SS, DAB, EK, KMN, VL, EJ. Report writing: DAB, EK, KMN, VL. Manuscript development and finalization: SS, DAB, EK, VL. All authors read and approved of the final version of the manuscript.

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Table 1: Cadre of Staff Interviewed			
No.	Organization	Number of People interviewed	Department
1	Ministry of Health	5	Public Health Emergency and Disaster Epidemiology and Disease Control Unit Expanded Programme on Immunization National Public Health Laboratory Health promotion.
2	National Disaster Management Agency (NDMA)	1	NDMA Operations
3	Field Epidemiology Training Programme (FETP)	1	FETP Supervisor
4	Animal Health	1	Veterinary Epidemiology