Joint technical support mission (WHO-CDC-INSPQ-Johns Hopkins University) for response preparedness

Côte d'Ivoire country visit

27–31 October 2014

World Health Organization

 WHO/EVD/PCV/Côte d'Ivoire/14/

Contents

Executive summary

As was recently seen in Mali, the current outbreak of Ebola virus disease (EVD) presents a considerable risk to the countries directly bordering those in which transmission is intense. If countries are properly prepared, they can contain a possible introduction of the disease from the beginning and avoid a long-lasting, widespread epidemic.

As part of a programme to help countries that are not yet affected but are faced with possible importation of EVD, WHO and EVD response partners dispatched a mission to Côte d'Ivoire on 27–31 October 2014 to strengthen preparedness and the tools already in place. The general objective of the mission was to ensure that Côte d'Ivoire is as operationally ready as possible to respond safely and effectively to EVD through rapid detection, investigation, immediate notification and effective management to prevent a large-scale outbreak.

The mission was carried out by a joint team from WHO (headquarters, the Regional Office for Africa, the Institut Superieur de Téchnologies of Ouagadougou (Burkina Faso), Johns Hopkins University (United States of America), the Quebec National Institute for Public Health (Canada) and the United States Centers for Disease Control and Prevention (CDC). The team worked in collaboration with the Ministry of Health of Côte d'Ivoire (represented by the National Institute for Public Health) and with partners working in the country, including WHO, the African Development Bank, Médecins sans Frontières, the Red Cross, Save the Children, the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA).

The work methods consisted of technical meetings with subcommittees charged with presenting the mission's goals and action taken by the country; field visits, principally to the Yopougon University Hospital; a table-top simulation; evaluation of the country's preparedness plan according to the checklist and participating in a meeting of the coordination committee. These methods allowed the team to identify the main strengths and weaknesses of the current arrangements and to suggest possible improvements.

The recommendations made to the mission organizers before the mission began were to:

- translate the WHO checklist into French so that it was available in the country at least 1 week before the effective start of the mission and
- obtain confirmation from WHO Regional Office for Africa and WHO headquarters that all partners were available before the start of the mission.

At the end of the mission, the recommendations listed below were made to the national authorities.

Coordination

- Develop, validate and communicate the technical directives, procedures and operational plans of the various subcommittees.
- Finalize establishment of the emergency operations centre.
- Train members of the emergency operations centre in managing the response to the EVD epidemic.
- Improve the availability of logistical support facilities.

Budget

- Draw up budgeted operational plans to encourage spending by financial partners.
- Communicate a budgeted and validated national contingency plan to partners.
- Strengthen financial resource mobilization at local level.

Epidemiological surveillance

- Improve the functionality of the call centre by strengthening human resources, increasing the number of phone lines and making the necessary equipment and material available.

- Prepare a training plan based on an evaluation of previous courses (topics covered, targets set, gaps identified).
- Develop clear procedures, and define responsibilities at national and regional levels in respect of data management for EVD surveillance.
- Ensure that health districts are properly supplied with gloves and masks, and strengthen mechanisms for monitoring use of these supplies.

Rapid response teams

- Case management
  - Finish equipping the treatment centre at Yopougon University Hospital so that it is operational.
  - Establish, equip and staff a second treatment centre in Abidjan.
  - Establish treatment centres in western regions.
  - Establish treatment centres in other regions of the country.
- Safe, dignified burials
  - Train personnel in charge of burials.
  - Finalize procedures for safe burials.
  - Make body bags available at treatment centres.

Monitoring contact cases

- Finalize standard operating procedures for identifying and monitoring contacts.
- Ensure training of district teams, health centre personnel and communities in continuous contact monitoring (principles, procedures and tools).

Public awareness and community engagement

- Formalize rumour management (call centres and other sources) through systematic recording, periodic analysis, compilation and dissemination of observations and definition of actions.
- Organize a knowledge, aptitudes and practices survey without delay, to measure the impact of all communication activities.
- Develop tools for evaluating the contribution of the media to control efforts (mediametrics).

Management of points of entry

- Establish an isolation centre at the Port of Abidjan.
- Transmit written procedures and directives to all relevant parties, including health authorities, border control and police authorities.

Introduction

Given the evolving EVD situation, there is a considerable risk for the introduction and spread of cases to countries that are not currently affected. With proper preparation, such cases can be effectively contained without leading to large-scale epidemics.

WHO is sending international support teams to strengthen preparedness in countries that are not yet affected, so that they can respond effectively in the event of an EVD epidemic. Such visits are just one step in a series of operations for preparing all countries to cope with possible cases of EVD.

Mission goals

The immediate goal of the visit was to ensure that Côte d'Ivoire is as operationally ready as possible to deal with cases of EVD; that it is capable of effectively and safely detecting, investigating and

reporting potential cases; that it can organize an effective response and prevent a large-scale epidemic. In its improvement plan, the mission also identified action necessary to strengthen preparedness within 30, 60 and 90 days.

Method of work

The method consisted of organizing technical meetings with national stakeholders, evaluating the country's contingency plan against the checklist validated by all EVD response partners and organizing a table-top simulation and field visits. The main techniques employed were observation, consultation of documents, individual interviews with the heads of the various subcommittees and group interviews.

Composition of the mission team

The support team was composed of 11 members, one from WHO headquarters in Geneva, three from the WHO Regional Office for Africa, two from CDC, one from the Institut Superieur de Téchnologies Ouagadougou, one from Johns Hopkins University and three from the Quebec National Institute for Public Health. They received local support from technical staff in the WHO Country Office and the African Development Bank.

The support team worked with national institutes for public health and technical and financial partners in the country (WHO, UNICEF, Save the Children, Red Cross, Médecins sans Frontières, CDC, UNFPA).

Activities

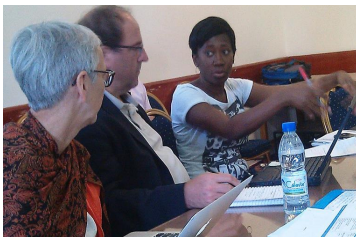
Day 1.		
Working meeting with the WHO Representative, CDC, the African Development Bank and WHO Country Office staff 	**WHO Country Office**	Presentation of mission mandate Adaptation and approval of the agenda Invitation sent by WHO Country Office to national authorities and partners (e.g. African Development Bank, CDC, European Union, the United Nations Office for the Coordination of Humanitarian Affairs, UNICEF) to participate in the mission's activities, in particular on day 3 First review of the United Nations contingency plan, the national contingency plan and the scenario of the August 2014 simulation Mission team informed by the African Development Bank that it has made US$ 10 million available but is awaiting the country's request to disburse it.
Day 2		
Working meeting with authorities from the National Institute for Public Health (NIPH) and technical partners	**NIPH**	Presentation of mission mandate, agenda and checklist Presentation of national level of preparedness Primary observations: Country's affirmed willingness to ensure, in the event of an epidemic, that the disease should not spread beyond the first case, or at least no further than the first circle of contacts Emphasis placed by the country on community involvement in case

		detection, with promotion of community-based disease control mechanisms Good acceptance of simulation exercises, reaffirmation of the importance of simulations at regional level Existence of an updated and budgeted (57 billion CFA francs) contingency plan, including establishment of a: – monitoring centre – national referrals centre – P4 module for the Pasteur Institute and construction of another P4 laboratory – an operations centre Four nationally defined strategies for managing preparedness and response to the epidemic: communication, epidemiological surveillance (establishment of an advance coordination post, health control at the borders), promotion of preventive measures (stockpiling of material and equipment, establishment of telephone hotlines, establishment of a dedicated medical emergency service (in progress), a type of call centre), response capacity-strengthening for the national health system Existence of an organizational framework including: – the national security council (led by the Head of State), – the monitoring committee (led by the Prime Minister) – national committee on EVD epidemic control (led by the Minister of Health), and – the emergency action cell (NIPH). Existence of nine subcommittees within the national committee on EVD epidemic control, which meet weekly: epidemiological and laboratory surveillance communication water, hygiene and sanitation (management of human remains) finances medical care psychological care logistics humanitarian issues security and defence. Finalization of surveillance training modules with support from the CDC Involvement of the director of the NIPH Strong mobilization of technical and financial partners
Visit to Yopougon treatment centre 	**Yopougon University Hospital**	Existence of a treatment centre in compliance with standards Existence of a triage area Existence of clearly defined “clean” and “dirty” areas Presence of 80 trained treatment teams at national level Care service made up of six teams, each composed of one physician, one nurse, one nursing assistant, one surface cleaning orderly and six hygienists Presence of spray equipment, triple packaging Clearly defined routes for health workers, ambulances and mortuary vehicles

Existence of incinerators, showers and toilets in compliance with standards

Well-organized site

Day 3		
Table-top simulation	NIPH	*Strong points* Good interaction during the simulation Coordination system is functional overall Planned extension of preparation and response activities to the whole country (not only western regions and Abidjan) Existence of a regulatory framework: decree, plan, financing Good commitment of national actors and partners Key role and leadership of the NIPH in planning Good communication about the disease Existence of rapid response teams Existence of a functioning reporting system Good "on-paper" concept of EVD control Organizational control framework based on existing elements in the health system Some members of subcommittees present at the simulation *Weak points* National authorities poorly represented at the simulation Treatment centres not yet finalized Lack of understanding about the purpose of the simulation; national authorities tended to "defend themselves" rather than focus on the improvements required Much action still at the planning stage Certain aspects of preparation and response unclear and unsystematic Most procedures not yet finalized, validated or disseminated Certain declarations lack basis in reality Coordination lacking in clarity and procedures; roles poorly defined, as is the function of the emergency operations centre and the functioning of rapid response teams Overall process for EVD case management lacks clarity Insufficient data on action already taken (e.g. training sessions: number of forms and types, topics covered, etc.) Intense preparedness and response activities not undertaken in certain districts
Participation in a meeting of the	**NIPH**	*Strong points* Majority of heads of subcommittees present

subcommittees of the national epidemic control committee		Evaluation of implementation of recommendations from previous meeting Presentation of procedures and planned action by certain subcommittees Presentations of considerable technical utility *Points for improvement* Certain heads of subcommittees absent Insufficient documentation of action already taken Low rate of execution of recommendations from the previous meeting
Summary of day 3	**Hotel IBIS**	Discussion of the day and preparation for day 4
Day 4		
Meeting with the Director of the NIPH	**NIPH**	New presentation of the objectives of the mission
Working meeting by checklist component	**NIPH**	Joint evaluation of national state of preparedness, by component on the checklist, with national stakeholders 
Debriefing at the Ministry of Health (Chief of Staff)	**Ministry of Health**	Presentation of results to date, points for improvement and the mission's outlook made to the Ministry of Health Chief of Staff
Day 5		
Finalization of the action plan and drafting of the mission report	**WHO Country Office**	Joint review and validation of strengths and weaknesses by checklist component and finalization of the action plan Drafting of the final report
Days 6, 7 and 8		
Presentation of mission results	**WHO** **UNDP** **NIPH**	Presentation of report to WHO Representative Presentation of report to UNDP coordinator and EVD response partners Presentation to the subcommittee technical teams

Strengths and weaknesses

1. Coordination

Strengths	Weaknesses
National level	
Existence of a national security council, highest-ranking body for coordination of emergencies and EVD control (presided over by the Head of State)	Functioning of the emergency operations centre should be clarified (activation process, human resources, permanent core staff, organization chart with names and contacts pf people in charge, networking with subcommittees and task force partners)
Existence of a monitoring committee (presided over by the Prime Minister)	The various subcommittees have not drafted, validated or distributed directives or written procedures.
Existence of a national epidemic management committee (presided over by the Prime Minister) with nine subcommittees	Quality of existing directives and procedures should be improved (dates, authors, validation process and distribution)
Existence of an emergency action unit	Insufficient training of emergency operations centre personnel
Existence of a special group including all partners (task force)	
Regular meetings	
Identification of a site (NIPH), organization (NIPH) and source of financing (French Development Agency) for the emergency operations centre	
Subnational, regional, district levels	
Existence of regional and departmental EVD control committees	

2. Budget

Strengths	Weaknesses
Existence of a plan with a budget of 57 billion CFA francs	Dissemination of the contingency plan, budgeted and validated by partners
Financial resource mobilization in progress	Low rate of resource mobilization
Commitment of financial partners	Lack of a funded operational plan that would encourage financial partners to disburse funds
National commitment, especially of the Head of State, to mobilizing resources for EVD control	The internal mechanism for mobilizing financial resources should be strengthened.

3. Rapid response team

Strengths	Weaknesses
Existence of an emergency action unit	Members of rapid response team insufficiently trained
Existence of an EVD emergency medical services team	Rapid response team operational procedures not yet finalized
Existence of rapid response reams in regions and districts	

Existence of ambulances for transporting suspected cases	Shortage of ambulances in certain regions
Development of a community alert mechanism	Composition of rapid response team, including number of posts per task profile, not fully formalized

4. Epidemiological surveillance

Strengths	Weaknesses
A hotline number (143, three lines) available 24 h/24 h, 7d/7 d with three rotating staff teams	Free hotline number frequently backlogged
Handbooks and tools (case definition, investigation forms) produced and sent to health regions and health districts	Call centre team lacks necessary competence to verify case definitions when alerted
Series of training sessions organized (case definition, preventive measures, surveillance) for health personnel throughout the country	No reports of training already conducted
Health districts (via health regions) supplied with protective material for health-care personnel (gloves, masks, etc.)	Undefined monitoring procedures for identified targets
Daily personal protective equipment (PPE) survey with good performance indicators (80% prompt and 100% exhaustive)	Insufficient procedures for managing case data
Daily compilation of all activities (rumours, briefings, awareness-raising and others) issued regularly	Alerts insufficiently documented by hotline managers
National dissemination of case definition at community level (community-based surveillance)	Shortage of vehicles (including motorcycles)
CDC support of Ministry of Health and NIPH	

5. Contact identification and monitoring

Strengths	Weaknesses
Focal point for contact tracing available	No fixed deadlines for finalizing tools, directives and training materials
Work started on developing tools, directives and training modules for contact tracing	No dates specified for finalizing the integrated training plan and initiating training
Community health-care workers selected for training in contact tracing	
Ministry of Health has CDC support for finalizing tools, procedures and training materials for contact tracing	

6. Infection prevention and control

Strengths	Weaknesses
Distribution of equipment (soap, bleach, PPE, gloves, bibs) to health teams in districts near borders with Liberia and Guinea	Water supply problems in several regions and districts, mostly related to city distribution systems
Some material (gloves and bibs) available in other health facilities	No hand sanitizers
	No training in EVD-specific hygiene practices

National directive on EVD issued by the Minister of Health requiring all health-care workers to wear gloves and bibs during contact with patients Presence of human resources (physicians, clinicians, nurses) familiar with the principles for preventing infection in all health facilities Presence in referral hospitals (regions) and municipal hospitals of hygienists responsible for covering all health facilities in their area Existence of PPE (Tyvek, Dupont) in border district health teams Incinerators available to certain health teams	Insufficient disposable protective material for health-care personnel (gloves, masks, etc.) Incinerators at all isolation and treatment centres require inspection

7. Case management (treatment centres)

Strengths	Weaknesses
The Yopougon treatment centre in Abidjan is nearly functional and fully equipped and has an ambulance service. Suitable, trained, motivated personnel Six multidisciplinary teams are trained and present on site; 80 multidisciplinary teams are anticipated if case management becomes necessary. 5000 PPE kits (Tyvek) available on site Two other structures identified to house treatment centres (Man and Treichville) An eight-bed treatment centre is functional in Biankouma, near Man. The national plan envisages that each of the 20 regional referral hospitals will have a treatment centre. 20 ambulances have been identified (one per region), of which four have been delivered (western regions); 16 are still being acquired. Personnel at border region treatment centres have been selected, trained and are available. Volunteer physicians (about 150) are available to take part in EVD control.	Certain material still lacking at the Yopougon treatment centre Health care workers are not yet trained in use of Ty-Chem C2 PPE No plan for supplying Ty-Chem C2 Referral hospitals in non-border regions are under-equipped. Personnel at referral hospitals in non-border regions are insufficiently trained. The identified treatment centres should be equipped and made functional, as needed.

8. Safe burials

Strengths	Weaknesses
A budget line and a pre-approved budget are available for hygiene. Mortuary services mobilized through the water, hygiene and sanitation subcommittee Forensic police involved in identification and burial National Red Cross involved	Lack of training for human resources assigned to burials Procedures not finalized Not enough body bags

Location for burial ground identified
Burial practices take families' needs into account
Psychological support for families

9. Public awareness and community engagement

Strengths	Weaknesses
Targeted messages available in French (official language of communication)	Evaluation form for partner nongovernmental organizations not yet drafted
Messages translated into local languages by community health workers	The media (audiovisual and print) not thoroughly committed to awareness-raising
Existence of educational materials (image libraries, brochures and billboards showing modes of transmission, safe conduct, preventive measures, etc.)	No mechanism to ensure the involvement of community and religious leaders
Existence of a hotline	Coordination mechanisms for mobilizing partners not yet sufficiently developed
Key stakeholders (religious, political and traditional leaders, urban and rural media) have been identified and for the most part mobilized.	Definition of roles and duties of subcommittees, designation and training of spokespersons not fully formalized
Mapping of all sectors in progress	No mechanism to coordinate and validate disseminated information
Decision made on 23 October to draft an evaluation form for the activities of nongovernmental organizations	System for investigation, monitoring, analysis, compilation and management of rumours not yet formalized
Existence of an organizational framework	No mechanism for evaluating media impact
Existence of a budgeted communication plan	
Implementation plan in progress	
Knowledge, aptitude and practices survey planned (protocol and tools available, trained teams of survey-takers and supervisors, sites designated, etc.) at national level	

10. Laboratory

Strengths	Weaknesses
Existence of a reference laboratory in the country	No reports available on training already conducted
Existence of mechanisms for transporting specimens to the reference laboratory	More training needed urgently
Existence of technical protocols for taking blood, saliva and nasopharyngeal samples, transporting specimens, RNA extraction and PCR	Collaborative reports from treatment services and epidemiological services not formalized by procedures
Some laboratory staff trained in triple-packaging and safe shipment of samples	Certain structures (incinerators) are insufficient, and disposable supplies and reagents are barely sufficient
Sufficient quantity and quality of human resources in the reference laboratory	Triple packaging material not available in border districts, according to a Médecins sans Frontières report
Equipment and material in satisfactory condition	Transport agreements not yet made in border districts
Diagnostic test results for EVD well managed, with a database kept at the reference laboratory. Results are communicated to requesting parties via e-mail.	

	Stock management of PPE and triple packaging material does not seem to include the reference laboratory. The role of laboratories in high-risk regions has not been clarified.

11. Management of points of entry

Strengths	Weaknesses
Existence of a contingency plan at the airport and seaport PPE kits available at the borders (airport and seaport) Thermometers available Screening of travellers at the borders (airport and seaport) Ambulance and medical team on permanent standby at the airport Existence of an isolation area at the airport Well-organized communication mechanism Participation of airport authorities and the Ministry of Transportation Two teams available per day from 06:30 to 18:00 for inspections at sea and at port, dock personnel available 24 h/24 h Existence of a community-based mechanism for identifying foreigners Existence of a unwritten directives for handling suspected cases at the Malian border (thermometers, PPE, sample shipping system) Chief medical officers at district level have been informed of their role. Similar detection procedures in place on both sides of the border	No isolation centre at the Port of Abidjan Contingency plan for closure of land crossings not finalized No control of non-conventional vessels that enter the country through other sea- or waterways No directives or written procedures for land crossings Written procedures not yet finalized

12. Logistics

Strengths	Weaknesses
Existence of a chief logistics officer Estimate of logistical needs Some equipment and material already available	Lack of logistical support facilities for implementing interventions National and WHO logisticians not trained

Main areas for improvement

1. Coordination

Activities	Within (days)		
	30	60	90
Urgently develop, validate and disseminate directives, technical procedures and operational plans from the various subcommittees.	x		
Draw up inventory of needs (procedures, logistics, human resources, organization chart) required to finalize operationalization of the emergency operations centre.	x		
Specify the terms of reference and staffing requirements of the emergency operations centre management team: head of centre, heads of each section (case management, contact surveillance and follow-up, laboratory, burials, data management, transport, logistics, spokespersons, etc.).	x		
Finalize establishment of the emergency operations centre.	x		
Train staff at the emergency operations centre in managing the EVD epidemic response.	x		

2. Budget

Activities	Within (days)		
	30	60	90
Draft budgeted operational plans to encourage disbursement by financial partners.	x		
Distribute budgeted and validated contingency plans to partners for funding.	x		
Strengthen financial resource mobilization at the local level.			X
Improve the level of resource mobilization.			X

3. Rapid response teams

Activities	Within (days)		
	30	60	90
Strengthen the composition and functioning of rapid response teams (minimum number of professionals per task profile and identification of additional competencies).	x		
Clarify the position of rapid response teams with regard to the emergency action unit (functional organization chart).	x		
Train members of the national, western and Abidjan rapid response teams in preparedness and response to EVD, especially in all directives and procedures relating to treatment of patients and the management of human remains.	x		
Train members of the rapid response teams in other regions in EVD preparedness and response, especially in all directives and procedures relating to treatment of patients and the management of human remains.		x	
Define minimum logistics per rapid response team.	x		
Draw up an inventory of the logistical needs of each rapid response team.	x		
Ensure that each rapid response team has the logistical support facilities it needs.		x	

4. Epidemiological surveillance

Activities	Within (days)		
	30	60	90
Draw up an inventory of needs (human resources, procedures, infrastructure, telephone lines, materials, etc.) necessary to ensure proper functioning of the call centre.	x		
Finalize operational start-up of the call centre.	x		
Take stock of training needs in high-risk regions and other regions.	x		
Develop and implement comprehensive, formalized training in epidemiological surveillance of EVD, including in the private sector.		x	
Define clear procedures for managing case data (linear lists) as well as related national and regional responsibilities	x		

5. Contact tracing

Activities	Within (days)		
	30	60	90
Harmonize training tools, directives and materials still being developed with WHO recommendations and tools used in other countries in the subregion.	x		
Train a group of national and regional instructors in contact identification and monitoring.	x		
Identify at least 20 stakeholders in each district in contact identification and monitoring.	x		
Train relevant stakeholders in the western regions and Abidjan in contact identification and monitoring (procedures, tools, data management, communication with contacts, prevention of infection, etc.).	x		
Train relevant stakeholders in other regions in contact identification and monitoring (procedures, tools, data management, communication with contacts, prevention of infection, etc.).			X

6. Infection prevention and control

Activities	Within (days)		
	30	60	90
Train five instructors per region in infection prevention.	x		
Train health care workers in isolation areas and EVD treatment centres (physicians, nurses, nursing assistants, surface cleaning orderly, hygienists) in preventing infection.	x		
Train health care workers in all public and private sector health centres in medical hygiene and prevention of infection.		x	
Conduct monthly inspections of compliance with infection prevention measures in isolation and treatment centres.		x	
Draw up an inventory of logistical needs for infection prevention (waste management material, water sources, hand sanitation systems, PPE, decontamination) at isolation centres and treatment centres.	x		
Draw up an inventory of logistical needs for preventing infection (waste management material, water sources, hand sanitation systems, PPE, decontamination) at all health centres and hospitals.	x		
Develop and implement a plan for equipping isolation centres and treatment centres, and		x	

also health centres and hospitals, with the logistical support facilities necessary for preventing infection.

7. Case management

Activities	Within (days)		
	30	60	90
Itemize logistical support facilities that are still lacking at the Yopougon University Hospital treatment centre.	x		
Finish equipping the treatment centre at the Yopougon University Hospital in Abidjan.	x		
Establish, equip and staff a second treatment centre in Abidjan.	x		
Establish or refurbish treatment sites in western regions.	x		
Establish treatment centres in other regions.		x	
Train health care teams in other regions.			x
Set up other isolation sites in western districts and regions, Abidjan and high-risk areas.			x
Ensure that each isolation and treatment centre has the necessary logistical support.			x

8. Safe burials

Activities	Within (days)		
	30	60	90
Finalize and validate procedures for managing safe burials.	X		
Train a team of three instructors per region to train burial teams.	X		
Identify and train two teams of seven people in each western region to organize safe, dignified burials.	X		
Identify and train four teams of seven people in Abidjan to organize safe, dignified burials.	X		
Identify and train two burial teams in each remaining region.		X	
Ensure that each burial team has the necessary logistical support.			X

9. Public awareness and community engagement

Activities	Within (days)		
	30	60	90
Organize a knowledge, aptitude and practices survey to gauge the impact of awareness-raising activities carried out to date.	x		
Update the communication plan, including targeted messages, in light of the survey results.		x	
Extend awareness-raising activities to the north and east (decentralized structures and responsibilities) with a view to achieving nationwide coverage.			x
Organize a national radio and television broadcast by the Minister of Health on response preparedness should a case of EVD be imported into Côte d'Ivoire.	x		
Collaborate with nongovernmental organizations and the United Nations Office for the Coordination of Humanitarian Affairs to map and evaluate all nongovernmental organizations (development and humanitarian action) participating in preparation, to improve coordination and ensure that assistance is provided efficiently.		x	

Put in place permanent tools for following up on targeted messages (monitoring of audiovisual media and review of print media) in order to make necessary adjustments in a timely fashion.	x		
Develop checklists of talking points for decentralized spokespersons (health regions and districts).		x	
Set up operational mechanisms for collaboration with the governing body for audiovisual communication and the national press council.			x

10. Laboratory

Activities	Within (days)		
	30	60	90
Make PPE, triple packaging and disinfectant available to laboratories.	x		
Quickly evaluate training needs (in compliance with the training plan, according to the number of treatment centres and rapid response teams).	x		
Properly train laboratory personnel and nurses in taking specimens for laboratory analysis (blood, saliva), triple packaging and shipment of specimens (in line with the minimum set of training requirements recommended by WHO).	x		
Establish, in clear written procedures, the operational relations between laboratories (including regional laboratories) and clinical services, rapid response teams and epidemiological surveillance services.	x		

11. Management of points of entry

Activities	Within (days)		
	30	60	90
Establish an isolation centre in Abidjan.	x		
Provide procedures and written directives to all relevant parties, health authorities, border authorities and the police.	x		

12. Logistics

Activities	Within (days)		
	30	60	90
Update logistical needs by component.	x		
Draw up and implement a logistics plan.	x		
Train members of the logistics subcommittee in equipment management techniques.		x	
Urgently request technical support in the form of skilled human resources (logisticians, infection prevention specialists, response preparation coordinator).	x		

Conclusions and next steps

In collaboration with the Ministry of Health and other partners, the technical support team has identified strengths and weaknesses and proposed realistic action to improve preparedness for a possible EVD epidemic in the country.

Certain challenges were encountered during the mission.

- The mission coincided with national poliomyelitis vaccination days, which posed logistical difficulties.
- National authorities were not always present during drafting of the improvement plan, which made it impossible to quantify and provide a budget for activities and to impose deadlines.
- The checklist had not been translated into French and was therefore not available before the beginning of the mission.

All partners remain committed to helping the national authorities implement the national EVD response action plan. The partners are mobilized to provide Côte d'Ivoire with immediate and long-term technical support in meeting the 30-, 60- and 90-day deadlines by organizing visits by technical experts.

Immediate technical support is needed in areas such as training in various fields, preventing infection and identifying and training the stakeholders responsible for contact tracing, logistics management and clinical case management. Logistical support must be provided to the country to facilitate implementation of national preparedness and response activities in the aforementioned areas. Training in these fields should be carried out as soon as possible in order to ensure that stakeholders have the requisite technical capacity to respond safely to the possible introduction of EVD. Accordingly, there is an urgent need for technical support in the form of skilled human resources.

The involvement of the United Nations country team will make it possible to carry out weekly monitoring of progress in technical areas.

At the conclusion of the mission, the support team recommended the following:

To WHO:

- Provide significant technical support in the form of skilled human resources (infection prevention, training, logistics, identification and monitoring of contacts, epidemiology) to speed up national preparedness.
- Continue advocacy in the country to improve the level of preparedness and response capacity.
- Support national financial resource mobilization.
- Organize regular monitoring of the country's level of preparedness at 30-, 60- and 90-day intervals.
- Support the national authorities in organizing periodic field simulations in the country.

To other technical and financial partners present in Côte d'Ivoire:

- Support national authorities in drafting the operational plans required to release certain sources of funding.
- Oversee implementation of the improvement plan within the proposed deadlines.

Annex 1. Mission team

Institut Superieur de Téchnologies, West Africa:
- Joseph Biey Nsiari Muzeyi

Johns Hopkins University:
- Amiata Kaba

Quebec National Institute for Public Health:
- Alain Poirier
- Lucie Lemieux
- Anne Fortin

United States Centers for Disease Control and Prevention:
- Judy Kruger
- Prathit Arun Kulkarni

WHO

Headquarters:
- Ian Clarke

Regional Office for Africa:
- Vincent Dossou Sodjinou (mission leader)
- Tarcisse Lokombe Elongo
- Sheick Oumar Coulibaly

Country Office:
- Allarangar Yokouidé (WHO Representative)
- Tano Bian Aka (Disease Prevention and Control)

Annex **2. Checklist results**

Component 1 – Overall coordination

	Activities	Number of days	Yes/No
1.1	**High-level Emergency & epidemic committees / Ebola Task Force (ETF)** Implementation of a multisectoral and functional committee /Ebola Task Force (ETF) at the national and subnational / district levels Membership to the Committee / ETF at national and in "at risk" districts level reviewed and updated Existence of clear TOR of Committee / ETF Mechanisms are in place for coordinating donor support at the country level Review of current policy and legislative frameworks to ensure that they will provide the authorization for the preparedness measures are proposed Contingency or emergency plans exist are fully costed for fund identification	30	Yes / No
1.2	**Emergency Operations Centre (EOC) / Incident Management Structure (IMS):** Establish EOC/IMS personnel at the subnational / district level for localized EOC/IMS coordination and management Identify, train and designate Incident Manager and Operations Manager who is empowered to take operational decisions Clearly assign communication responsibilities to specific EOC/IMS roles Develop plans for communication channels within EOC/IMS and between EOC/IMS, partners and the public Established procedures for command & control, coordination mechanisms, clearance of key technical and information products Test coordination and operations through table top exercises and drills Identify a physical location for the EOC	30	No

Component 2 – Rapid Response Team

	Activities	Number of days	Yes/No
2.1	Identify and assign team leader(s) and multidisciplinary members under the framework of the EOC/IMS	30	Yes/No
2.2	Ensure that there is a rapid communication system in place to alert the RRT	30	Yes
2.3	Train all clinical staff on the RRT in case management using international standards and the use of a mock ETC	30	No
2.4	Train the RRTs on sampling procedures for suspect EVD cases and on the transport of category A pathogens	30	No
2.5	Train the subnational RRT in surveillance and contact tracing	30	No
2.6	Map potential health facilities at the district level that are ready to receive suspect EVD cases	60	Yes
2.7	In the absence of an EVD case in the country after 60 days, conduct at least one simulation exercise to maintain the capacity of the RRTs to respond quickly	60	No

Component 3 – Public awareness and community engagement

	Activities	Number of days	Yes/No
3.1	Develop or adapt, review, translate into local languages and disseminate targeted messages for media, health care workers, local and traditional leaders, churches, schools, traditional healers and other community stakeholders	30	Yes
3.2	Identify and engage influential/key actors/mobilisers, such as religious leaders, politicians, traditional healers, and media in urban and rural areas	30	Yes/No
3.3	Map out public communication capacities and expertise within health and other sectors	30	Yes/No
3.4	Identify and establish mechanisms for engagement with national networks for social mobilization	30	Yes/No

3.5	Identify established functional communication coordination mechanism involving all government sectors and other stakeholders (including civil society organizations and communities)	30	Yes/No
3.6	Establish coordination mechanism for engaging with the community (involving the traditional leaders, relevant sectors in a bottom-up approach)	30	Yes
3.7	Establish coordination mechanism for engaging with partners (e.g. NGOs)	30	Yes/No
3.8	Draw up a roster with clear roles and responsibilities for internal and external communications and spokespersons	30	No
3.9	Establish functional and timely procedures for review, validation and clearance of information products	30	No
3.10	Identify and train spokespersons and communication team and provide with talking points as needed	30	No
3.11	Develop a comprehensive strategy, plan and budget for engaging with the media and public (including a scaled-up approach)	30	Yes/No
3.12	Establish a system for rumour monitoring, investigation and response	30	Yes/No
3.13	Establish a plan for reviewing, revising and monitoring impact of communication strategy	30	No
3.14	Identify critical communication networks and plan for the use of materials in appropriate languages (TV, radio, social media, SMS, story tellers, theatre, and other appropriate communication means)	30	Yes
3.15	Establish media monitoring mechanisms with appropriate tools	30	No

Component 4 – Infection prevention and control

	Activities	**Number of days**	**Yes/No**
4.1	Provide health facilities with basic hygiene, sanitation, disinfection/protective equipment and posters. Priority should be given to hospitals; then health centres in high risk areas (started in 30 days and to cover priority districts in 60 days)	30 – 60	Yes/No

4.2	Increase the general awareness about hygiene and how to effectively implement infection prevention and control (started in 30 days and completed in 60 days for priority districts)	30 – 60	Yes/No
4.3	Identify health facilities for setting up basic isolation units (2 beds) for suspected cases in all major hospitals and all border points (ideally regional and district hospitals)	30	Yes
4.4	Equip and adequately train health care workers including environmental health personnel, cleaners etc. on IPC measures, including waste management, with priority for those at first contact with patients and at basic isolation unit	60	Yes
4.5	Establish a compensation and benefits package for health care workers (HCWs) for: remuneration and motivation for high-risk assignment; in case of infection and death	60	Yes/No

Component 5 – Case management

5a) Ebola Treatment Centre

	Activities	**Number of days**	**Yes/No**
5a.1	Set up at least one facility with trained staff, adequate supplies, ready to provide care to a patient or cluster of patients with suspected EVD. This facility should cater for 15 patients initially	30	Yes
5a.2	Equip and adequately train ambulance teams to transport suspect EVD cases	30	Yes
5a.3	Identify health facilities at district level that can be turned into an ETC at short notice	30	Yes
5a.4	Identify health facilities at local level that can be turned into an ETC at short notice	60	No

5b) Safe burials

	Activities	Number of days	Yes/No
5b.1	Develop SOPs for safe burials and decontamination	30	No
5b.2	Identify appropriate secured burial ground with agreement of the community	30	No
5b.3	Equip and adequately train burial teams (8 people)	30	No
5b.4	Ensure that a dedicated transportation process is in place to bury human remains safely	30	Yes
5b.5	Ensure burials teams have access to support services such as drivers, grave diggers, and potential security support during the burial process	30	Yes

Component 6 – Epidemiological surveillance

	Activities	Number of days	Yes/No
6.1	Establish a 24/7 hotline with escalation facilities with medically trained staff	30	Yes
6.2	Train the hotline staff on case identification and management of communication with potential cases	30	No
6.3	Provide guidance (case definition and investigation forms to all sub-national / district levels and healthcare facilities), (standard case definitions to all countries)	30	Yes
6.4	Provide training on the case definition and investigation	30	No
6.5	Test existing Surveillance/IDSR systems for Ebola, identify gaps and start implementation of corrective actions where necessary	30	No
6.6	Establish immediate lines of reporting for suspect cases, clear responsibility for such actions	30	Yes
6.7	Identify human resources for community surveillance (community HCWs, Red Cross/Crescent volunteers, NGOs, healer, leaders etc.)	60	No
6.8	Disseminate simplified case-definitions for community use	60	No

Component 7 – Contact tracing

	Activities	Number of days	Yes/No
7.1	Train the teams at both national and subnational / district levels including on contact tracing and data management (with a ToT strategy)	30	No
7.2	Provide UNMEER with list of required equipment and materials for contact tracing at national and sub-national levels	30	No
7.3	Train staff at district level on contact tracing	60	No
7.4	Train staff at sub district and community level on contact tracing	90	No

Component 8 – Laboratory

	Activities	Number of days	Yes/No
8.1	For each district, identify laboratory responsible for analysis or specimen handling of biological samples and mode of transport for samples	30	Yes/No
8.2	Stand-by arrangements and agreements with WHO Collaborating Centres for confirmatory testing in place	30	Yes
8.3	Stand-by arrangements and agreements with relevant air-lines to ship samples from suspected cases to WHO Collaborating Centres in place	30	N/A
8.4	Availability of resources to facilitate transportation and shipment of specimens	30	Yes
8.5	Existence of protocol for: -sample collection; -referral and shipment of specimens from suspect EVD cases to designated laboratory for confirmation at national and sub-national public health laboratories	30	Yes/No

8.6	Laboratory personnel trained on procedures for specimen collection, packaging, labelling, referral & shipment, including handling of infectious substances	30	Yes/No

Component 9 – Capacities at points of entry

	Activities	Number of days	Yes/No
9.1	Ensure that a health emergency contingency plan is in place at high risk PoE (ports, airports, and ground crossings)	30	Yes
9.2	Deliver identified supplies (9 PPE full sets at each PoE Medical equipment to survey cases 3 Infrared Hand held Thermometers, 1 Scanner, 2 Observation room/ 2 Health facilities and supplies for safe isolation and observation of suspect cases if possible separation room, if not, a separated area. Depending on the geographical location, 1 Ambulance) to PoEs. Every PoE needs to have either a separation room of a dedicated area for holding suspected cases	30	Yes/No
9.3	Identify PoE teams to cover 24/7, to assist travellers and ensure correct isolation if required, including through a "holding" centre/area for any suspect cases	30	No
9.4	Review and test current communication system between health authorities and conveyance operators at PoE, and national health surveillance system	30	Yes/No
9.5	Review systems and procedures for implementation of health measures related to IPC, and train related staff	30	Yes/No
9.6	Avail SoPs to identify, manage and refer suspected ill patients from PoE to designated hospitals /isolation facility	30	Yes/No
9.7	Sensitize public health authorities at PoE to EVD, review their roles and processes for handling, reporting and for referral of suspected cases of EVD	30	No
9.8	Avail SOP for implementing exit screening in the event of a confirmed EVD outbreak	30	No

Component 10 – Overall budget for outbreak

	Activities	Number of days	Yes/No
10.1	Define operational budget for activities (communication, enhanced surveillance, investigation, etc.), pre-epidemic detection and for the preliminary response	30	No
10.2	Identify funding sources, including allocation of domestic resources and mechanisms to raise additional resources when necessary, has been put in place and is known	30	Yes/No
10.3	Develop templates for resource mobilization and for country and donor reporting, including mechanisms to monitor and track implementation	30	No
10.4	Establish easily accessible contingency funds for immediate response to outbreak of EVD at national and other appropriate sites	30	No
10.5	Identify the process to transfer money from central level to local emergency use	30	Yes

Annex 3. Results of table-top simulation

The general opinion is that the table-top simulation covering the 10 components of the checklist did not enable observers or mission members to collect all the information expected. This can be explained by lack of time and the absence of national respondents. We chose not to go over the "case management" section, given our visit to the treatment centre the day before, and we asked specialists in communication and community engagement to meet and review that component.

The core points of the simulation were obtained from a feedback form with open questions on strengths and required clarifications or improvements (weaknesses). Responses were grouped as shown in the following table, arranged by the components of the checklist.

Component	Points for improvement	/20
Coordination	**Strengths**: The existence of various boards and committees, a decree by the government and an action plan account for this component earning the largest number of positive responses.	9
	Weaknesses: Strangely enough, this component also received the most frequent criticisms. Lack of procedures, weak links and poorly defined roles made it the area most often mentioned as requiring improvement.	19
Rapid response team	**Strengths:** Two people found this to be a strength.	2
	Weaknesses: Six others identified the management of ambulances and imprecise roles during home visits as weaknesses.	6
Public awareness and community engagement	**Strengths**: Although we did not cover this element in the simulation in order to save time, community engagement is listed as a strength.	3
	Weaknesses: According to participants, improvements could be made in managing call centres and messages.	5
Infection prevention and control	**Strengths**: Epidemiological monitoring was listed as a strength.	1
	Weaknesses: Clarification is needed in isolation centres and case definitions.	5
Case management	**Strengths:** Case management in the treatment centre was considered a strength by five respondents.	5
	Weaknesses: There is a regrettable amount of confusion, however, regarding the number of centres, the lack of such centres in the regions and the lack of procedures.	10
Burials	**Strengths**: None mentioned.	0
	Weaknesses: Two respondents considered that this aspect could be improved.	2
Epidemiological surveillance	Surveillance was not listed as either a strength or a weakness.	0
Contact tracing	**Strengths:** None mentioned.	0
	Weaknesses: Procedures should be clarified.	1
Laboratory	**Strengths:** Two respondents listed laboratories as a strength.	2

	Weaknesses: Transport of specimens is considered a weakness.	1
Points of entry	**Strengths:** One positive mention.	1
Other	**Strengths**: Stakeholder involvement and standardization of training were listed as strengths	7
	Weaknesses: Lack of training was mentioned by four respondents. Weak operationalization of the plan was listed twice.	6

Participants were also asked to make general comments on the simulation, the mission and its follow-up. Concerning the simulation, nine positive comments were made regarding its necessity and the topics covered; the poor participation of national staff, lack of clarity and defensive attitudes were mentioned as negative aspects. Concerning the mission, several references were made to its importance and usefulness, which would be enhanced if the national team could collaborate and become involved in following up on necessary improvements.

The evaluation form for the table-top simulation contained questions to determine whether its goal had been met, whether the discussions were of good quality and whether the lessons learnt had been useful. More than 95% of participants said they agreed with the three statements listed in the following table.

Content	Completely agree	Agree	Disagree	Completely disagree
The discussion met its stated goal.	10%	85%	4%	
The scenarios and questions gave rise to a good discussion.	50%	50%		
This exercise brought up important questions and useful lessons were learnt.	45%	55%		