

JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the
REPUBLIC OF CÔTE D'IVOIRE

Mission report:
5–9 December 2016



**World Health
Organization**

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Abbreviations

AMR	antimicrobial resistance
CAPSCA	Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation
CBRN	chemical, biological, radioactive and nuclear
CDC	Centers for Disease Control
CIAPOL	Ivorian Antipollution Agency
CIRAD	French Agricultural Research and International Cooperation Organization
cMYP	comprehensive multi-year plan
CRESAC	Regional Centre for Educational, Environmental and Accreditation Evaluations in Africa
ECTAD	Emergency Centre for Transboundary Animal Disease
EOC	emergency operations centre
EPI	Expanded Programme on Immunization
FAO	Food and Agriculture Organization of the United Nations
FETP	field epidemiology training programme
NFP	National Focal Point
GHS	Globally Harmonized System
GHSA	Global Health Security Agenda
GOARN	Global Outbreak Alert and Response Network
IAEA	International Atomic Energy Agency
IHR	International Health Regulations
ILO	International Labour Organization
INFOSAN	International Food Safety Authorities Network
INSSP	Integrated Nuclear Security Support Plan
ISO	International Organization for Standardization
JEE	joint external evaluation
LANADA	Ivorian National Agricultural Development Laboratory
NFP	national IHR focal point
OIE	World Organisation for Animal Health
ORMICI	Ivorian Anti-infective-resistant Microorganisms Observatory
PVS	performance of veterinary services
SOP	standard operating procedure
UNITAR	United Nations Institute for Training and Research
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WAHO	West African Health Organization
WHO	World Health Organization

Executive summary:

Conclusions of the joint external evaluation

Introduction

The International Health Regulations (2005) (IHR (2005)) are a legally binding international instrument that have been in force since 15 June 2007. Their purpose and scope are to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.

Since 2010, the IHR (2005) core capacity monitoring framework has used a self-assessment questionnaire completed by States Parties to report to the World Health Assembly on the status and development of the minimum core public health capacities required by the IHR (2005). Progress has been made, but countries in the Region do not yet have the necessary resources.

In 2014, the IHR (2005) Review Committee recommended that the Director-General consider a variety of approaches for the shorter- and longer-term assessment and development of IHR (2005) core capacities. WHO has developed a new IHR (2005) monitoring and evaluation framework for core capacities that combines qualitative and quantitative approaches to make an objective assessment of countries' true capacities. The new framework focuses on increased accountability and transparency by requiring regular, detailed reporting on the status of application of the IHR (2005), thereby promoting dialogue, trust and accountability between States Parties. The four components of the new monitoring and evaluation framework are: (i) annual reporting; (ii) joint external evaluations; (iii) after-action review; and (iv) simulation exercises.

Joint external evaluations (JEEs) measure the ability of a State Party to the IHR (2005) to prevent, detect and rapidly respond to natural, accidental and deliberately engineered public health threats. A national multisectoral action plan should be drawn up following the JEE mission to ensure that its recommendations are applied.

Main findings

All national stakeholders, representing a range of disciplines and sectors, participated actively in high-level discussions. The presence of the Ivorian Director-General for Health and senior officials from all key sectors testified to the national authorities' full engagement in the process. Logistics were in place to allow the evaluation team to visit all sites as planned. The team itself was multidisciplinary, composed of members from different international institutions and Member States, with the necessary skills to support the mission. This report can therefore serve as a reference document for drawing up the country's IHR (2005) plan incorporating a One Health approach.

Main strengths

Côte d'Ivoire has a number of legal texts that are helpful in terms of applying the provisions of the IHR (2005). A national IHR focal point (NFP) has also been identified within the National Institute of Public Health. The NFP carries out its activities in coordination with stakeholders from other institutions and thus follows a multisectoral and multidisciplinary approach.

The country has a public health emergency operations centre (EOC) that acts as a coordination centre, and has established a national epidemic control committee. The electronic notification system is fully functional in all health districts and regions, meaning that notifiable diseases can be reported in real time, in addition to facilitating the event-based surveillance systems already in place.

Reliable national laboratories are operational in key sectors at the central level and there are national reference centres for detecting and confirming cases of antimicrobial resistance.

There is also good analytical capacity at the central level - at the Ivorian Antipollution Agency (CIAPOL) for quantifying chemical substances and at the National Public Health Laboratory for identifying biological specimens. The Ministry of the Environment has a laboratory for monitoring and detecting radiological waste in the environment, particularly that produced by State-owned companies.

Generally speaking, human resources are supported by several universities and technical schools, and the Government provides incentives to motivate the workforce. National and intermediary sectoral plans exist to respond to different types of human and animal health events.

There is a national plan in place to organize relief during emergencies (the ORSEC Plan). It contains provisions for sending and receiving medical equipment and deploying health workers during a health crisis. The procedures of the New Public Health Pharmacy contain a provision for stockpiling medical supplies in case of a public health emergency.

An effective standard operating procedure for communication systems in health-crisis management was also developed by the EOC as part of its response to the Ebola disease outbreak.

Félix-Houphouët-Boigny International Airport in Abidjan has medical services, specialized equipment and qualified personnel in place, and there is a national plan for public health emergency preparedness and response specific to civil aviation.

Côte d'Ivoire receives support under the Global Health Security Agenda (GHSA) initiative, which has invested significantly in capacity-building for much of the IHR (2005).

Main challenges

Existing legal instruments do not take the IHR (2005) entirely into account and should be revised to better integrate the necessary provisions. The lack of a formal coordination framework limits the functioning of the NFP. Despite clear buy-in in the country, there is also no formal framework for implementing a One Health approach. For example, there are a number of shortcomings with regard to formal procedures for sharing information between the NFP and the OIE focal point. In addition, there is insufficient collaboration between the epidemiological and environmental surveillance mechanisms.

The EOC has not taken all necessary steps to implement a multisectoral platform for coordination and information-sharing so that information can be passed to all key stakeholders. Veterinary capacities are lacking in certain key areas and community-based surveillance is not robust enough. The involvement of hospitals and private health facilities in the surveillance of diseases that constitute a public health and security threat takes place only on an ad-hoc basis.

The system for transporting specimens – vital to the prompt confirmation of an outbreak – does not yet cover all sectors. There is no approved plan for implementing the World Health Assembly's recommendations on the surveillance of antimicrobial resistance. Biosafety and biosecurity capacities must be extended to the other levels of the health pyramid using a multisectoral approach, and the Ministry of Higher Education must be included as a stakeholder in this technical area.

Risk communication skills and their applications are quite limited. In all sectors there is a lack of policy documents on career profiles, particularly for community health workers.

There are no formal mechanisms for reaching agreements with domestic and international manufacturers/distributors to obtain medical equipment during public health emergencies. Robust public health emergency preparedness is essential, but the country has not yet developed a unified multi-risk, multisectoral national plan.

Félix-Houphouêt-Boigny International Airport has suitable medical services, but not the Autonomous Port of Abidjan. In general, the country does not have a national multisectoral public health emergency plan at points of entry.

As in most countries in the region, preparedness for major public health incidents – especially chemical or radiological events – is still not optimal.

Next steps

After five days of discussions with host country experts, the evaluation team proposed the following steps for implementing all the priority actions identified in each technical area:

- Côte d'Ivoire should continue to search for opportunities to materialize the commitments made by West African States in the communiqué issued by the Ministerial Meeting of the West African Regional Conference on One Health. It is also important to take other related frameworks such as the GHSA into consideration when accelerating the IHR implementation process.
- A national action plan that takes into account the findings of the JEE and other recent evaluations of key sectors should be finalized in 2017.
- To strengthen health security and implement the IHR (2005) core capacities, the country should continue to promote the implementation of the new IHR framework (annual reporting, JEE, after-action review and simulation exercises).

Côte d'Ivoire scores

Capacities	Indicators	Score
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005)	2
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005)	2
IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR (2005)	2
Antimicrobial resistance	P.3.1 Antimicrobial resistance (AMR) detection	1
	P.3.2 Surveillance of infections caused by AMR pathogens	1
	P.3.3 Health care-associated infection (HCAI) prevention and control programmes	1
	P.3.4 Antimicrobial stewardship activities	1
Zoonotic diseases	P.4.1 Surveillance systems are in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	3
	P.4.3 Mechanisms for responding to infection zoonoses and potential zoonoses are established and functional	2
Food safety	P.5.1 Mechanisms are established and functioning for detecting and responding to food-borne disease and food contamination	2
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	2
	P.6.2 Biosafety and biosecurity training and practices	2
Immunization	P.7.1 Vaccine coverage (measles) as part of the national programme	3
	P.7.2 National vaccine access and delivery	3
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	4
	D.1.2 Specimen referral and transport system	2
	D.1.3 Effective, modern point-of-care and laboratory-based diagnostics	3
	D.1.4 Laboratory quality system	3
Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	3
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	3
	D.2.3 Analysis of surveillance data	3
	D.2.3 Syndromic surveillance systems	3
Reporting	D.3.1 System for efficient reporting to WHO, FAO and OIE	3
	D.3.2 Reporting network and protocols in the country	2
Workforce development	D.4.1 Human resources are available to implement IHR (2005) core capacity requirements	2
	D.4.2 FETP or other applied epidemiology training programme is in place	3
	D.4.3 Workforce strategy	2

¹ FETP: Field epidemiology training programme

Preparedness	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented	2
	R.1.2 Priority public health risks and resources are mapped and utilized	1
Emergency response operations	R.2.1 Capacity to activate emergency operations	2
	R.2.2 Emergency operations centre operating procedures and plans	2
	R.2.3 Emergency operations programme	3
	R.2.4 Case management procedures are implemented for IHR (2005) relevant hazards	2
Linking public health and security authorities	R.3.1 Public health and security authorities, (e.g. law enforcement, border control, customs) are linked during a suspected or confirmed biological event	2
Medical countermeasures and personnel deployment	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency	2
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency	1
Risk communication	R.5.1 Risk communication systems (such as plans, mechanisms)	1
	R.5.2 Internal and partner communication and coordination	3
	R.5.3 Public communication	2
	R.5.4 Communication engagement with affected communities	2
	R.5.5 Dynamic listening and rumour management	2
Points of entry	PoE.1 Routine capacities are established at points of entry	2
	PoE.2 Effective public health response at points of entry	1
Chemical events	CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies	2
	CE.2 Enabling environment is in place for management of chemical events	2
Radiation emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies	1
	RE.2 Enabling environment is in place for management of radiation emergencies	2

PREVENT

National legislation, policy and financing

Introduction

The IHR (2005) provide obligations and rights for States Parties. In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even if new or revised legislation may not be specifically required, States Parties may still choose to revise some regulations or other instruments in order to facilitate IHR implementation and maintenance in a more effective, efficient and beneficial manner. Implementing legislation could serve to institutionalize and strengthen the role of IHR (2005) and operations within the State Party. It can also facilitate coordination among the different entities involved in their implementation. (See detailed guidance on IHR (2005) implementation in national legislation at http://www.who.int/ihr/legal_issues/legislation/en/index.html.) Policies that provide for national facilities, detail the country's responsibilities and determine the distribution of sufficient funding are also of the highest importance.

Target

States Parties should have an adequate legal framework to support and enable the implementation of all of their obligations and rights to comply with and implement the IHR (2005). In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even where new or revised legislation may not be specifically required under the State Party's legal system, States may still choose to revise some legislation, regulations or other instruments in order to facilitate their implementation and maintenance in a more efficient, effective or beneficial manner.

States Parties should ensure provision of adequate funding for IHR implementation through the national budget or another mechanism.

Côte d'Ivoire level of capabilities

Côte d'Ivoire has a series of legal instruments aimed at implementing the provisions of the IHR (2005). Among them are: Decree No. 91-662 of 9 October 1991 creating the Ivorian Antipollution Agency (CIAPOL); Decree No. 91-614 of 9 October 1991 creating the National Institute of Public Health, which is in charge of epidemiological surveillance; Decree No. 2014-486 of 3 September 2014 establishing the organizational framework for the prevention and control of Ebola virus disease; and Order No. 435-MSP/CAB of 31 December 2007 amending Order No. 415/CAB/MEMSP of 28 November 2005 creating the national epidemic control committee and establishing its organization, remit and functioning. However, these instruments do not take the IHR (2005) entirely into account and should be revised to better integrate the necessary provisions.

In terms of institutions, an NFP has been identified within the National Institute of Public Health. The NFP carries out its activities in coordination with stakeholders within other bodies, but this is hampered by the lack of a formal coordination framework.

There is also a national health development plan in place that includes health monitoring and epidemiological surveillance for the period 2016–2020.

There is as yet no formal framework for implementing a One Health approach, although there is clear buy-in in the country. A draft text in this regard has been developed and is awaiting approval. For the moment,

however, stakeholders are in contact and work together within the framework of an informal coordination platform.

Recommendations for priority actions

- Re-evaluate legislation related to the IHR (2005).
- Implement recommendations based on that evaluation.
 - Produce complementary instruments (laws, degrees and regulations) for implementing the IHR (2005).
 - Promote wider knowledge of the IHR (2005) among decision-makers, stakeholders and the public.
 - Provide regular training and outreach to focal points in the bodies that implement the IHR (2005).
 - Produce and distribute regulations that formally institutionalize a One Health approach.
- Develop a unified funding plan for actions related to the IHR (2005).

Indicators and scores

P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005) - Score 2

Legislation, laws, regulations, administrative requirements, policies and other government instruments related to implementing the IHR (2005) were reviewed.

Strengths/best practices

- Regulatory texts exist that organize epidemiological surveillance.
- Procedural guidance, manuals and directives exist for each level of the health pyramid.
- A cooperation protocol with Burkina Faso is in place.
- Intersectoral coordination is carried out.
- Local epidemic monitoring and control committees are in place.
- Annual simulation exercises are carried out at Félix-Houphouêt-Boigny International Airport in Abidjan.

Areas that need strengthening/challenges

- Legal framework for epidemiological surveillance.
- Coordination between various surveillance networks.
- Effective application of existing legal instruments.
- Clarification of stakeholders' roles and responsibilities within the intersectoral collaboration framework.

P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005) - Score 2

Legislation, regulations, administrative requirements and other government instruments related to implementing the IHR (2005) were reviewed and necessary adaptations were identified.

Strengths/best practices

- Necessary adaptations to the legal framework have been identified.
- Plan for strengthening surveillance capacities is available.

- Partners and donors are fully committed to funding IHR-related activities.
- There is political will to strengthen surveillance and response for epidemics and other public health incidents.

Areas that need strengthening/challenges

- Forecasting and allocation of resources for IHR-related activities.
- Funding in the national budget earmarked for IHR-related activities outside of emergency situations.
- Sufficient, predictable mobilization of resources for implementing the plan outside of times of crisis.

IHR coordination, communication and advocacy

Introduction

The effective implementation of the IHR (2005) requires multisectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. Coordination of nationwide resources, including the designation of an IHR NFP, which is a national centre for IHR communications, is a key requisite for IHR implementation.

Target

The NFP should be accessible at all times to communicate with the WHO IHR Regional Contact Points and with all relevant sectors and other stakeholders in the country. States Parties should provide WHO with contact details of NFPs, continuously update and annually confirm them.

Côte d'Ivoire level of capabilities

Côte d'Ivoire established an EOC in February 2016 that acts as a coordination centre. The country also has a national epidemic control committee and a national committee for Ebola virus disease control. The NFP's communication activities are carried out in coordination with stakeholders within other institutions. However, the following limiting factors remain:

- There is no unified multidisciplinary, multisectoral information-sharing mechanism for communication and coordination.
- There is no action plan for multidisciplinary, multisectoral information-sharing mechanisms.
- There is no information-sharing platform.
- Challenges to functioning of NFP (24-hour accessibility) in terms of:
 - communications
 - qualified human resources.

However, the country has other capacities that facilitate communication, coordination and advocacy among all stakeholders:

- intersectoral coordination mechanism that functions on an ad-hoc basis;
- sharing of reports with other the institutions involved;
- standard operating procedures (SOPs) and guidelines for coordination between the NFP and other sectors involved;
- organization of coordination meetings.

The NFP is tasked with enhancing coordination and communication between ministries. It is a multisectoral coordination, communication and IHR advocacy mechanism that operates within the context of the national epidemic control committee, which includes stakeholders with the necessary competencies (representatives from the Ministry of the Environment, the Ministry of the Interior and the Ministry of Water and Forests, etc., who participate as needed). Unfortunately, the committee is active only in crises (e.g. outbreaks of avian influenza or Ebola virus disease).

There is currently no multisectoral coordination mechanism for responding to non-critical events. Most of these situations are handled on a sectoral basis, with the appropriate ministry being responsible for activities falling within its remit.

SOPs are currently being approved and will soon be available for dissemination. A presidential decree on the One Health approach is currently being drafted to support the work of the NFP. It is of particular importance that stakeholders agree upon a multisectoral coordination framework and the assignment of tasks in the interest of technical collaboration. Legal advisers from different ministries should meet to discuss the presidential decree and develop a coordination and communication mechanism.

Recommendations for priority actions

- Develop a national One Health plan.
- Fuse the various supra-ministerial coordination mechanisms into a single framework at the presidential level that coordinates all actions related to the One Health approach, thus strengthening its multisectoral aspect.
- Strengthen the capacities of communication teams and the teams that manage the EOC.
- Evaluate the effectiveness of the NFP and implement the resulting recommendations.

Indicators and scores

P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR (2005) - Score 2

- Mechanism for interministerial coordination is in place.
- National SOPs, or their equivalent, are in the process of being approved and will allow for coordination between the NFP and other the sectors involved.

Strengths/best practices

- National and departmental epidemic control committees are in place.
- Interministerial order on avian influenza control has been issued.
- Decree on Ebola virus disease control has been issued.
- A public health EOC is in place.
- Drafting of SOPs is in progress.
- Epidemic control committee holds coordination meetings during health crises.
- Shared reporting on implementation of the IHR (2005).

Areas that need strengthening/challenges

- An information-sharing platform should be put in place so that information is accessible to all, by:
 - establishing a coordination and communication mechanism that is multisectoral and multidisciplinary;
 - developing a multisectoral, multidisciplinary action plan on coordination and communication mechanisms.

Antimicrobial resistance

Introduction

Bacteria and other microbial species evolve in response to their environment and inevitably develop mechanisms to resist being killed by antimicrobial agents. For many decades, the problem was manageable as the growth of resistance was slow and the pharmaceutical industry continued to create new antibiotics.

Over the past decade, however, this problem has become a crisis. The evolution of antimicrobial resistance (AMR) is occurring at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security, and national security.

Target

Support work coordinated by FAO, OIE and WHO to develop an integrated global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a One Health approach). Each country has: (i) its own national comprehensive plan to combat antimicrobial resistance; (ii) strengthened surveillance and laboratory capacity at the national and international levels following international standards developed as per the framework of the Global Action Plan and taking into account existing laws; and (iii) improved conservation of existing treatments and collaboration to support the sustainable development of new antibiotics, alternative treatments, preventive measures and rapid point-of-care diagnostics, including systems to preserve new antibiotics.

Côte d'Ivoire level of capabilities

Although Côte d'Ivoire has been working to detect AMR in the laboratory for 23 years, the country does not have an approved national plan. Several national reference centres, which contribute to detecting and confirming cases of AMR, have nonetheless been created since 2006. The centres alert the Ministry of Health and Public Hygiene and the Ministry of Higher Education when such cases arise. Work is regularly carried out on the topic, particularly academic studies, but there is no national organization that supports it.

The President's Emergency Plan for AIDS Relief project has strengthened the capacities of six regional laboratories – in Yamoussoukro, Korhogo, Abengourou, Daloa, San Pedro and Man – bringing the country's total number of national reference centres to 20 (Order No. 393/MSHP/MESRS of 21 June 2006).

Other resources in Côte d'Ivoire:

- Human health: 4 teaching hospitals, 84 general hospitals, 17 regional hospitals and 1964 first-contact health facilities (source: RASS 2015). Among these facilities, there are a total of 27 AMR laboratories.
- Animal health and environment: 19 public and 24 private veterinary clinics (source: 2015 DSV annual reports), the National Agricultural Development Laboratory (LANADA) and the Ivorian Antipollution Agency (CIAPOL).

Recommendations for priority actions

- Develop a national institutional framework for the prevention and control of infections and AMR and establish set roles and responsibilities at all levels of the health pyramid in human and animal medicine.

- Develop a strategic action plan, based on WHO technical recommendations, that is adapted to the reality on the ground and accompanied by a budgeted operational plan.
- Strengthen the capacity of all facilities with an important role to play under the new One Health policy.
- Increase advocacy and awareness-raising about AMR in the animal, agricultural, food and environmental sectors.
- Implement the national plan for AMR surveillance capacity-building.

Indicators and scores

P.3.1 Antimicrobial resistance detection - Score 1

No national plan has been approved for detecting and reporting priority antimicrobial-resistant pathogens.

Although this capacity is non-existent, the country nonetheless has the potential to combat AMR through: (i) a national laboratory for antimicrobial-resistant pathogens (the Pasteur Institute of Côte d'Ivoire); (ii) 44 laboratories (for human and animal health, both public and private) able to detect and report antimicrobial-resistant pathogens; and (iii) verified laboratory methods and quality control carried out by external quality assurance.

This potential remains geographically limited to a few facilities at the top of the health pyramid. A broader network of laboratories needs to be developed, and their capacities strengthened, so that they can be involved in the global AMR surveillance system for human and animal health. WHO has proposed a model that all countries can use and adapt. There is also some disparity between the human and animal sectors, in the sense that the latter is not as involved in combatting AMR.

Strengths/best practices

- National AMR guidelines available.
- National surveys of resistance to tuberculosis medication.
- 27 public and private laboratories identified.
- Anti-infective-resistant microorganisms observatory (ORMIC) established in 2002.
- External quality control at 6 regional laboratories.
- National AMR surveillance guidelines provided to laboratories.
- Best practices developed for veterinary and environmental sectors.
- More laboratories identified in all 3 sectors.
- External quality control of more laboratories.
- Accreditation and certification process in place.

Areas that need strengthening/challenges

- Training for laboratory workers to detect AMR in human and animal health care and agriculture.
- Creation of technical guidance for the veterinary and environmental sectors.
- Management of input stocks.
- Management of data and outputs (bio-collection, archiving and waste).
- Standardized AMR detection and surveillance techniques in laboratories in all three sectors.
- Participation in the global surveillance system put in place by WHO.

P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens - Score 1

No national plan has been approved for the surveillance of infections caused by antimicrobial-resistant pathogens.

The same strengthening actions are needed. Collaborative partnerships between laboratories and clinics must be put in place at the operational level for the surveillance of infections in both human and veterinary medicine.

Strengths/best practices

- A network of 16 public and 11 private laboratories has been identified.
- Anti-infective-resistant microorganisms observatory (ORMICI) is in place.
- Greater number of laboratories nationwide in the areas of public health, veterinary medicine and the environment have been identified and strengthened.
- Infections caused by pathogens are reported for AMR surveillance.
- ORMICI has been made an official institution.

Areas that need strengthening/challenges

- Collection of antimicrobial-resistant pathogens.
- Transport of antimicrobial-resistant pathogens.
- Collection of AMR data.
- Overview of infections caused by antimicrobial-resistant pathogens (reporting of infections caused by antimicrobial-resistant pathogens, providing information about antimicrobial-resistant pathogens to the authorities, health workers, NGOs and the public).
- Mapping of infections caused by antimicrobial-resistant pathogens.
- Creation of a database of infections caused by antimicrobial-resistant pathogens.
- Effective operational collaboration between clinics and laboratories in detecting infections caused by multi-resistant microbes.

P.3.3 Health-care-associated infection prevention and control programmes - Score 1

No national plan has been approved for health-care-associated infection prevention and control programmes.

A nationwide programme, set within a well-defined institutionalized framework, must be put in place and roles and responsibilities must be designated at the national, intermediate and operational levels.

Strengths/best practices

- National documentation approved (toolbox, hospital hygiene documentation and national guidelines on the surveillance and prevention of health-care-associated infections).
- Organizational structure for infection prevention and control (3 health-care-associated infection control committees, at Cocody, Yopougon and Treichville University Hospitals).
- Policy on the prevention and control of health-care-associated infections is being drafted.
- Training in health-care-associated infection prevention and control provided to 60 people: 30 staff at Cocody University Hospital and 30 staff at Treichville University Hospital.
- Key documents exist (see above), to be circulated nationally.

- National training plan developed.
- More health-care-associated infection control committees established.
- Policy documents and guidelines approved and disseminated nationally.

Areas that need strengthening/challenges

- Investigation into national prevalence of health-care-associated infections.
- Health-care-associated infection control capacities for health facilities to be strengthened.
- Organizational and administrative measures to be put in place at the national, intermediate and operational levels to reduce health-care-associated infections nationwide.
- Monitoring and evaluation.

P.3.4 Antimicrobial stewardship activities - Score 1

No national plan has been approved for antimicrobial stewardship activities.

A national antimicrobial stewardship plan needs to be drafted and implemented based on the tool proposed by WHO, which countries can use and adapt as needed.

Strengths/best practices

- National survey on cotrimoxazole has been carried out.
- National survey on antimicrobial use is in development.
- AMR surveillance carried out by the ORMICI.
- National programme of regular surveys into the use of antimicrobials in all three sectors is in place.
- Consensus conferences are held on treatment regimens.
- ORMICI coordinates AMR stewardship activities.

Areas that need strengthening/challenges

- National action plan to be put in place using the WHO tool.
- Awareness-raising among health professionals and the population regarding the judicious use of antimicrobials in all three sectors.
- Workforce development in support of programmes promoting the proper use of antibiotics.

Zoonotic diseases

Introduction

Zoonotic diseases are communicable diseases and microbes spreading between animals and humans. These diseases are caused by bacteria, viruses, parasites, and fungi that are carried by animals and insect or inanimate vectors may be needed to transfer the microbe. Approximately 75% of recently emerging infectious diseases affecting humans are of animal origin; approximately 60% of all human pathogens are zoonotic.

Target

Adopted measured behaviours, policies and/or practices that minimize the transmission of zoonotic diseases from animals into human populations.

Côte d'Ivoire level of capabilities

Côte d'Ivoire has bodies responsible for zoonotic disease surveillance (the Ministry of Animal Resources and Fisheries, the Ministry of Water and Forests and the Ministry of Health and Public Hygiene), each of which carries out surveillance activities independently. However, when epidemics occur, an interministerial committee is established to develop and implement an integrated epidemic control plan. Côte d'Ivoire has a list of zoonotic diseases under surveillance (anthrax, salmonella, rabies, highly pathogenic avian influenza, bovine/human tuberculosis, Ebola fever disease, brucellosis, echinococcosis, cysticercosis and Rift Valley fever). There is also a small core group of trained professionals and competent laboratories working in both human and animal health.

The country does not have an official One Health policy, but initiatives are under way to establish an integrated zoonotic disease control mechanism.

Recommendations for priority actions

- Establish a unified and integrated national plan for preventing and controlling priority zoonotic diseases.
- Establish formal ties for information-sharing that link technical partners (the three ministries listed above) with public health and veterinary laboratories.
- Increase country-wide coverage in terms of the animal health workforce, including private veterinarians.

Indicators and scores

P.4.1 Surveillance systems are in place for priority zoonotic diseases/pathogens - Score 3

Surveillance systems are in place for 1-4 zoonotic diseases/pathogens posing the greatest national public health threat.

Strengths/best practices

- Surveillance system for animal diseases (including zoonotic diseases) since 2001, for human health and wildlife.
- Successful management of an avian influenza (A(H5N1)) epidemic in 2006; 2016 epidemic is under control.
- At the time of writing, proactive prevention efforts have kept the country free of Ebola virus disease.

Areas that need strengthening/challenges

- Integration of animal, human and wildlife surveillance systems.
- Use of the risk-analysis tool.
- Systematic information-sharing between the animal, human and wildlife sectors.
- Zoonotic disease prevention and control plan to be implemented.
- Material, technical and financial capacity-building for stakeholders.

P.4.2 Veterinary or animal health workforce - Score 3

Côte d'Ivoire has an animal health workforce as part of its national public health-care system but in less than half of lower-level systems within the country.

Strengths/best practices

- Public and private veterinarians and technical support staff (engineers, assistants and instructors).
- Joint field epidemiology training programme (FETP, 2016) for physicians and veterinarians.

Areas that need strengthening/challenges

- Insufficient workforce at the central and departmental levels.
- Few veterinarians trained in field epidemiology.
- Qualified workforce is too small to cover the entire country.

P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional - Score 2

A zoonotic disease response policy/strategy/national plan is in place.

Strengths/best practices

- Prevention and control plans are in place for rabies, anthrax, highly pathogenic avian influenza and Ebola virus disease.
- National committees and zoonotic disease control plans are in place in case of an epidemic of highly pathogenic avian influenza or Ebola virus disease.

Areas that need strengthening/challenges

- Insufficient coordination (no joint missions) between structures involved in response operations.
- No effective mechanism for rapid information-sharing between sectors and communication with the population.
- Response times are sometimes slow (seven days on average, including laboratory confirmation).
- Intersectoral collaboration is weak.

Food safety

Introduction

Foodborne and waterborne diarrhoeal diseases are the primary cause of morbidity and mortality, particularly in less developed countries. The rapid globalization of food production and trade has increased the potential likelihood of international incidents involving contaminated food. The identification of the source of an outbreak and its containment is critical for control. Risk management capacity with regard to control throughout the food chain continuum must be developed. If epidemiological analysis identifies food as the source of an event, based on a risk assessment, suitable risk management options that ensure the prevention of human cases (or further cases) need to be put in place.

Target

States Parties should have surveillance and response capacity for foodborne and waterborne diseases' risk or events. This requires effective communication and collaboration among the sectors responsible for food safety and safe water and sanitation.

Côte d'Ivoire level of capabilities

Côte d'Ivoire has national food safety standards and is part of the International Food Safety Authorities Network (INFOSAN) and Codex Alimentarius. But there is insufficient coordination (no joint missions) between the various bodies involved in managing crises, and response activities are not evaluated after they have been carried out.

The following stakeholders play specific roles:

- The Ministry of Health and Public Hygiene implements nutrition policies.
- The Ministry of Agriculture implements inspection policies for agricultural production.
- The Ministry of Animal Resources and Fisheries' Office of Veterinary Services implements inspection policies for animal or animal-origin foodstuffs.
- The Ministry of the Environment implements inspection policies for bodies of water and species used for agriculture.

Recommendations for priority actions

- Speed up finalization and approval of the multisectoral food safety management system.
- Strengthen the mechanism for information-sharing during foodborne illness outbreaks.
- Make funding available for joint missions and strengthen technical, logistical and financial capacities.

Indicators and scores

P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination - Score 2

Strengths/best practices

- National standards are in place.
- Membership in INFOSAN, Codex Alimentarius and the OIE Aquatic Animal Health Code and Terrestrial Animal Health Code.

- Members of foodborne illness outbreak response teams have been designated.
- Response teams have been formed to investigate incidents of contaminated food.
- Standardized questionnaires are used during investigations.
- Specimens are taken from symptomatic cases and foodstuffs for testing.

Areas that need strengthening/challenges

- Sectoral management of prevention and response during suspected outbreaks of foodborne illness.
- Insufficient coordination (no joint missions) between the bodies involved.
- No effective, rapid mechanism for information-sharing between all stakeholders and sectors involved during investigations of foodborne illness alerts/suspected outbreaks.
- Responses not evaluated.
- No multisectoral collaboration for evaluating food safety risks.
- No effective communication mechanism between food safety stakeholders.
- No communication mechanism for informing, educating and advising the public.
- No multisectoral management system for food safety inspections in the country.
- Multisectoral collaboration to be improved.
- Communication between stakeholders to be improved.
- Stakeholders' capacities to be strengthened (technical and financial).
- Responses to be evaluated.
- Multisectoral management system for food safety inspections to be put in place.

Biosafety and biosecurity

Introduction

Working with pathogens in the laboratory is vital to ensuring that the global community possesses a robust set of tools – such as drugs, diagnostics, and vaccines – to counter the ever evolving threat of infectious diseases.

Research with infectious agents is critical for the development and availability of public health and medical tools that are needed to detect, diagnose, recognize, and respond to outbreaks of infectious disease of both natural and deliberate origin. At the same time, the expansion of infrastructure and resources dedicated to work with infectious agents have raised concerns regarding the need to ensure proper biosafety and biosecurity to protect researchers and the community. Biosecurity is important in order to secure infectious agents against those who would deliberately misuse them to harm people, animals, plants, or the environment.

Target

A whole-of-government national biosafety and biosecurity system is in place, ensuring that especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach are conducted to promote a shared culture of responsibility, reduce dual-use risks, mitigate biological proliferation and deliberate-use threats, and ensure safe transfer of biological agents; and country-specific biosafety and biosecurity legislation, laboratory licensing, and pathogen control measures are in place.

Côte d'Ivoire level of capabilities

Côte d'Ivoire is fortunate in having high-level national laboratories at the apex of the health pyramid, appropriately staffed and equipped, thereby allowing them to ensure proper biosafety and biosecurity. The Pasteur Institute and the National Public Health Laboratory handle human health matters, LANADA handles food safety, and CIAPOL handles environmental pollution. There are also bodies responsible for issuing laboratory accreditations: the Regional Centre for Educational, Environmental and Accreditation Evaluations in Africa (CRESAC) and WHO accreditation auditors. A WHO focal point for the transport of potentially infectious substances is also in place. A P4-level laboratory is under construction.

However, these capacities must be extended to other levels of the health pyramid and across sectors. Much effort has gone into producing regulations, guidance and directives and into workforce training, but challenges remain in terms of:

- putting in place a framework to coordinate activities across sectors
- filling in gaps in national regulations
- developing and approving curricula at the national level
- developing and approving national-level operating procedures
- capacity-building for laboratories at lower levels of the health pyramid and in all sectors
- putting in place a national infection prevention and control plan and a strategic action plan
- carrying out follow-up evaluations of all of the above activities.

Recommendations for priority actions

- Develop national biosafety and biosecurity regulations, particularly on the secure and safe use, storage, disposal and confinement of pathogens in laboratories.
- Establish a programme for national biosafety and biosecurity training and supervision at laboratories, including those in research institutions and diagnostic and biotechnology laboratories.
- Provide biological risk management experts with the necessary skills to train others within their respective institutions.
- Promote biosafety and biosecurity by using rapid testing methods rather than cultures, for better waste management at the peripheral level.
- Implement a plan for the transport of infectious substances (human, animal and environmental sectors).

Indicators and scores

P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities - Score 2

The external evaluation team suggested raising the score from 1 to 2 based on existing capacities and activities that have been carried out.

Strengths/best practices

- Laboratories have sufficient biosecurity capabilities.
- Competent structures and personnel for carrying out accreditation procedures.
- Numerous biosecurity protocols already in place nationally, and used regularly in some facilities.

Areas that need strengthening/challenges

- Multisectoral capacity-building at lower levels of the health pyramid and incorporation of the Ministry of Higher Education as a technical stakeholder.
- Multisectoral collaboration to be established.
- Monitoring of regulations, preparation of guidelines and directives, and staff training.

P.6.2 Biosafety and biosecurity training and practices - Score 2

The external evaluation team suggested raising the score from 1 to 2 based on progress in the areas of training and best practices acquisition.

Strengths/best practices

- National standard operating procedures and directives in place.
- Some laboratories undergoing WHO or CRESAC accreditation processes.
- Biosecurity training needs have been evaluated.

Areas that need strengthening/challenges

- Development and approval of national-level curricula.
- Development and approval of national operating procedures.
- Capacity-building for laboratories at lower levels of the health pyramid and in all sectors.

Immunization

Introduction

Immunization is one of the most successful global health interventions and one of the most cost-effective ways to save lives and prevent disease. Immunizations are estimated to prevent more than two million deaths a year globally.

Target

A functioning national vaccine delivery system – with nationwide reach, effective distribution, access for marginalized populations, an adequate cold chain, and ongoing quality control – that is able to respond to new disease threats.

Côte d'Ivoire level of capabilities

Human health:

Côte d'Ivoire has an Expanded Programme on Immunization (EPI) Coordination Office that covers 10 diseases: tuberculosis, tetanus, diphtheria, pertussis, poliomyelitis, hepatitis B, diseases caused by Haemophilus influenzae type b, yellow fever, measles and pneumococcal diseases (comprehensive multi-year plan).

The routine EPI target is young children under 11 months and pregnant women. Great progress has been made, including:

- elimination of maternal and neonatal tetanus, validated in 2013;
- transmission of wild poliovirus halted as of July 2011;
- national documentation certifying that the country is free of wild poliovirus, accepted by the Regional Certification Committee for Poliomyelitis in November 2015;
- reductions in epidemic outbreaks of targeted diseases, particularly measles;
- penta-3 vaccine coverage was 93% and measles vaccine coverage was 82% in 2015 (administrative data);
- awareness campaigns on the poliomyelitis and measles vaccines will focus on children and parents in 2017;
- EPI focal point team trained and deployed in each district.

Immunization is fully functional in Côte d'Ivoire. Much progress has been made and capacity has been developed. Immunization coverage for target diseases is a little over 80%.

However, EPI has encountered difficulties in recent years. Although there was no stockout of measles vaccine in 2015, there was a shortage of national yellow fever vaccine. More than half of health centres do not provide immunization services every day. Although vaccinations are completely free of charge, vaccine providers in certain areas impose small fees for immunizing children, which has hindered the attainment of coverage goals. Supervision of immunization activities would help to correct such irregularities.

Upcoming activities are described in the EPI Comprehensive Multi-year Plan (cMYP) 2016–2020.

Animal health:

Immunization against contagious bovine pleuropneumonia is mandatory in Côte d'Ivoire for at-risk domestic animals (Côte d'Ivoire Animal Health Enforcement Agency Decree of 1963). An animal immunization plan has been implemented under the responsibility of the Office of Veterinary Services. The plan targets tuberculosis, rabies, sheep and goat plague and contagious bovine pleuropneumonia. It is worth noting that there have been stockouts of the last two vaccines due to financial constraints within the Ministry of Animal Resources and Fisheries, the sole purchasing authority. All other vaccine stocks are managed by wholesalers at the operational level, and no shortages have been reported. Immunization coverage in 2016 was 90% among the 80% of the inventoried animal population.

As for the rabies vaccine, there is no specific serological monitoring, but testing is mandatory for dogs that travel (immunization is provided by private services).

Cold chain and surveillance:

Veterinary services are well organized and operational. The surveillance system for human diseases is often used to better steer animal immunization activities. Human health organizations work in collaboration with their animal-health counterparts, using the same cold chain at the operational and territorial levels. Vaccines are properly distributed in all districts throughout the country, which shows that there is an effective distribution system for vaccines and inputs at the operational level. However, there are still stockouts at both the operational and national levels which disrupts the regularity of immunization activities. Despite having a reliable distribution system at all levels, Côte d'Ivoire cannot currently guarantee continuous availability of vaccines or funding for their purchase.

Recommendations for priority actions

- Strengthen logistical resources and maintenance capacities for human and animal health.
- Strengthen workforce capacities in cold-chain management.
- Continue to provide funding for immunization services, particularly for advanced and mobile strategies.
- Improve the quality of administrative data.
- Increase demand for immunization among the public.

Indicators and scores

P.7.1 Vaccine coverage (measles) as part of national programme - Score 3

Strengths/best practices

- A strategic plan is in place (cMYP 2016–2020) which aims to improve immunization coverage through:
 - strengthened immunization services
 - improved supply of free vaccines administered in private facilities
 - strengthened community-based immunization schedule monitoring mechanisms
 - good, uninterrupted availability of vaccines and consumables
 - improved infrastructure and equipment (cold-chain and transport materials)
 - strengthened vaccine-management system at all levels
 - measures for increasing demand for immunization.

Areas that need strengthening/challenges

- Strengthening immunization strategies, especially among hard-to-reach populations.
- Strengthening immunization advocacy and uptake in the community by increasing demand with help from civil society organizations and community leaders.
- Continuing to introduce new vaccines:
 - rotavirus in 2017
 - rubella and meningitis A in 2018

P.7.2 National vaccine access and delivery - Score 3

Needs forecasting and procurement of vaccines are carried out in such a way that there are no stockouts at the central level, but there are occasional shortages in the districts.

Strengths/best practices

No strengths recorded.

Areas that need strengthening/challenges

- Vaccines and inputs to be available at all times.
- Continued strengthening of the EPI Coordination Office's supply chain management capacities by:
 - constructing regional cold-storage rooms
 - strengthening workforce capacities in cold-chain management.
- Continued strengthening of health districts' capacities in terms of rolling stock.

DETECT

National laboratory system

Introduction

Public health laboratories provide essential services, including disease and outbreak detection, emergency response, environmental monitoring and disease surveillance. State and local public health laboratories can serve as a focal point for a national system through their core functions for human, veterinary and food safety, including: disease prevention, control and surveillance; integrated data management; reference and specialized testing; laboratory oversight; emergency response; public health research; training and education; and partnerships and communication.

Target

Real-time biosurveillance with a national laboratory system and effective, modern point-of-care and laboratory-based diagnostics.

Côte d'Ivoire level of capabilities

Côte d'Ivoire has an extensive laboratory system in the areas of:

- human health: over 420 laboratories, 113 of which are in the private sector. These laboratories can be divided into 3 categories based on their level of capabilities: primary (within rural and urban health centres, specialized urban health centres and urban health education facilities), secondary (209 laboratories at general and regional hospitals) and tertiary (12 laboratories, including national laboratories and those located at university hospitals and specialized institutes);
- animal health and agriculture: 5 laboratories;
- environment: 1 laboratory.

This system is capable of diagnosing most known human and animal diseases present in the country. One notable asset is the Pasteur Institute of Côte d'Ivoire with its molecular diagnostic capacity, a fact recognized by its status as a WHO regional reference laboratory for measles, gonococcal infections and poliomyelitis. The National Public Health Laboratory and the Pasteur Institute provide support to regional laboratories and evaluate their diagnostic activities.

National laboratories with varying levels of capacity and areas of specialization collaborate through formal or informal partnerships. The diagnostic laboratory system in Côte d'Ivoire is characterized by disparities in terms of human resources and equipment, which are spread unevenly among the 3 sectors (human health, animal health/agriculture and environment), and also within each sector (some regional laboratories are not actually functional). There is therefore an urgent need to correct these disparities through additional equipment, consumables and human resources.

While there is a national body – CRESAC - in charge of laboratory certification, in practice few laboratories have a quality assurance system in place (with the exception of the National Public Health Laboratory, which has two accreditations for quality control of medicines).

Recommendations for priority actions

The following priority actions were identified to make the country's disease diagnostic system more effective and reliable.

- Adapt the network of diagnostic laboratories for priority human and animal diseases (bring diagnostic facilities closer to points of care) while providing peripheral laboratories with more equipment and human resources.
- Put in place a fast and effective system for transporting specimens to national laboratories to make diagnostic testing easier and increase access to testing in remote areas/districts from 50% to 80%.
- Strengthen national laboratories (particularly the organizational functions of the National Public Health Laboratory and quality control of laboratories by the Ministry of Health and Public Hygiene) so that they can better provide support to peripheral and regional laboratories which carry out primary diagnosis.
- Encourage laboratories to carry out quality assurance so that they can receive accreditation.

Indicators and scores

D.1.1 Laboratory testing for detection of priority diseases - Score 4

The national laboratory system is able to carry out nine of the ten main tests.

Strengths/best practices

- Côte d'Ivoire has a national laboratories policy, published in 2012, and a three-year strategic plan (2012–2015), although the plan has not yet been assessed. One considerable strength of the laboratory system is that the National Public Health Laboratory carries out external evaluations of other laboratories for a number of diagnostic tests (e.g. tuberculosis, influenza, bacteria that cause diarrhoea, CD4 and HIV serological testing).

Areas that need strengthening/challenges

The country must assess its 2012–2015 strategic plan and draw lessons from it to prepare a new plan for a set period. The new strategy will have to address a number of challenges.

- Existing facilities must be strengthened so that many tests can be carried out closer to patients and the response to the country's priority diseases is made as rapidly as possible.
- To do the above, regional and district facilities must also be strengthened (this will be a major challenge).
- Better coordination and collaboration between laboratories in the human health, animal health and environmental sectors must be promoted in order to implement a One Health approach.
- As in practically every other Sub-Saharan African country, maintaining equipment is also a challenge. Overcoming it will not be easy and will require pooling resources and coordinating equipment maintenance plans in preparation for bringing in specialists.

D.1.2 Specimen referral and transport system - Score 2

Although a system for transporting specimens is in place, it is most often reliant on public transport (and therefore involves considerable risk). The system does not function well in most districts. However, specimen transport does seem to be better organized in the human health sector than in the animal health and environmental sectors.

Strengths/best practices

- Transfer of specimens to their destination laboratory for diagnosis is well documented.

- The Pasteur Institute (human health) and the Bingerville Central Veterinary Laboratory (animal health) belong to international and regional laboratory networks.

Areas that need strengthening/challenges

- Transport contracts have been signed and are funded by the Ministry of Health (or external partners such as WHO or the CDC) for the human health sector but not for the animal health and environmental sectors.
- It is more and more difficult to send dangerous substances (category UN 2814) to reference laboratories abroad, which poses an increasing challenge in transporting infectious substances. Air transport companies are also less and less likely to accept these substances. WHO, FAO and OIE would be well advised to tackle this problem.
- Best practices for the transport of infectious substances should be disseminated throughout the country and across all sectors.

D.1.3 Effective, modern point-of-care and laboratory-based diagnostics - Score 3

Specific diagnostic testing strategies have been documented and fully applied at several levels. There is a national specimen transport system and confirmatory testing for a number of diseases – such as those for which the Pasteur Institute serves as the reference laboratory – which even includes modern molecular techniques. (The Pasteur Institute has an advanced molecular biology platform and is able to conduct molecular characterization of pathogens.) However, this is not the case for animal health. The Bingerville Central Veterinary Laboratory is well equipped for molecular biology, but not to the same extent as the Pasteur Institute.

The country uses point-of-care diagnostic tests for its priority diseases in accordance with diagnostic testing strategies at several levels.

Strengths/best practices

Côte d'Ivoire's national laboratory system has a number of important assets.

- The Pasteur Institute has a very well equipped laboratory and a well trained workforce able to carry out most tests, including molecular techniques.
- The National Public Health Laboratory has a very well equipped laboratory for quality control of medicines, which could also be used to inspect foodstuffs.
- Ministry of Health has good procurement procedures in place for purchasing media and reagents needed for the main diagnostic tests.

Areas that need strengthening/challenges

- Strengthening peripheral laboratories so that they can diagnose priority diseases and thus shorten response times, particularly for animal health.
- Strengthening national laboratories in terms of equipment and qualified staff so that they can confirm peripheral laboratories' results for the country's priority diseases.

D.1.4 Laboratory quality system - Score 3

There is a licensing system for laboratories in the human health sector, and the National Public Health Laboratory implements it by carrying out external quality evaluations (the process is undergone on a voluntary basis and not required for all laboratories). There is also a national body, CRESAC, in charge of certifying laboratories.

Strengths/best practices

- CRESAC is in charge of certifying laboratories.
- The Office of Pharmacies, Medicines and Laboratories is in charge of licensing human health laboratories.
- Some facilities take part in inter-laboratory testing for both human and animal health (LANADA is part of RESOLAB, a network of veterinary laboratories in western and central Africa).
- A national regulatory authority is in charge of qualifying and registering devices for in-vitro diagnostics. This authority is made up of members of the Office of Pharmacies, Medicines and Laboratories, the National Public Health Laboratory, the Office of Infrastructure, Equipment and Maintenance and the New Public Health Pharmacy.
- Some laboratories have begun the quality-assurance process, such as the National Public Health Laboratory, which has two accreditations.
- In the environmental sector, CIAPOL's Central Environmental Laboratory is in charge of assessing the technical aspects of applications from private laboratories and services working within its area of specialization.

Areas that need strengthening/challenges

- Adoption of quality-assurance procedures by a greater number of laboratories, particularly in animal health. (No government body in charge of certifying animal health laboratories.)

Real-time surveillance

Introduction

The purpose of real-time surveillance is to advance the country's safety, security, and resilience by leading an integrated biosurveillance effort that facilitates early warning and situational awareness of biological events.

Target

Strengthened foundational indicator- and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between sub-national, national and international levels of authority regarding surveillance of events of public health significance; improved country- and intermediate-level regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, including interoperable, interconnected electronic reporting systems. This would include epidemiologic, clinical, laboratory, environmental testing, product safety and quality and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with the IHR (2005) and OIE standards.

Côte d'Ivoire level of capabilities

Human health surveillance:

Indicator-based disease surveillance in Côte d'Ivoire is carried out through integrated disease surveillance and response. The list of notifiable diseases is available. Health workers were retrained in 2012 and a training/retraining programme is ongoing for integrated disease surveillance and response. Training on the topic was consequently held for staff in 40 health districts and for community health workers. The national field epidemiology training programme (FETP) is very effective and includes basic and advanced surveillance training.

A well-run network for collecting information, data and feedback is in place. The country has a functioning electronic reporting system that enables real-time reporting of notifiable diseases by making information-collection tools available. Smartphones are used in all health districts and regions, along with District Health Information Software (DHIS2) trackers and the Advanced Mobile Data Messaging and Visualization website (MAGPI). However, there is no real-time data collection within laboratories and no mechanisms for centralizing data. Quality control of surveillance data is carried out during the harmonization meetings of four entities (the Office of Health Information Forecasting, Planning and Evaluation, the EPI Coordination Office, the National Institute of Public Health, and the Pasteur Institute of Côte d'Ivoire). Surveillance is also supervised in the health districts. Efforts must nonetheless be made to improve data quality.

Cross-border surveillance is in place for diseases with epidemic potential, particularly for meningitis in northern Côte d'Ivoire. The private sector only participates in surveillance on an ad-hoc basis.

Event-based surveillance is also functional in Côte d'Ivoire. Community-based surveillance was introduced in the health districts in 2016. There is also shared reporting tool for community-based surveillance (form for reporting warnings of diseases under surveillance or unusual health events).

Animal health surveillance:

In the animal health sector, surveillance is carried out using the World Animal Health Information System (WAHIS) and Animal Resources Information System (ARIS 2). However, the latter has encountered difficulties at the operational level because the application is not very user friendly. The list of notifiable diseases is available. Front-line FETP training is in its early stages, and also includes practical tools for specific diseases and risk assessment. The main difficulty lies in distributing these training tools to stakeholders not involved in the FETP, in addition to ensuring the lasting impact of the training.

At the departmental level, information is sent to regional directors who forward it to the central level for validation before it is shared with technical and financial partners. Community-based surveillance faces some difficulties in the animal health sector. Its implementation is in the pilot phase in three regions.

In terms of cross-border surveillance, there are health posts along the country's borders where animals are inspected. The private and public sectors collaborate perfectly well, especially during crises. However, this collaboration should be formalized.

Environmental surveillance is being put in place, along with a related electronic reporting system.

Recommendations for priority actions

- Put in place an electronic surveillance system as part of a One Health approach that includes a laboratory aspect.
- Strengthen event- and community-based surveillance.
- Integrate hospitals and the private sector into the national surveillance system.
- Strengthen regular supervision of surveillance systems in the human health, animal health and environmental sectors.
- Strengthen the capacities of data managers at all levels.

Indicators and scores

D.2.1 Indicator- and event-based surveillance systems - Score 3

Indicator- or event-based surveillance systems are in place to detect public health threats.

Strengths/best practices

- Guidance on integrated disease surveillance and response is available and has been adapted to the country's needs.
- National network for collecting data, information and feedback is in place.
- Health workforce has been trained in integrated disease surveillance and response and field epidemiology.
- Veterinarians and laboratory workers trained in field epidemiology.
- The country takes part in epidemiological investigations.

Areas that need strengthening/challenges

- List of priority events and case definitions needed for the environmental sector.
- Surveillance in the animal health and environmental sectors is often slow and incomplete.
- Mechanism for transferring laboratory results in real time to be put in place.

- Surveillance system for animal health and the environment to be strengthened.
- Continued training and supervision of health workers in terms of integrated disease surveillance and response and field epidemiology.
- Field epidemiology training for all workers in the field.
- Retention mechanism to be put in place for the health workforce trained in integrated disease surveillance and response and field epidemiology.

D.2.2 Interoperable, interconnected, electronic real-time reporting system - Score 3

The country has put in place an interoperable and interconnected electronic reporting system for public and animal health surveillance systems. However, the system does not have the capacity to share data in real time.

Strengths/best practices

- Smartphones made available in all health districts and regions.
- Real-time electronic reporting systems in place for notifiable diseases in the human and animal health sectors.
- Notifiable diseases reported using MAPGI software.

Areas that need strengthening/challenges

- Interoperable, interconnected, real-time reporting across sectors.
- Sharing of key information about diseases with epidemic potential across sectors.

D.2.3 Analysis of surveillance data - Score 3

Data is recorded in reports that are often drawn up after some delay. Ad-hoc teams are in place to analyse the data.

Strengths/best practices

- Shared reporting tool for community-based surveillance (form for reporting warnings of diseases under surveillance or unusual health events).
- Reports are complete and issued promptly in the human health sector.
- Cases of malaria reported by community health workers.
- Epidemiological bulletin (outbreak watch) exists and is distributed, but only during animal health crises.

Areas that need strengthening/challenges

- Laboratory results to be forwarded to relevant bodies in real time.
- Reporting forms issued by the various ministries to be harmonized.
- Laboratory results and surveillance data to be forwarded in real time (for human health, animal health and the environment).
- Reporting forms to be integrated.

D.2.4 Syndromic surveillance systems - Score 3

Syndromic surveillance systems are in place to detect one to two major syndromes indicative of a public health emergency situation.

Strengths/best practices

- Beginning stage of community-based electronic surveillance in the environmental sector.

Areas that need strengthening/challenges

- Centralized mechanism integrating clinical and laboratory data to be put in place for the animal health and environmental sectors and between the two.
- Community-based electronic surveillance to be extended to the environmental sector.
- Continued training for community health workers to be promoted throughout the country.
- Data integration mechanism to be put in place.

Reporting

Introduction

Health threats at the human–animal–ecosystem interface have increased over the past decades, as pathogens continue to evolve and adapt to new hosts and environments, imposing a burden on human and animal health systems. Collaborative multidisciplinary reporting on the health of humans, animals and ecosystems reduces the risk of diseases at the interfaces between them.

Target

Timely and accurate disease reporting according to WHO requirements and consistent coordination with FAO and OIE.

Côte d'Ivoire level of capabilities

The director of the National Institute of Public Health serves as the national IHR focal point within the Ministry of Health and Public Hygiene. Reporting to WHO during emergency situations is carried out using the IHR (2005) platform. Reporting to the West African Health Organization (WAHO) is carried out on a regular basis, not only during emergencies. The NFP makes use of informal mechanisms for consulting with WHO as provided for in Article 8 of the IHR (2005).

At the national level, reporting of human cases is based on integrated disease surveillance and response guidelines, whereas primary-care facilities report suspected cases or public health events to the health districts, which then relay the information to the next level. Internationally, reporting of public health events is carried out using the decision instrument contained in Annex 2 of the IHR (2005), based on the list of priority diseases (Integrated Disease Surveillance and Response).

In terms of animal health, reports are made to OIE (via its delegate in the country) and to the African Union Inter African Bureau for Animal Resources. There are also OIE focal points for terrestrial and aquatic animals, food safety and wildlife, all of whom have been identified and trained.

A regional meeting was held to designate the NFP.

Important advances have been made overall and a number of initiatives have been implemented. However, there are still some issues in terms of information sharing. There is no procedure for sharing information between the NFP and the OIE delegate, and the two reporting systems are neither interoperable nor interconnected.

Recommendations for priority actions

- Put in place a multisectoral reporting network that brings on board all three sectors (human health, animal health and the environment).
- Set up a multisectoral committee to assess threats.
- Draw up a protocol for reporting threats.
- Strengthen reporting capacities in all three sectors, particularly in the area of training.

Indicators and scores

D.4.1 System for efficient reporting to FAO, OIE and WHO - Score 3

The country has reporting capacities, but they are limited, covering only part of the country, and are particularly lacking in remote areas.

Strengths/best practices

- Reporting system for diseases with epidemic and epizootic potential.
- Electronic reporting between the districts and the National Institute of Public Health.
- Immediate reporting of health emergencies.
- New integrated disease surveillance and response guidance approved.
- NFP in place.
- Health emergency preparedness.
- Operational OIE contact point.
- All health districts participate in reporting of diseases with epidemic potential.
- Smartphones available in health districts for reporting individual cases.
- Immediate detection of the first cases of pandemic influenza A(H1N1) in 2009 at Félix-Houphouët-Boigny International Airport.
- Field workers trained in epidemiological surveillance.
- All international public health events reported to WHO (IHR (2005) Annex 2).
- Simulation exercises carried out.
- Animal health threats reported to OIE.

Areas that need strengthening/challenges

- Community-based surveillance.
- Transport of specimens.
- Collaboration between the human and animal health sectors.
- Collaboration between epidemiological and environmental surveillance mechanisms.
- Designation of IHR focal points in other sectors.

D.4.2 Reporting network and protocols in country - Score 2

Strengths/best practices

- Protocols and procedures drawn up.
- Regulations and laws drawn up.
- Epidemiological surveillance network in place for diseases with epidemic potential.
- Drafting meetings for SOPs.
- Legal assistance provided during drafting of SOPs.
- Collaboration promoted within the network.

Areas that need strengthening/challenges

- Procedures for multisectoral collaboration to be put in place.
- Collaboration platform needed.

Workforce development

Introduction

Workforce development is important in order to develop a sustainable public health system over time by developing and maintaining a highly qualified public health workforce with appropriate technical training, scientific skills and subject-matter expertise.

Target

States Parties should have a skilled and competent health workforce for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR (2005). This workforce includes physicians, animal health workers or veterinarians, biostatisticians, laboratory scientists and farming/livestock professionals, with an optimal target of one trained field epidemiologist (or equivalent) per 200,000 population, all of whom can systematically cooperate to meet the core competencies of the IHR (2005) and the OIE Tool for the Evaluation of Performance of Veterinary Services (PVS Tool).

Côte d'Ivoire level of capabilities

Côte d'Ivoire's health workforce includes physicians, paramedics, pharmacists, veterinarians and animal health workers, biostatisticians, laboratory and animal science specialists, and field epidemiologists. These professionals make up a multidisciplinary workforce active across the levels of the system. The country also has several professional, applied and university training programmes (e.g. scientific higher education, a pharmacy school, a medical school and the FETP). These programmes are organized by the Ivorian Government, the private sector and local and international partners. The government has also put in place incentives aimed at motivating and retaining the workforce.

Despite all these assets, human resources for human health remain quantitatively and qualitatively limited, although they are spread over the entire territory. Moreover, there is a severe lack of animal health and environmental personnel. Efforts to develop the health workforce through community-based training remain scarce and require strengthening at all levels.

Recommendations for priority actions

- Draw up a career profile policy document, particularly for community health workers.
- Map human resources by specialization within the Human Resources Office.
- Provide technical and financial support for capacity-building for available human resources.
- Approve the multisectoral strategic plan for workforce development.
- Put in place intermediate and advanced levels of the FETP.

Indicators and scores

D.5.1 Human resources are available to implement IHR (2005) core capacity requirements - Score 2

The country has a multidisciplinary workforce at the national level (epidemiologists, veterinarians, clinicians and laboratory scientists and technicians).

Workforce development is still needed, particularly in AMR and infection prevention and control, for which there is zero capacity (Score: 1). It is therefore important to develop and implement a budgeted national plan for workforce development which includes both areas so that the country can improve in that regard.

Strengths/best practices

- Training of public health and clinical physicians.
- Field epidemiology training programme (FETP).
- Specialized degrees offered in public health and Master's degrees offered in public health and international health.
- Training of registered nurses specialized in public health.
- Community health training.
- Nursing workforce (public health and clinical care).
- Data managers share information through monthly reports, reporting forms and MAGPI and DHIS 2 software.

Areas that need strengthening/challenges

- Human and animal health: epidemiological capacities exist but are insufficient.
- Environment: epidemiological capacities are non-existent.
- No career profile policy document.
- Human resources are particularly lacking in certain technical areas, such as AMR and chemical and radiological hazards, and the country scored lowest on these indicators.
- No intermediate or advanced field epidemiology training programme exists in the country.

D.5.2 FETP or other applied epidemiology training programme is in place - Score 3

A certain level of field epidemiology training (basic, intermediate and advanced) or applied epidemiology training is in place in the country or in countries with which it has an agreement.

Basic epidemiology training exists in Côte d'Ivoire, but the intermediate and advanced levels do not. Advanced training is provided in Burkina Faso through an agreement with the University of Ouagadougou.

Strengths/best practices

- Human resources are available to provide the core capacities required under the IHR (2005).
- Epidemiological capacities are monitored through centralized supervision of epidemiological surveillance officers, EPI coordinators, social welfare and solidarity centres, and the FETP.

Areas that need strengthening/challenges

- Intermediate and advanced FETP to be put in place.

D.5.3 Workforce strategy - Score 2

A health workforce strategy exists, but it does not include public-health-related professions such as epidemiologists, veterinarians and laboratory technicians.

Strengths/best practices

- Training facilities exist for a range of specializations.

Areas that need strengthening/challenges

- Special strategy to be adopted for areas in which human resources are rare or non-existent, such as infection prevention and control, AMR and chemical and radiological hazards.

RESPOND

Preparedness

Introduction

Preparedness includes the development and maintenance of national, intermediate and community/primary response level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. Other components of preparedness include mapping of potential hazards, the identification and maintenances of available resources, including national stockpiles, and the capacity to support operations at the intermediate and community/primary response levels during a public health emergency.

Target

The effective implementation of the IHR (2005) requires multisectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. Coordination of nationwide resources, including the sustainable functioning of a national IHR focal point is a key requisite for IHR (2005) implementation. The NFP should be accessible at all times to communicate with the WHO IHR Regional Contact Points and with all relevant sectors and other stakeholders in the country. States Parties should provide WHO with contact details of NFPs, continuously update and annually confirm them.

Côte d'Ivoire level of capabilities

Côte d'Ivoire has not drawn up a national multi-risk, multisectoral preparedness and response plan in case of a public health emergency. However, national and intermediary sectoral plans and multisectoral analyses exist for various events that could impact human or animal health or the environment. These include the ORSEC Plan for relief organization, the Pollumar Plan for environmental pollution, an integrated airport emergency plan, a national plan for Ebola virus disease control, etc. These plans set forth the human, logistical, material and financial resources available at the national and regional levels for preparedness and response to events. Risks and resources have also been mapped for several diseases (e.g. meningitis, yellow fever, Ebola virus disease, avian influenza and HIV/AIDS). However, mapping has not been done in several areas of animal health and the environment, and risk mapping is not complete for all regions. The country does have mechanisms for mitigating a lack of resources, but they are insufficient for tackling a nationwide or international public health emergency. Another barrier to rapid response is the slow disbursement of emergency funds, which are held solely by the Ministry of Health.

Recommendations for priority actions

- Draw up, consolidate and test a national, multisectoral preparedness and response plan for public health as part of a One Health approach.
- Map public health risks and resources for all levels.
- Strengthen human resources for preventing, detecting and controlling chemical, radiological and biological/zoonotic threats to health.
- Mobilize resources for human and animal health and the environment and make it easier to access emergency funds.

Indicators and scores

R.1.1 National multi-hazard public health emergency preparedness and response plan is developed and implemented - Score 2

A national multi-hazard public emergency preparedness and response plan guaranteeing the core capacities required under Annex 1A, Article 2 of the IHR (2005) has been developed.

Strengths/best practices

- Multi-risk plan (ORSEC Plan) in place.
- Plans available for mobilizing or re-allocating resources at the national and intermediate levels to support action at the local level.
- Mechanism for mitigating resource shortages.
- Risk assessments for human health conducted at the national level in 2016 using the STAR tool, in collaboration with WHO, the CDC and the Ivorian National Institute of Public Health.

Areas that need strengthening/challenges

- National multi-risk preparedness and response plan for public health emergencies to be developed.
- Human, logistical and financial resources insufficient for tackling nationwide or international public health emergencies.
- Frequency of updates to risk profile and national resources to be determined.
- Lack of technical and financial support.

R.1.2 Priority public health risks and resources are mapped and utilized - Score 1

Public health risks and resources have not been mapped.

Strengths/best practices

- Experts available in the following areas: nuclear radiation, biological and chemical threats, intervention epidemiology and public health.

Areas that need strengthening/challenges

- Too few experts in nuclear radiation, biological and chemical threats, intervention epidemiology and public health.
- Insufficient logistical resources.
- Technical and financial support for preparedness.

Emergency response operations

Introduction

A public health emergency operations centre (EOC) is a central location for coordinating operational information and resources for strategic management of public health emergencies and emergency exercises. EOCs provide communication and information tools and services and a management system during a response to an emergency or emergency exercise. They also provide other essential functions to support decision-making and implementation, coordination and collaboration.

Target

Countries will have a public health EOC functioning according to minimum common standards; maintaining trained, functioning, multisectoral rapid response teams and “real-time” biosurveillance laboratory networks and information systems; and trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.

Côte d'Ivoire level of capabilities

Government bodies and their responsibilities in managing health emergencies:

- Until 2014, health emergencies were managed by the national epidemic control committee and epidemic response activities were overseen by the Minister of Health, with the National Institute of Public Health acting as a technical secretariat. For animal health, zoonotic disease epidemics were managed by the Office of Veterinary Services.
- From 2014 to 2016, a multisectoral national committee for Ebola virus disease control was established.
- An EOC was created February 2016 to act as coordination centre and manage health threats.

Legal instruments and emergency management procedures:

- Order creating and organizing a national epidemic control committee; departmental epidemic control committees presided over by prefects (ORSEC Plan) with an effective communications and information system for early human health warnings (surveillance call centre: (+225) 21253510).
- Animal health protection teams with comparable information system.

Coordination structure and functioning:

- The EOC acts as an intersectoral and multidisciplinary centre for managing emergencies, with information and communication technology (computers, telephones and multimedia devices) and a permanent staff of 4 (1 IT specialist, 2 data managers and 1 secretary).
- A plan is in place for recruiting extra staff.
- Multisectoral, multidisciplinary coordination meetings (GHSA) held monthly when there is no emergency.
- EOC procedures manual has been drafted but not yet approved.
- 5 simulation exercises have been conducted to test response capacities, and have been followed up with recommendations and plans for improvement.
- Case management guidelines are available for priority diseases and IHR (2005) relevant hazards at all levels of the health system.

- SOPs are available for the management and transport of potentially infected patients from local entry points (national and international guidelines).
- Mechanism for referral and transport of patients has been established and has sufficient resources (dedicated ambulances and SOPs).
- Trained staff available to manage cases during health emergencies covered by the IHR (2005).
- Under the ORSEC Plan, health aspects of emergencies are managed by the public health authorities.
- No stakeholders have been trained in public communication.

Recommendations for priority action

- Approve the EOC SOPs and increase its involvement in surveillance and response activities.
- Strengthen multisectoral emergency response coordination mechanisms.
- Establish a mechanism for emergency disbursement of funds and strengthen the unified emergency fund.
- Strengthen workforce emergency response capacities at all levels.

Indicators and scores

R.2.1 Capacity to activate emergency operations - Score 2

Strengths/best practices

Various services carry out most functions during emergency response operations. In particular:

- First-contact health facilities carry out epidemic response activities.
- The health districts and departmental offices of the Ministry of Animal Resources and Fisheries investigate and respond to epidemics (including for zoonoses).
- CIAPOL investigates and responds to environmental threats.
- The National Civil Protection Office manages emergencies.
- The Office of Veterinary Services provides support in investigating and responding to animal health threats, including zoonoses.
- The National Institute of Public Health provides support in investigating, responding and managing the health aspects of emergencies.
- The Pasteur Institute and the Bingerville Central Veterinary Laboratory provide confirmation testing and support for investigations.
- EOC is in place and acts as a point of contact, with a phone hotline to provide guidance and direct operations. It carried out several hands-on operations in 2016, including an Ebola virus disease case simulation, management of the meningitis epidemic in Kouibly and management of the health aspects of the armed conflict in Bouna.
- Multisectoral, multidisciplinary risk and emergency management framework is in place.
- ORSEC Plan for relief organization is in place.
- There is good collaboration between stakeholders, with a coordinator for health threats and emergencies who leads regular meetings.

Areas that need strengthening/challenges

- Collaboration between the human and animal health sectors and between epidemiological and environmental surveillance efforts.
- Putting in place a formalized GHSA–EOC collaboration platform.

R.2.2 Emergency operations centre operating procedures and plans - Score 2

A consensus was reached on a score of 2, but with strong insistence on the necessity of finalizing and approving the EOC's SOPs.

Strengths/best practices

- There is an operational plan, and the levels at which the EOC is activated are well understood.

Areas that need strengthening/challenges

- To make the EOC more operational, its SOPs must be approved and legal provisions put in place.

R.2.3 Emergency operations programme - Score 3

Strengths/best practices

- EOC is functional and was able to carry out an exercise to test its operational capacities.

Areas that need strengthening/challenges

- Making the EOC more operational.
- Activating a coordinated emergency response operation or simulation within 120 minutes of having declared a public health emergency.

R.2.4 Case management procedures are implemented for IHR (2005) relevant hazards - Score 2

Strengths/best practices

- IHR (2005) relevant case management guidelines and operating procedures; transport of potentially infected patients within communities and at points of entry.
- Case management conforms to IHR (2005) recommendations.

Areas that need strengthening/challenges

- Case management, referral and transport of potentially infected patients to be carried out in line with guidelines and/or SOPs.
- Effective deployment of workforce and sufficient resources for managing health emergencies covered by the IHR (2005).
- Workforce development and resource availability remain major challenges.

Linking public health and security authorities

Introduction

Public health emergencies pose special challenges for law enforcement, whether the threat is naturally occurring (e.g. influenza pandemics) or man-made (e.g. the anthrax terrorist attacks). In a public health emergency, law enforcement will need to quickly coordinate its response with public health and medical officials.

Target

Country conducts a rapid, multisectoral response in case of a biological event of suspected or confirmed deliberate origin, including the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance, such as to investigate alleged use events.

Côte d'Ivoire level of capabilities

Since 1993, interministerial regulations have formally linked the public health and security authorities in different territorial units. The relationship between the two administrative structures is well developed, with regular contacts maintained right up to the level of the President. A decree creating emergency medical services has been enacted, alongside measures to provide personal protective equipment to responders. At the peripheral level, prefects ensure coordination between civil protection services and health directors. At the central level, response coordination is centralized within the Ministry of Health rather than at the Ministry of the Interior, the first action of this type being the response to Ebola virus disease.

All these instruments have been brought into line with IHR (2005) and with the new challenges that the country might face, although a memorandum of understanding has not yet been signed.

Recommendations for priority actions

- Speed up approval procedures for a memorandum of understanding between the public health and security authorities.
- Develop sector-specific plans in different areas of action so that these can be incorporated into the national ORSEC Plan for risks and disasters.
- Put in place procedures to rapidly mobilize financial resources in emergencies.
- Institute periodic simulation exercises to familiarize those involved with their respective roles.

Indicators and scores

R.3.1 Public health and security authorities (e.g. law enforcement, border control and customs) are linked during a suspected or confirmed biological event - Score 2

Contact points and triggers for reporting and sharing information have been identified and shared between the public health, animal health and security sectors.

Strengths/best practices

- Legal coordination framework.
- National Security Council.

- National epidemic control and response committee.
- Government Information and Communications Centre is involved in sharing information on public health events.
- Meetings between departmental epidemic control committees.
- Monthly conferences of directors and heads of services presided over by the prefect of each region and departmental representatives.

Areas that need strengthening/challenges

- Coordination during the observation period.
- Inventory-taking and coordination of resources (workforce, material, financing, etc.) especially at the central level (the situation in the prefectures is fine).
- Financing for crisis management.
- Improving the post-crisis phase (debriefing and feedback).
- Maintaining the coordination framework during non-crisis periods when there is no major public health emergency in progress.
- Making financing available quickly in emergencies.

Medical countermeasures and personnel deployment

Introduction

Medical countermeasures are vital to national security and protect nations from potentially catastrophic infectious disease threats. Investments in medical countermeasures create opportunities to improve overall public health. In addition, it is important to have trained personnel who can deploy in response to a public health emergency.

Target

National framework for transferring (sending and receiving) medical countermeasures and public health and medical personnel from international partners during public health emergencies.

Côte d'Ivoire level of capabilities

In Côte d'Ivoire, emergency relief is organized by the Ministry of the Interior in collaboration with the Ministry of Health. A national plan is in place (the ORSEC Plan) that sets forth a system for sending and receiving medical countermeasures and deploying personnel during a health disaster. The procedures of the New Public Health Pharmacy provide for security medical stockpiling for emergency response, but there are no available plans for deploying medical and security personnel. Neither the country nor the Economic Community of West African States (ECOWAS) have much funding for disaster response, and the status and responsibilities of foreign medical personnel have not been clarified by law.

Several disaster simulation exercises have been carried out as part of the ORSEC Plan since 1979. The Ministry of Health has also organized simulation exercises to prepare for epidemics or pandemics, including for avian influenza and Ebola virus disease. During the Ebola outbreak in West Africa, Ivorian personnel were deployed to heavily affected countries (Liberia and Guinea) with support from WAHO.

Côte d'Ivoire signed a cooperation protocol with Algeria and Chad on epidemic control in West African countries in 1996. This protocol should be put into practice through a national epidemic preparedness and response action plan.

Recommendations for priority actions

- Develop a preparedness plan for sending and receiving medical countermeasures during epidemics, pandemics and other public health emergencies.
- Formalize agreements with manufacturers and distributors of medical countermeasures to ensure rapid procurement in the country during public health emergencies.
- Draw up procedures for deploying and receiving health workers during public health emergencies.
- Carry out simulation exercises for sending/receiving medical countermeasures and deploying/receiving personnel.

Indicators and scores

R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency - Score 2

Plans are ready for putting in place a system for sending and receiving medical countermeasures during a public health emergency.

Strengths/best practices

- ORSEC Plan covers legal aspects of receiving medicines, medical devices, and logistical and security equipment at the national level.
- Security stockpiles of medical countermeasures for public health emergencies held by the New Public Health Pharmacy.
- Stockpile of medical countermeasures acquired during the Ebola outbreak.
- Regional and international agreements for the procurement, sharing and distribution of medical countermeasures in place.
- Procedures and legal provisions for the procurement and distribution of medical countermeasures for animal health in place.

Areas that need strengthening/challenges

- Domestic production of antibiotics, vaccines, laboratory material and supplies, etc.
- Development of a pandemic preparedness plan that incorporates sending and receiving medical countermeasures.
- Formalization of agreements with manufacturers and distributors of medical countermeasures to ensure supply during a public health emergency.
- Production of antibiotics, vaccines and laboratory material and supplies by local businesses and laboratories.
- Development of a national epidemic/pandemic control plan (including for zoonotic diseases) that incorporates sending and receiving medical countermeasures for humans and animals.
- National stockpiling of antibiotics, vaccines and laboratory material and supplies for both human and animal health to manage public health emergencies.
- Development of framework agreements with manufacturers and distributors to ensure rapid sending/receiving of medical countermeasures during a public health emergency of international concern (PHEIC).

R.4.2 System is in place for sending and receiving health personnel during a public health emergency - Score 1

No national plan for deploying personnel has been developed.

Strengths/best practices

- Regional and international agreements for workforce deployment, such as the Global Outbreak Alert and Response Network (GOARN), are applied.
- Fifteen health workers (8 physicians, 4 nurses and 3 technicians) sent to Guinea during the Ebola virus disease outbreak (October 2014 to March 2015).

Areas that need strengthening/challenges

- Strengthening procedures for sending and receiving health personnel during a public health emergency.
- Setting of training standards and criteria for personnel that are sent or received.
- Development of texts that regulate the foreign personnel's authorization to work in the country.

- Specifying responsibilities related to the use of medical personnel deployed internationally.
- Addressing security aspects of international deployment of personnel.
- Addressing financial aspects of international deployment of personnel.

Risk communication

Introduction

Risk communications should be a multi-level and multi-faceted process which aims at helping stakeholders define risks, identify hazards, assess vulnerabilities and promote community resilience, thereby promoting the capacity to cope with an unfolding public health emergency. An essential part of risk communication is the dissemination of information to the public about health risks and events, such as outbreaks of diseases. For any communication about risk caused by a specific event to be effective, the social, religious, cultural, political and economic aspects associated with the event should be taken into account, as well as the voice of the affected population. Communications of this kind promote the establishment of appropriate prevention and control action through community-based interventions at individual, family and community levels. Disseminating the information through the appropriate channels is essential. Communication partners and stakeholders in the country need to be identified, and functional coordination and communication mechanisms should be established. In addition, the timely release of information and transparency in decision making are essential for building trust between authorities, populations and partners. Emergency communications plans need to be tested and updated as needed.

Target

States Parties should have risk communication capacity which is multi-level and multi-faced real-time exchange of information, advice and opinion between experts and officials or people who face a threat or hazard to their survival, health or economic or social well-being so that they can take informed decisions to mitigate the effects of the threat or hazard and take protective and preventive action. It includes a mix of communication and engagement strategies like media and social media communication, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement and community engagement.

Côte d'Ivoire level of capabilities

Côte d'Ivoire has insufficient risk communication capacity overall, and lacks a specific national multisectoral plan. The workforce is therefore not yet specialized or trained in risk communication and public health emergencies.

However, Côte d'Ivoire does have communication services at some ministries. It has a relief organization plan (the ORSEC Plan) and a 2016–2020 national action plan for risk and disaster reduction. An SOP for crisis management was drawn up as part of the EOC's procedures during the Ebola crisis. Adaptations to existing texts in line with the IHR (2005) would help to promote the development of a formal framework in this area.

It is also worth noting that financing is available for health emergencies and there is good buy-in from the private sector for social mobilization activities.

Field visits made by the evaluation team revealed that community health representatives are highly visible and actively involved in the country's public health system, which should be encouraged and continued. A free hotline is available to receive comments from the public in reaction to announcements, and to track rumours. This system should be strengthened and formalized.

Anthropologists played a decisive role in providing psychosocial care during the Ebola crisis. This practice is also worth strengthening through more formal collaboration between key sectors, to achieve better synergy in terms of strategy and planned actions.

Recommendations for priority actions

- Develop and test a national multisectoral risk communication plan.
- Establish a team for risk communication during public health emergencies within the EOC and strengthen its capacities.
- Formalize mechanisms for collaboration and communication between governmental bodies and partners (technical, financial and social partners and community organizations).
- Create a permanent framework for community dialogue (which should remain active even when there is no emergency).
- Promote wider knowledge of the media's role and responsibilities in implementing the IHR (2005).

Indicators and scores

R.5.1 Risk communication systems (such as plans, mechanisms) - Score 1

There are no formal government arrangements for risk communication.

Strengths/best practices

- Government services tasked with communication in emergencies.
- Existence of multisectoral crisis management committees.
- Financing available for emergency communications.
- Procedures for disseminating emergency announcements (system for declaring the first case of Ebola virus disease).
- Ebola communications sub-committee steered by the Government Information and Communications Centre.

Areas that need strengthening/challenges

- Strengthening roles and responsibilities of personnel in charge of emergency communication.
- Strengthening capacity to maintain and develop communication activities.
- Strengthening monitoring and evaluation of sectoral plans.
- Maintaining communities' trust in the authorities.
- Increasing financial resources for risk communication.

R.5.2 Internal and partner communication and coordination - Score 3

Coordination of communication exists on an ad-hoc basis, but with limited partner and stakeholder collaboration including with health workers, civil society, the private sector and other non-State actors.

Strengths/best practices

- A culture of internal communication with stakeholders.
- Effective communication with partners.

Areas that need strengthening/challenges

- Formalizing the framework to guide internal coordination with all stakeholders and partners.
- Strengthening the system for evaluating coordination and communication between partners.
- Mobilizing financial resources.

R.5.3 Public communication - Score 2

There is a public communication team/unit within the Government Information and Communications Centre and within ministries.

Strengths/best practices

- A range of media platforms.
- Authorities show clear willingness to engage in public communication.
- Available workforce.
- Relevant communication strategies developed.
- Involvement of partners and civil society in disseminating information to the public.
- Well-known religious leaders have made information videos.

Areas that need strengthening/challenges

- Formal spokesperson (person or entity) to be formally identified and trained.
- Evaluation of role of the media in keeping target audiences informed.
- Awareness-raising among the media as to their roles and responsibilities under the IHR (2005).
- Low mobilization and understanding by the media of the One Health approach under the IHR (2005).
- Harmonization of procedures to develop and adapt key messages within the human, animal and environmental health systems.
- Mobilization of financial resources.

R.5.4 Communication engagement with affected communities - Score 2

A system for community-level engagement is in the process of development; existing processes, programmes, partners and stakeholders are being mapped. However, these key resources need to be put on an official and permanent footing within the administration, with a focus on listening to communities' concerns and promoting involvement in risk communication strategies. Some stakeholders in this domain have been identified at the national and intermediate (provincial/regional) levels.

Strengths/best practices

A field visit to the urban community health centre at the Arras 3 housing development in Treichville-Marcory revealed that the community intermediaries were well integrated into and guided the centre's communication activities, including surveillance, awareness-raising and community dialogue. Community leaders participate in the centre's decision-making and strategies.

Areas that need strengthening/challenges

- System for promoting community collaboration to be formalized and bedded in.
- Community members to be trained in risk communication and development of messages tailored to target audiences.
- Financial and human resource mobilization to strengthen leadership skills.

R.5.5 Dynamic listening and rumour management - Score 2

Ad-hoc systems for listening and rumour management, including through health workers, are in place but not fully utilized in directing operations.

Strengths/best practices

- Communication services exist within administrative services.
- Free telephone hotlines: 101, 143 and 106 (AIDS information).
- Specific websites for each ministry.
- Existence of a technical ministry with public channels broadcast nationwide and a Government Information and Communications Centre.

Areas that need strengthening/challenges

- Listening and rumour management systems to be formalized and coordinated with other technical areas.
- Accessibility of free call centres.
- Updating websites with proactive postings.
- Prompt dissemination of information to the population.
- Identification of focal points in charge of press relations.
- Buy-in from the private sector, particularly mobile telephone service providers.
- Mobilization of financial resources.

OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY

Points of entry

Introduction

All core capacities and potential hazards apply to points of entry and thus enable the effective application of health measures to prevent the international spread of diseases. States Parties are required to maintain core capacities at international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings) which will implement specific public health measures required to manage a variety of public health risks.

Target

States Parties should designate and maintain core capacities at international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings) which implement specific public health measures required to manage a variety of public health risks.

Côte d'Ivoire level of capabilities

Côte d'Ivoire has designated certain points of entry for travel by air (Félix-Houphouêt-Boigny International Airport), sea (autonomous ports in Abidjan and San Pedro) and land (at Laleraba and Pogo, near Ouangolodougou, and Noé). An NFP has been designated to manage these points of entry at ports, airports and ground crossings.

Response capacities at Félix-Houphouêt-Boigny International Airport are known to be functional, as several simulation exercises have been carried out. The arrangements here are in line with the IHR (2005). An emergency airport plan and intersectoral emergency plan are also available. In general, most ministries are included in these plans at key points of entry (Ministry of the Environment, vector control service, national police and gendarmes, customs service, etc.). The Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA) has greatly contributed to the excellent collaboration that exists between the health and civil aviation authorities.

The airport and port of Abidjan have much better medical services and equipment than the ground crossings, where services and equipment are not as comprehensive. There is no national contingency plan for public health emergencies at points of entry, and ambulances are not available. Health inspections are carried out at the airport and port in Abidjan but only partially at ground crossings.

The Ministry of Water and Forests inspects imported and exported wild flora and fauna at points of entry. CIAPOL manages the inspection of ships' residues and bilge. The centre takes samples before authorizing dockings at the port. The workforce has been trained and all procedures are in place. There is also a database with records of all activities since 2013.

Recommendations for priority actions

- Develop, disseminate and test a national multisectoral contingency plan for public health emergencies at points of entry which integrates all other action plans, particularly those at Abidjan airport.

- Strengthen medical services by providing additional equipment, materials and personnel at ground crossings and ports.
- Develop SOPs for ports and ground crossings.
- Establish information-sharing mechanisms and agreements at points of entry.
- Evaluate public health emergency operations at points of entry.
- Conduct regular simulation exercises to maintain a high level of preparedness at points of entry.

Indicators and scores

PoE.1 Routine capacities are established at points of entry - Score 2

IHR (2005) recommendations have been implemented at Abidjan airport, and efforts should be made to bring other points of entry up to the same level.

Strengths/best practices

- Suitable medical services and equipment at some points of entry (airport and port).
- Vector control service in place.
- Health inspections carried out in presence of medical services (airport).
- NFP in contact with senior management at points of entry through the main health checkpoints.
- Knowledge sharing with other countries in the region via simulation exercises.

Areas that need strengthening/challenges

- Partial inspections only at ground crossings.
- Suitable medical services and equipment only partially in place at ground crossings.
- No ambulances at points of entry.

PoE.2 Effective public health response at points of entry - Score 1

Strengths/best practices

- Health inspections at Abidjan airport and port.
- Health inspections at the Sitarail railway station in Ouangolodougou.
- Secure transport of ill passengers to medical centres.
- Surveillance protocol and communicable diseases control measures developed for air passengers at Abidjan airport, adopted on 23 June 2015.
- Good collaboration between the civil aviation and public health authorities.
- Health inspections carried out at the National Institute of Public Health checkpoint.
- Assistance visit from CAPSCA, 18–19 December 2014.

Areas that need strengthening/challenges

- No nationwide public health emergencies contingency plan (though there is an airport emergency plan).
- No evaluation of public health emergency operations at points of entry.
- No agreements, SOPs or information-sharing at points of entry.

- Nationwide public health emergencies contingency plan to be developed and disseminated.
- Public health emergency operations to be evaluated.
- SOPs to be written.
- Mechanisms to be put in place at points of entry (information-sharing and agreements).

Chemical events

Introduction

States Parties should have surveillance and response capacity for chemical risk or events. This requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal.

Target

States Parties with surveillance and response capacity for chemical risks or events. This requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal.

Côte d'Ivoire level of capabilities

Chemical products are widely used in Côte d'Ivoire, particularly in agriculture, oil production, mining and other industries as well as household use and health care. Although regulatory legislation exists, the use of chemicals is often managed poorly or only on an ad-hoc basis due to a lack of trained human resources and funding. Most legislation does not cover products' entire life cycles. Specific regulations exist for pesticides and pharmaceutical products, and four types of waste are regulated: household waste (by the Department of Sanitation), hazardous/industrial waste (by CIAPOL), medical waste and radioactive waste (by the Ministry of Health). Waste management capacity is weak, especially in large cities.

The country has a national chemicals management profile, which provides an administrative structure for the management of chemical products and should be updated regularly. A national security policy for chemical products and an implementation strategy for the Strategic Approach to International Chemicals Management (SAICM) are in progress. Côte d'Ivoire has ratified the Paris, Stockholm, Rotterdam and (amended) Basel Conventions and is in the process of ratifying the Minimata Convention. A national plan for implementing the Stockholm Convention has also been developed. ILO Conventions 170 and 174 have been ratified, and implementation of the Globally Harmonized System (GHS) is in progress.

There is good analysis capacity at the central level: at CIAPOL for quantifying chemical substances and at the National Public Health Laboratory for identifying specimens. However, these capacities are lacking at the peripheral level. Environmental surveillance capacity for water, air and soil exists, but not everywhere in the country. For this reason, it is essential to strengthen atmospheric pollution surveillance and chemical contamination identification in food. There was an incident of illegal toxic waste dumping by the ship Probo Koala in 2006 and pesticide poisonings led to deaths in Yamoussoukro in 2016.

Every major industrial facility is required to have an emergency plan in case of chemical accidents within or in the immediate area of the facility. These plans should be tested annually. However, the few plans that exist in the country are not always implemented or applied in small and medium-sized companies.

There is no poison control centre with the required capacities for analytical, clinical and toxicological testing. These capacities are necessary for identifying cases of poisoning and monitoring chemical risks, particularly in situations of concern. It is imperative that biomarkers of exposure and surveillance capacities for chronic exposure be developed. Toxicology training for physicians and other health workers must be strengthened, and better collaboration between clinical and laboratory personnel should be encouraged.

Coordination mechanisms with other key IHR sectors are in place mostly for responding to major emergencies. In reality, communication and systematic data collection and exchange between all stakeholders must

be strengthened. Knowledge of potential chemical risks is limited among the population, which makes decision-making difficult when responding to chemical emergencies, especially at the bottom of the health pyramid in remote areas. Chemical risk evaluation and communication capacities must therefore also be strengthened.

The health sector cooperates with emergency services coordinated by the Ministry of the Interior for chemical events preparedness and response within the framework of the ORSEC Plan. However, the health sector has not yet developed its own plan for chemical events. Response capacities need to be improved by procuring protective equipment and training the workforce.

Because surveillance and response for chemical risks or events can be complex, the following entities should be involved in implementing priority operations: the health, environmental and agricultural sectors, the NFP, public health services at the local, intermediate and national levels, emergency services (firefighters, police, ambulance workers and physicians), the consumer safety authorities, administrative/political authorities at the local, intermediate and national levels, hazardous sites, meteorological services, points of entry at ports, airports and border checkpoints (especially those designated under the IHR (2005)), transport services, private sector/industry, the poison control centre, national chemical surveillance institutes, reference laboratories for chemical security, reference health facilities for chemical security, etc.

Recommendations for priority actions

- Create a poison control centre capable of conducting toxicological analysis and caring for poisoned patients (diagnostics, treatment and monitoring) that is operational 24/7.
- Centralize all information on chemical exposure (first at the National Institute of Public Health, then at the poison control centre once it is created).
- Strengthen current capacities (human, financial, technical and material resources) to meet chemical security needs.
- Establish a GHS for classifying and labelling chemical products.
- Strengthen CIAPOL's surveillance capacities.

Indicators and scores

CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies - Score 2

Guidelines or manuals on the surveillance, assessment and management of chemical events, intoxications and poisonings are available.

Côte d'Ivoire has an organization responsible for the surveillance and inspection of chemical products, laboratories capable of carrying out systematic analysis, and environmental controls for chemical hazards. A strategic plan for chemical security (national chemicals management structure) is in place and a national coordination body/committee for chemical security also exists. However, as there is no regulatory framework for coordination and no poison control centre, the country was given a score of 2 for this indicator.

Strengths/best practices

- Guidelines or manuals on the surveillance, assessment and management of chemical events, intoxications and poisonings are available.
- Operational organization is in place with primary responsibility for the surveillance and inspection of chemical products.
- Laboratories are capable of systematic analysis (with partner laboratories), but do not cover the entire country.

- Environmental controls for chemical hazards are carried out for water, soil, sediment and to some extent air.

Areas that need strengthening/challenges

- Ineffective information sharing in the area of surveillance/control of chemical products.
- Legislation on chemical products does not cover everything.
- Insufficient workforce to meet chemical security needs.
- Insufficient funding to meet chemical security needs.
- Training on laboratory best practices according to ISO standards and support in achieving laboratory accreditation and certification (ISO 17025) needed.
- No operational poison control centre capable of conducting toxicological analysis and caring for poisoned patients (diagnosis, treatment and monitoring) which is operational 24/7.

CE.2 Enabling environment is in place for management of chemical events - Score 2

National policies, plans or legislation for chemical event surveillance alert and response are in place.

Côte d'Ivoire has a public health plan for chemical events/emergencies and crisis committees created in case of emergency collaborate with each other. However, there is no regulatory framework for this coordination and no systematic data collection. Response capacity is lacking, which is why this indicator received a score of 2.

Strengths/best practices

- Strategic plan for chemical security (national chemicals management structure), national control plan for chemical, biological, radioactive and nuclear (CBRN) substances and their illicit trafficking.
- National coordination body/committee for chemical security.
- Public health plan for chemical events/emergencies.
- Under the Pollumar Plan, the National Fund for the Environment covers all or part of expenses incurred by operations related to environmental protection and pollution control for air, water and soil in case of a chemical public health emergency.
- Assessments carried out after each exercise or operation.
- Participation in international chemical/toxicology networks: the International Atomic Energy Agency (IAEA) and UN Environment Programme (UNEP).
- Database of available chemical products.

Areas that need strengthening/challenges

- No framework regulating multisectoral collaboration between crisis committees, although there are plans for this to be coordinated by the GHSA.
- Human resources insufficient to respond to a chemical emergency.
- Medical workforce must be trained in the care and monitoring of poisoned patients.
- Health sector's capacity for caring for poisoned patients must be strengthened.

Radiation emergencies

Introduction

States Parties should have surveillance and response capacity for radionuclear hazards/events/emergencies. This requires effective communication and collaboration among the sectors responsible for radionuclear management.

Target

States Parties should have surveillance and response capacity for radionuclear hazards/events/emergencies. This requires effective communication and collaboration among the sectors responsible for radionuclear management.

Côte d'Ivoire level of capabilities

The main radiation risks in Côte d'Ivoire are associated with medical equipment and the use of small amounts of radioactive material in some industries. When used correctly, these processes present only minor risks. But considerable risks can arise from improper handling, criminal use, or uncontrolled disposal of obsolete equipment and radioactive material on the coast, such as waste being expelled into the sea. There are no nuclear power stations or reactors in Côte d'Ivoire, nor are radioactive substances produced.

Since 1991, the country has a regulatory body in place for the use and management of radioactive sources. A national authorization and registry system for radioactive sources has been developed, and the country has signed international conventions on radionuclear safety and assistance during radiation emergencies. The Ministry of the Environment has a laboratory for radiological waste surveillance and detection, especially for products used by State-owned companies. An official focal point has been designated to monitor radionuclear issues.

Despite strong political engagement, a functioning surveillance system with well-developed methodologies, and good detection and evaluation systems, Côte d'Ivoire does not yet have a national preparedness and response plan for radiation emergencies. Coordination mechanisms and human and material resources are also insufficient for emergency response. In sum, response capacity (coordination, communication and emergency management) is still weak.

Recommendations for priority actions

- Strengthen the national regulatory framework and coordination mechanism.
- Develop and implement a national preparedness and response plan for radionuclear emergencies, including nuclear security.
- Strengthen the coordination mechanism for detection, assessment and response to radiation emergencies in terms of human, material and financial resources.
- Draw up SOPs and conduct simulation exercises for radiation emergency response.

Indicators and scores

RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies - Score 1

There are no national policies, strategies or plans for the detection, assessment and response to radiation emergencies.

There is clear political will and good practical arrangements at the national level, as evidenced by the creation of the Nuclear Safety and Security Authority. However, there are no technical policies, strategies or plans in this area. Following lengthy discussions, the initial score of 2 for this indicator was lowered to 1.

Strengths/best practices

- Nuclear Safety and Security Authority newly established.
- Portable detection and measuring equipment for alpha, beta and gamma radiation is available.
- Gamma-ray spectrometry and dosimetry laboratories.
- Law on nuclear safety and security and protection from ionizing radiation.
- Decree on protection from ionizing radiation.
- Authorizations issued for the import, transport, possession, usage and stocking of radioactive sources.
- National registry of radioactive sources.
- Controls and inspections of nuclear radiation protection, safety and security are implemented.
- Investigation, detection and dosimetry of radioactive sources capacity available.

Areas that need strengthening/challenges

- Capacities for radiation emergency response personnel to be strengthened.
- Equipment for testing radiation exposure needed.
- Regulatory framework to be strengthened.
- National preparedness and response plan for radiation emergencies to be developed.
- Risk assessments and investigation of exposures to ionizing radiation to be carried out.

RE.2 Enabling environment is in place for management of radiation emergencies - Score 2

National authorities responsible for radiological and nuclear events have a designated focal point for coordination and communication with the ministry of health and/or the NFP.

The country has a certain level of capacity but the emergency response situation must be improved.

Strengths/best practices

- Signing of international conventions on radionuclear security and assistance during radiation emergencies.
- Decree creating a national platform for risk reduction and disaster management.
- Registry of sites with stocks of radioactive sources.
- Controls and inspections of nuclear radiation protection, safety and security have been implemented
- National CBRN technical committee, which hosts meetings on CBRN issues, is in place but not yet formalized.

Areas that need strengthening/challenges

- Strategies on the domestic transport of radioactive material and radioactive waste management to be put in place.
- Functioning coordination mechanism to be established for national authorities with responsibility for nuclear security regulations.
- Effective controls on the import and domestic transport of radioactive sources needed.
- Integrated Nuclear Security Support Plan (INSSP) to be developed.
- Health sector's capacity for caring for exposed patients to be strengthened.

Appendix 1: Joint external evaluation background

Mission place and dates

Abidjan, Côte d'Ivoire, 5–9 December, 2016

Mission team members

No.	Name	Country	Organization
1	Ali Ahmed Yahaya	Congo	WHO (team lead)
2	Stella Chungong	Switzerland	WHO (team co-lead)
3	Adama Diallo	Senegal	CIRAD
4	Babacar Ndoye	Senegal	WHO consultant
5	Cecile Henri	France	French Ministry of Health
6	Cheikh S. Fall	Senegal	USDA
7	Ebba Kalondo	Congo	WHO
8	Honore D. Djimrassengar	Chad	WHO
9	John A. Haines	Switzerland	UNITAR, WHO consultant
10	Mady Ba	Switzerland	WHO
11	Margherita Ghiselli	USA	US CDC
12	Merawi Aragaw	Ethiopia	Africa CDC
13	Lubambo Demba	Gabon	WHO
14	Roland Wango	Congo	WHO
15	Saïdou Niang	Mauritania	WHO
16	Soatiana C. Rajatonirina	Congo	WHO
17	Youssouf Kabore	Senegal	FAO

Objective

To assess Côte d'Ivoire's capacities and capabilities relevant for the 19 technical areas of the JEE tool in order to provide baseline data to support the country's efforts to reform and improve its public health security.

The JEE process

The JEE process is a peer-to-peer review. As such, it is a collaborative effort between host country experts and JEE team members. The entire external evaluation, including discussions around the scores, the strengths, the areas that need strengthening, best practices, challenges and the priority actions should be collaborative, with JEE team members and host country experts seeking full agreement on all aspects of the final report findings and recommendations.

Should there be significant and/or irreconcilable disagreement between or among the external team members and the host country experts, the external evaluation team leader will decide on the score and this will be noted in the final report, along with the justification for each party's position.

Preparation and implementation of the mission

- Côte d'Ivoire committed to carrying out internal and external evaluations of its IHR capacities.

- National authorities submitted a request for a joint external evaluation to the WHO Regional Office for Africa through the WHO office in Côte d'Ivoire in August 2016.
- Model technical documents were sent by the WHO Regional Office for Africa.
- Technical support via teleconference and e-mail was coordinated by the WHO Regional Office for Africa.
- Internal evaluation report was approved during a meeting in Abidjan, 16–17 November 2016.
- Preparatory meeting for the external evaluation was held in Grand-Bassam, 23–24 November 2016.
- JEE team members held a technical meeting to prepare the workshop on 4 December 2016.
- JEE was carried out in Abidjan, 5–9 December 2016:
 - opening ceremony and remarks (CDC, WHO and Ministry of Health);
 - presentation and discussion of each technical area;
 - field visits to: Pasteur Institute facilities in Cocody and Adiopodoume, National Public Health Laboratory, LANADA, CIAPOL, Autonomous Port of Abidjan, Félix-Houphouët-Boigny International Airport, Noé ground crossing (Ghanaian border), EOC, epidemiological surveillance service at the National Institute of Public Health, university hospital in Treichville and urban health centre in Abidjan;
 - review of scores in each area;
 - presentation of site visit reports and priority actions by JEE team members, summary of mission findings by the JEE team lead;
 - closing ceremony and final remarks (CDC, WHO and Ministry of Health).

Limitations and assumptions

- The assessment was limited to one week, which limited the amount and depth of information that could be managed.
- It is assumed that the results of this assessment will be made publically available.
- The assessment is not an audit and information provided by Côte d'Ivoire will not be independently verified. Information provided by Côte d'Ivoire will be discussed and the host country and assessment team will mutually agree on an assessment rating. This is a peer-to-peer review.

Supporting documentation provided by host country

This list includes only the main reference documents used during the JEE. Other relevant documentation is listed below, by technical area.

- Self-report on JEE assessment tool, Côte d'Ivoire, November 2016
- PowerPoint presentations on: (i) the national health system, public health services and health security system; and (ii) the 19 technical areas

National legislation, policy and financing

- Order No. 435-MSP/CAB of 31 December 2007 amending Order No. 415/CAB/MEMSP of 28 November 2005 creating the national epidemic-control committee and establishing its organization, remit and functioning
- Decree No. 2014-486 of 3 September 2014 establishing the organizational framework for prevention and control of Ebola virus disease
- Interministerial Order No. 011/MIPARH/MSHP of 10 May 2006 on avian influenza control

IHR coordination, communication and advocacy

- Order No. 435-MSP/CAB of 31 December 2007 amending Order No. 415/CAB/MEMSP of 28 November 2005 creating the national epidemic control committee and establishing its organization, remit and functioning
- Decree No. 2014-486 of 3 September 2014 establishing the organizational framework for prevention and control of Ebola virus disease
- Interministerial Order No. 011/MIPARH/MSHP of 10 May 2006 on avian influenza control
- Standard operating procedures for coordination between the NFP and involved sectors

Antimicrobial resistance

- 2015 Health Situation Annual Report

Zoonotic diseases

- Law 63-323 of 25 July 1963 and its implementing decree on the animal health enforcement agency
- List of priority zoonotic pathogens for public health
- Description of existing surveillance systems for animal diseases
- OIE reports on the quality of Côte d'Ivoire's veterinary services (PVS Tool and PVS Gap Analysis)
- Order No. 435-MSP/CAB of 31 December 2007 amending Order No. 415/CAB/MEMSP of 28 November 2005 creating the national epidemic control committee and establishing its organization, remit and functioning
- Decree No. 2014-486 of 3 September 2014 establishing the organizational framework for prevention and control of Ebola virus disease
- Report of the Ministry of Water and Forests' Office of Wildlife and Game, 2015
- Interministerial Order No. 011/MIPARH/MSHP of 10 May 2006 on avian influenza control
- Interministerial Order No. 598/MIRAH/MSHP/MINEF/MPMEF/MPMBPEI of 10 November 2015 on the national avian influenza control committee

Food safety

- Report on the investigation into the foodborne illness outbreak in San Pedro, 2016
- Report on the investigation into massive fish die-off in the Jacqueville and Dabou lagoons
- National technical guidance on integrated disease surveillance and response

Biosafety and biosecurity

- National Public Health Laboratory
 - Report on the training of 150 health workers in hospital hygiene, biosecurity and transporting biological specimens in the health regions of Gbokle-Nawa-Sanpedro, Tonkpi, Kabadougou-Bafing-Folon, Cavally-Guemon, Haut Bassandra and Abidjan, April 2016
 - Report on the training workshop on biosecurity and secure transport of biological specimens for health personnel working in establishments that provide HIV/AIDS treatment, September 2016
 - Decree No. 91-654 of 9 October 1991 creating the National Public Health Laboratory of Côte d'Ivoire
 - Memorandum No. 20 dated 13 September 2016 creating the Technical Quality Committee within the Laboratory of Microbiology and Industrial and Food Microbiology
 - Quality management action plan, 30 August–1 September 2016

- Pasteur Institute of Côte d'Ivoire
 - Biosecurity training activities, 2016
 - 2015 Annual Report of the Training and Capacity-building Department
 - National laboratory biosecurity and biosafety guidance
 - National guidance on the transport of potentially infectious substances
 - Decision No. 014 of 30 July 2012/IPCI creating the Transport, Dispatch and Packaging Unit of the Pasteur Institute of Côte d'Ivoire
 - Decision No. 015 of 30 July 2012/IPCI on the appointment of the head of the Transport, Dispatch and Packaging Unit of the Pasteur Institute of Côte d'Ivoire
 - National guidance on external quality assessment for biology laboratories
- CRESAC
 - Preliminary draft convention creating the Regional Centre for Educational, Environmental and Accreditation Evaluations in Africa
 - Order No. 184/MSHP/CAB of 26 October 2010 on the accreditation procedures for medical laboratories
- Office of Veterinary Services
 - OIE report on the quality of the country's veterinary services (PVS Tool)
 - OIE report on the gaps in the country's veterinary services (PVS Gap Analysis)
 - OIE report on the mission of the country's veterinary laboratories
- Other
 - Documentation on the country's existing collections of dangerous pathogens
 - Drafting, promulgation and application of national legislation on biosafety and biosecurity
 - Certified biological safety officers on staff in all laboratories that might handle dangerous pathogens
 - Document describing a facility's biological risk management and biosecurity policies in the form of a signed declaration that is reviewed annually
 - Formalities in progress for becoming a member of a regional or international biosecurity association
 - Standards and directives on safe injections and waste management in Côte d'Ivoire, March 2009

Immunization

- EPI cMYP 2016–2020
- Report on the measles immunization campaign, 2014
- Report on the anthrax immunization campaigns in the Bounkani region

National laboratory system

- WHO/WHO Regional Office for Africa regional survey on health laboratory systems, 2016
- 2015 Annual Report of the National Public Health Laboratory
- Annual Report, National Reference Centre, Pasteur Institute of Côte d'Ivoire, 2012

- Order No. 59/MSHP/CAB of 28 February 2008 on the scope, classification, organization, remit and functioning of public medical laboratories within the health pyramid
- Decree No. 96-876 of 25 October 1996 classifying public health facilities

Real-time surveillance

- National technical guidance on integrated disease surveillance and response

Reporting

- National technical guidance on integrated disease surveillance and response

Workforce development

- Field epidemiology training programme report
- 2015 Health Situation Annual Report, pages 12 and 117
- Document by the health worker training institute (INFAS) and health science education and research units
- Department of Human Resources

Preparedness

- ORSEC Plan
- Decree creating the ORSEC Plan
- Decree No. 98-42 of 28 January 1998 on the emergency plan for controlling accidental pollution in the sea, lagoons and coastal areas
- Civil aviation procedures manual for preventing and managing public health events at Félix-Houphouët-Boigny International Airport
- Decree No. 2014-486 of 3 September 2014 establishing the organizational framework for prevention and control of Ebola virus disease
- Order No. 435-MSP/CAB of 31 December 2007 amending Order No. 415/CAB/MEMSP of 28 November 2005 creating the national epidemic control committee and establishing its organization, remit and functioning

Emergency response operations

- Report on the simulation exercise for Ebola virus disease response operations in Côte d'Ivoire

Linking public health and security authorities

- Decree No. 74-265 of 19 June 1974 delegating ministerial powers to prefects
- Decree No. 79-643 of 8 August 1979 on the organization of nationwide disaster relief efforts
- Interministerial Directive No. 437/INT/PC of 8 December 1993 on the organization of department-level and nationwide relief following a major disaster

Medical countermeasures and personnel deployment

- Cooperation protocol with Algeria and Chad on epidemic control in West Africa
- Procedures guidance on managing regional security stocks of antiretroviral medicines

Risk communication

- ORSEC Plan

- National action plan for risk and disaster reduction 2016–2020
- EOC procedures
- National Ebola virus disease preparedness and response plan

Points of entry

- Report on the assistance visit from CAPSCA
- Communicable diseases surveillance and control protocol, Félix-Houphouêt-Boigny International Airport
- Official document designating points of entry (see desk review report)

Chemical events

- Scientific report of the Central Environmental Laboratory (2014 and 2015)
- Decree No. 91-662 of 9 October 1991 creating the Ivorian Antipollution Agency (CIAPOL)
- National CBRN action plan

Radiation emergencies

- International conventions with IAEA
- Law No. 2013-701 of 10 October 2013 on nuclear safety and security and protection from ionizing radiation
- Decree No. 91-654 of 9 October 1991 creating the National Public Health Laboratory of Côte d'Ivoire
- Decree No. 2014-361 of 12 June 2014 on the organization and functioning of the Nuclear Safety and Security Authority
- Decree No. 2014-362 of 12 June 2014 implementing Law No. 2013-701 of 10 October 2013
- Decree No. 2012-988 of 10 October 2012 on the creation, remit, organization and functioning of the national platform for risk reduction and disaster management

JEE workshop participants

	Name	Institution
1	Marie Sophie Ahoulou	Office of Pharmacies, Medicines & Laboratories
2	Guy Michel Badia	ABT Associates
3	Saran Branchi	French Embassy
4	Guillaume Mwamba	Preventive Medicine Agency (AMP)
5	G. Laissa Ouedraogo	CDC
6	Christophe N'guessan	CDC
7	Ramatou Toure-Adechoubou	CDC
8	Serigne Ndiaye	CDC
9	Li Wei	CDC
10	Roger Dia	EPI Coordination Office
11	Kouakou Yao	Office of Wildlife and Hunting, Ministry of Water and Forests
12	Kouamé Poquelin Assi	General Directorate of Health
13	Simplice Dagnan N'cho	General Health Office
14	Seka Alexis Bie	Department of Hospital Medicine
15	Yapo Blaise Acho	Department of Neighbourhood Hospital Medicine
16	Rachel Duncan	Office of Pharmacies, Medicines and Laboratories
17	Nogbou Valery Dadie	Office of Health Information Forecasting, Planning and Evaluation
18	Monique N'guessan	FAO ECTAD Côte d'Ivoire
19	Banakani Christian Akani	National Institute of Public Health
20	Daouda Coulibaly	National Institute of Public Health
21	Ama Kounangui Marie Noëlle Ano	National Institute of Public Health
22	Alfred Douba	National Institute of Public Health
23	Jocelyne Nébre	National Institute of Public Health
24	Florence Kadjo	National Institute of Public Health
25	Mayet Georges Koutouan	National Institute of Public Health
26	Anderson N'gattia	National Institute of Public Health
27	Joseph Vroh Benie Bi	National Institute of Public Health
28	Kone Sita Savane	National Institute of Public Health
29	Youssouf Traore	National Institute of Public Health
30	Nathalie Guessennd	Pasteur Institute of Côte d'Ivoire
31	Mireille Dosso	Pasteur Institute of Côte d'Ivoire
32	Konan Yao Simplice	International Rescue Committee
33	Tiepordan Agathe Dotia	National Public Health Laboratory
34	Mehoua Sekongo	National Public Health Laboratory
35	Nicole Nkai	MdH
36	Djézia Bouo Bella	Ministry of the Environment and Sustainable Development
37	Moussa Diabate	National Civil Aviation Agency, Ministry of Transport
38	Adjo Dannielle Gnandji	Ministry of Animal Resources and Fisheries
39	Haida Kaly Diarassouba Fadiga	Office of Veterinary Services, Ministry of Animal Resources and Fisheries
40	N. E. M'boua née Nezzi	Office of Veterinary Services, Ministry of Animal Resources and Fisheries

41	Gervais Folefack	WHO
42	Aka Tano-Bian	WHO
43	Raymond Taha	USAID Preparedness & Response
44	Gouzan Bernard Guessan Bi	UNICEF
45	Zandra Andre	USAID
46	Regina Konan Koko	USAID
47	Soumare Baba	USAID Preparedness & Response
48	Aristide Dionkounda	USAID PREDICT project
49	Djibril Cherif	National Institute of Public Health

