

# **JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES**

of the  
**REPUBLIC OF SOUTH SUDAN**

Mission report

**15-20 October 2017**



**World Health  
Organization**



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## Abbreviations

<b>AMR</b>	Antimicrobial Resistance
<b>AST</b>	Antimicrobial Susceptibility Tests
<b>CDC</b>	United States Centres for Disease Control and Prevention
<b>DHIS</b>	District Health Information Software
<b>EBS</b>	Event Based Surveillance
<b>EOC</b>	Emergency Operations Centre
<b>EP&amp;R</b>	Emergency Preparedness and Response
<b>EPI</b>	Expanded Programme of Immunization
<b>EQA</b>	External Quality Assurance
<b>EWARS</b>	Early Warning, Alert and Response System
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FETP</b>	Field Epidemiology Training Programme
<b>Gavi</b>	Global Vaccine Alliance
<b>HCAI</b>	Healthcare Associated Infection
<b>HE&amp;P</b>	Health Education and Promotion
<b>HPAI</b>	Highly Pathogenic Avian Influenza
<b>IATA</b>	International Air Transport Association
<b>IBS</b>	Indicator Based Surveillance
<b>IDSR</b>	Integrated Disease and Response
<b>IH&amp;C</b>	Directorate of International Health and Coordination
<b>IHR</b>	International Health Regulations
<b>IOM</b>	International Organization for Migration
<b>JEE</b>	Joint External Evaluation
<b>JIA</b>	Juba International Airport
<b>NFP</b>	National IHR Focal Point
<b>NPHL</b>	National Public Health Laboratory
<b>OIE</b>	World Organisation for Animal Health
<b>PHEIC</b>	Public Health Emergency of International Concern
<b>RDT</b>	Rapid Diagnostic Test
<b>RR</b>	Rapid Response Team

<b>SOPs</b>	Standard Operating Procedures
<b>SLMTA</b>	Strengthening Laboratory Management Towards Accreditation
<b>SPLA</b>	Sudan People's Liberation Army
<b>TWG</b>	Technical Working Group
<b>VHF</b>	Viral Hemorrhagic Fever
<b>WAHIS</b>	World Animal Health Information System
<b>WHO</b>	World Health Organization



# Executive summary

## Findings from the joint external evaluation

This evaluation was a joint assessment of the International Health Regulations (IHR) core capacities of the Republic of South Sudan using the World Health Organization (WHO) IHR Joint External Evaluation (JEE) tool. A multi-sectoral international External Evaluation Team of 7 members selected for their technical expertise from a number of countries, and WHO, participated in the evaluation. The mission took place from October 16 – 20, 2017 and comprised discussions and site visits at both the national and sub-national levels. This report presents recommendations and priority actions which resulted from joint discussions between the external experts and their South Sudanese counterparts on the needs and interests of animal, human and environmental health.

The South Sudanese participants included representatives from the ministries of Health; Wildlife Conservation and Tourism; Livestock and Fisheries; Justice and Constitutional Affairs; Interior; Humanitarian Affairs and Disaster Management; and Environment and Forestry. The law enforcement agencies (South Sudan National Police Service and Sudan People's Liberation Army (SPLA) Medical Corps) were also represented. The results of the self-assessment for all 19 technical areas were presented and discussed in detail with the External Evaluation Team throughout the joint external evaluation. The evaluation team and host country experts also participated in a series of facilitated discussions to jointly assess South Sudan's current strengths and best practices, areas that need strengthening and challenges, scores, and 3-5 priority actions for each of the 19 technical areas. The fourth day was dedicated to site visits in Juba and at the Uganda-South Sudan border in Nimule, which are meant to validate the country's core capacities in the 19 technical areas.

The Republic of South Sudan is a signatory to the IHR 2005 and despite on-going efforts, is struggling to meet the required core capacities under the IHR to prevent, detect and respond to public health emergencies. The findings of the evaluation will guide South Sudan in producing its action plan to continue developing a robust, resilient and inclusive multi-sectoral health system. Technical area scores, supporting information, and specific recommendations for priority actions are provided under each of the technical area sections of the full report. This summary highlights the important cross-cutting themes that have emerged as priorities for action.

## Major Findings

- The country has legislation and several regulations and administrative documents that govern public health surveillance and response. However, many of the documents are in draft and therefore cannot be put into operation. There is an urgent need to lobby the Ministry of Justice and Constitutional Affairs to review and pass them into laws.
- Generally, there is no formalised structure for coordination and communication between relevant ministries and other stakeholders on events of national and international interest. This often leads to duplication of efforts and delays in response.
- There is no national plan for the detection and reporting of antimicrobial resistance (AMR) pathogens and no healthcare associated infection (HCAI) sentinel sites have been set up. South Sudan currently has no AMR reference laboratory, but has a designated National Public Health Laboratory (NPHL) in Juba that could be upgraded for that purpose.

- Surveillance systems are in place for the detection and reporting of the priority zoonotic diseases that pose the greatest risk for human health, through Integrated Disease Surveillance and Response (IDSR) strategy and animal health through the Animal Epidemiology Disease Information System. Comprehensive outbreak guidelines and reporting forms are available for specific zoonotic disease outbreaks. The country is yet to establish a “One Health” policy and currently the human and animal health sectors are not coordinated, and joint operations are on an ad hoc basis.
- The regulatory system for food safety in the Republic of South Sudan is in the developmental stages, with political will and commitment of the Government of South Sudan demonstrated by its membership of the CODEX Alimentarius. A CODEX Committee is in existence, with membership from different sectors and a vision to align with CODEX guidelines, standards and recommendations for food safety. Operational links between different focal points and sectors are yet to be established, leaving no formal mechanism for multi-sectoral collaboration and coordination. These are issues that can, and should be addressed quickly to improve coordination and food safety.
- Immunization coverage remains low at 34%, as the country is faced with the challenge of non-functioning health facilities due to ongoing conflict, inadequate funds and a high rate of attrition of trained immunization staff due to poor motivation. The presence of difficult terrain and conflict also means that certain parts of the country are left out for significant periods of time without vaccines. There is a strong commitment towards improving coverage and ensuring access to vaccines. Despite challenges with routine data collection due to the overwhelmed health system, the Government of South Sudan supports periodic surveys and Expanded Programme of Immunization (EPI) reviews to ascertain the status of immunization in the country.
- The main reference laboratory in the country is the NPHL, which is able to perform tests for 5 out of 10 core tests, including HIV, TB, malaria, measles, meningitis, and cholera. However, only rapid diagnostic tests (RDTs) for HIV and malaria are available at peripheral facilities and all other testing must be referred to national or international level. The diagnostic capability is affected by frequent reagent stock outs. Capacity to perform classic techniques in microscopy and bacteriology needs development. The NPHL is enrolled in the Strengthening Laboratory Management Towards Accreditation (SLMTA) programme and is currently working towards accreditation.
- The IDSR strategy has been implemented and is functional with trained health care workers at 80% of the functional health facilities and IDSR and epidemiological bulletins are produced weekly and shared with stakeholders. The country has identified 26 priority diseases for surveillance purposes and Indicator Based (IBS), and Event Based Surveillance (EBS) systems are functional and coordinated under the IDSR strategy. Data analysis is mainly performed at the national and state levels while capacity is limited at lower levels of the health system.
- Currently the country is using the reporting mechanism prescribed in the IDSR technical guidelines for internal reporting from the community/facility level up to the national level. However, South Sudan needs to ensure the national system is fully developed to guide reporting to WHO and FAO and OIE.
- The health workforce capacity of South Sudan is quite low at all the levels in terms of numbers and skill mix of the requisite human resource. No mechanism is in place to train and track field epidemiology capacity and staff attrition is high. The situation regarding biostatisticians and laboratory scientists is no different. The situation is similar with animal health or veterinarians, biostatisticians, laboratory scientists, farming/livestock professionals.

- South Sudan has functional links between public health and security authorities demonstrated through the collaboration on IDSR training and cholera outbreak response under the auspices of the Epidemic Preparedness and Response Committee and the National Cholera Taskforce. However, there is no signed Protocol, MoU or any written agreement linking public health and the security authorities. No joint simulation exercise by public health and security authorities to test the two sectors' capacities has been done.
- The country carried out a national risk assessment in July 2017 and classified diseases and other hazards into four groups- high, moderate, low and very low. An all hazard national emergency preparedness and response plan is yet to be developed, however, some disease specific response plans for Viral Hemorrhagic Fever (VHF), measles, polio, cholera, malaria, meningitis, and Hepatitis E have been developed. Multi-sectoral rapid response teams (RRTs) have been identified and there is an established coordination mechanism, with an Emergency Operations Centre (EOC) focal person that can support and convene partners at short notice. South Sudan has case management guidelines for epidemic prone diseases, and there is continuous capacity building for identified ad hoc EOC personnel.
- Risk communication to the public is coordinated by the Office of the President during an emergency. The capacity (human, material and funding) of the health education and promotion (HE&P) department and at the sub-national levels is very low. Risk communication is included in disease specific preparedness and response guidelines and plans for VHF, Cholera, Polio and Meningitis. Generally, risk communication activities are ad hoc and not well-coordinated at any level. There is neither a national risk communication strategy nor formal agreements between the agencies that carry out such activities.
- South Sudan does not currently have any capacity to manage and respond to chemical threats within its borders. However, it has established a National Environment Policy (2015-2026) and has the overall mandate to effectively protect and sustainably manage the environment and natural resources to ensure a quality environment adequate for human health.
- South Sudan has limited to no capacity for radiation emergencies and they have not as yet been considered at the national level in any surveillance detection or response planning. Capacity and expertise in this area is lacking in South Sudan and the country is in need of technical and financial support to build this capacity at the National and sub-national levels.

## South Sudan scores

Technical areas	Indicators	Score
<b>National legislation, policy and financing</b>	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 IHR (2005)	1
<b>IHR coordination, communication and advocacy</b>	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	2
<b>Antimicrobial resistance</b>	P.3.1 Antimicrobial resistance detection	1
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	1
	P.3.3 Health care-associated infection (HCAI) prevention and control programmes	1
	P.3.4 Antimicrobial stewardship activities	1
<b>Zoonotic diseases</b>	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	2
	P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional	1
<b>Food safety</b>	P.5.1 Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases	2
<b>Biosafety and biosecurity</b>	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	1
	P.6.2 Biosafety and biosecurity training and practices	1
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national programme	1
	P.7.2 National vaccine access and delivery	3
<b>National laboratory system</b>	D.1.1 Laboratory testing for detection of priority diseases	2
	D.1.2 Specimen referral and transport system	1
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	2
	D.1.4 Laboratory quality system	1
<b>Real-time surveillance</b>	D.2.1 Indicator- and event-based surveillance systems	3
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	2
	D.2.3 Integration and analysis of surveillance data	3
	D.2.4 Syndromic surveillance systems	4
<b>Reporting</b>	D.3.1 System for efficient reporting to FAO, OIE and WHO	3
	D.3.2 Reporting network and protocols in country	2
<b>Workforce development</b>	D.4.1 Human resources available to implement IHR core capacity requirements	1
	D.4.2 FETP <sup>1</sup> or other applied epidemiology training programme in place	1
	D.4.3 Workforce strategy	2
<b>Preparedness</b>	R.1.1 National multi-hazard public health emergency preparedness and response plan is developed and implemented	1
	R.1.2 Priority public health risks and resources are mapped and utilized	1

<sup>1</sup> FETP: field epidemiology training programme

Technical areas	Indicators	Score
<b>Emergency response operations</b>	R.2.1 Capacity to activate emergency operations	1
	R.2.2 EOC operating procedures and plans	1
	R.2.3 Emergency operations programme	1
	R.2.4 Case management procedures implemented for IHR relevant hazards.	2
<b>Linking public health and security authorities</b>	R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event	1
<b>Medical countermeasures and personnel deployment</b>	R.4.1 System in place for sending and receiving medical countermeasures during a public health emergency	1
	R.4.2 System in place for sending and receiving health personnel during a public health emergency	1
<b>Risk communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)	1
	R.5.2 Internal and partner communication and coordination	2
	R.5.3 Public communication	1
	R.5.4 Communication engagement with affected communities	1
	R.5.5 Dynamic listening and rumour management	2
<b>Points of entry</b>	PoE.1 Routine capacities established at points of entry	1
	PoE.2 Effective public health response at points of entry	1
<b>Chemical events</b>	CE.1 Mechanisms established and functioning for detecting and responding to chemical events or emergencies	1
	CE.2 Enabling environment in place for management of chemical events	1
<b>Radiation emergencies</b>	RE.1 Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies	1
	RE.2 Enabling environment in place for management of radiation emergencies	1

Scores: 1=No capacity; 2=Limited capacity; 3=Developed capacity; 4=Demonstrated capacity.

# PREVENT

## National legislation, policy and financing

### Introduction

The International Health Regulations (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 a new or revised legislation may not be specifically required, states may still choose to revise some regulations or other instruments in order to facilitate IHR implementation and maintenance in a more effective 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](http://www.who.int/ihr/legal_issues/legislation/en/index.html). In addition, policies that identify national structures and responsibilities as well as the allocation of adequate financial resources are also important.

### Target

*Adequate legal framework for States Parties to support and enable the implementation of all their obligations, and rights to comply with and implement the IHR (2005). New or modified legislation in some States Parties for implementation of the IHR (2005). Where new or revised legislation may not be specifically required under the State Party's legal system, States may 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 ensure provision of adequate funding for IHR implementation through the national budget or other mechanism.*

### South Sudan Level of Capabilities

The country has legislation and several regulations and administrative documents that govern public health surveillance and response. They include: The Transitional Constitution of the Republic of South Sudan (2011), the National Health Policy (2016-2026); the draft National Health Sector Development Plan (2017-2021); the Environmental Policy (2015-2025); the Drug and Food Control Authority Act (2012); National Disaster Risk Management Policy (2016); the Petroleum Act (2012); the HIV/AIDS Commission Act (2006); the General Medical Council Provisional Order (2014) and the Civil Aviation Authority Act (2012). However, the launch of other relevant acts such as the Public Health and Animal Health bills have been delayed at the Ministry of Justice and Constitutional Affairs, and therefore need to be expedited. The country carried out a desk review on available legislation and regulations for IHR (2005) implementation in December 2015. It was however noted that a more comprehensive review must be done to inform the review of key legislation.

Although the government has provided financial support to recent outbreaks of cholera, information on dedicated government budget for emergencies was not readily available.

## Recommendations for priority actions

- Expedite the enactment, through parliament, of the Public Health and Animal Health Acts, as well as the disaster risk management policy to facilitate the implementation of the IHR (2005) and the One Health approach.
- Conduct a comprehensive desk review of other laws touching on IHR (2005) implementation, develop their legal instruments and policy guidelines and sensitize all relevant stakeholders on the updated laws at national, state and lower level.
- Formalize/update memoranda of understanding (MoUs) with states and establish bilateral and multi-lateral agreements with neighbouring countries to support cross-border and cross-country initiatives.
- Establish a budget line for routine and emergency IHR (2005) priority actions for sustainable domestic resource mobilization and develop an external resource mobilization strategy.

## 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

#### *Strengths/best practices*

- Some legislation, regulations, and policies are in place, although several need revision/updating to make them relevant to IHR and the "One Health" approach
- An IHR desk review was conducted in December 2015 and recommended a review of legislation, policies and regulations to support the implementation of the IHR
- The Public Health and Animal Health Acts have been reviewed but have yet to be passed as an Act of parliament. These bills may need to be reviewed and revised for IHR compliance since they were submitted before the 2015 National IHR legislation review.

#### *Areas that need strengthening and challenges*

- Expedite the comprehensive review and revision/update of relevant legislation and policies and accelerate the enactment of the Public Health and Animal Health Acts
- Engage and sign specific MoUs and protocols between MoH and State Ministries of Health and neighboring countries on health-related issues
- Improve seamless collaboration across government sectors
- Establish a budget line for routine and emergency IHR activities for sustainable domestic resource mobilization and develop a strategy for external resource mobilization. The Government can explore the possibility of accessing funds from other international agencies such as the World Bank and other regional bodies.

### 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 1

#### *Strengths/best practices*

- There is evidence of the use of existing legislation and policies in the management of some health-related events/outbreaks such as cholera and VHF
- At the Points of Entry, there are systems in place for the inspection of imported animals and animal products, yellow fever vaccination, and screening for travellers.

### ***Areas which need strengthening/Challenges***

- There is a need for cross-border MoUs between states and neighboring countries
- There is a need to establish an intersectoral coordination mechanism for the relevant line ministries and to have systematic and timely information sharing and between animal and human health surveillance units and laboratories
- There is no mechanism to incorporate lessons learnt from the current multi-sectoral and multi-disciplinary coordination and communication system
- There is a need for improved international engagement with neighboring countries and the involvement of other government agencies.

# IHR coordination, communication and advocacy

## Introduction

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

### **Target**

*Multisectoral/multidisciplinary approaches through national partnerships that allow efficient, alert and responsive systems for effective implementation of the IHR (2005). Coordinate nationwide resources, including sustainable functioning of a national IHR focal point – a national centre for IHR (2005) communications which is a key requisite for IHR (2005) implementation – that is accessible at all times. States Parties provide WHO with contact details of national IHR focal points, continuously update and annually confirm them.*

## Sudan level of capabilities

The Ministry of Health has designated the Directorate of International Health and Coordination (IH&C) to oversee IHR implementation. The Directorate is yet to be staffed and provided with the requisite logistics for it to be fully functional. Access to the National IHR Focal Point (NFP) is thus limited. There is an OIE delegate, however, there are no IHR focal persons for food safety and relevant sectors such as security agencies, immigration, chemical events, and radiation emergencies. There exists a National Emergency Preparedness and Response (EP&R) taskforce that holds a weekly meeting and predominately oversees activities related to infectious diseases. The membership of the taskforce does not include all key stakeholders and varies based on type of disease outbreak or event to be addressed. The National IDSR programme currently collects and analyses alerts and disease outbreaks, and provides a platform for information sharing for some potential epidemic-prone diseases. The country has been able to carry out an After Action Review after a cholera outbreak and provided feedback to stakeholders. Generally, there is no formalised structure for coordination and communication between relevant ministries and other stakeholders on events of national and international interest. This often leads to duplication of efforts and delayed response.

## Recommendations for priority actions

- Review, update and institutionalise effective national and sub-national multisectoral and multidisciplinary coordination and communication structures for addressing issues of national and international health concern. In this regard, it will be necessary to clearly articulate the roles and responsibilities of the different stakeholders to assure synergy.
- Operationalize the IHR NFP office, including providing the necessary guidance documents, staffing, logistics and IT support for it to serve as the fulcrum of IHR coordination and communication.
- Build the technical capacity of the NFP and all IHR FPs from the relevant sectors through training, logistics, and IT support for the appropriate IHR implementation. This may require putting in place mechanisms to continuously assess the effectiveness of the IHR NFP and put in place necessary updates.
- Develop an advocacy plan to ensure all key stakeholders are actively involved in IHR implementation.
- Establish multisector IHR NFP Technical Working Group (TWG) with terms of reference.

## Indicators and scores

### P.2.1 A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR – Score 2

#### *Strengths/best practices*

- The Emergency Preparedness and Response taskforce holds weekly meetings for information sharing, updates and response to key health events
- Successful designation of a directorate in the MoH as the first step in setting up the IHR NFP
- Availability of some disease specific response plans, such as malaria, meningitis, measles, polio, Hepatitis E virus, and VHF.

#### *Areas that need strengthening and challenges*

- Operationalize the IHR focal persons with key ministries/sectors, including the development of Standard Operating Procedures (SOPs) or guidelines starting by strengthening the NFP for MoH which is already in place but requires additional human and material support
- Establish an IHR and “One Health” coordination framework that ensures timely and systematic information exchange between animal and human health, and other relevant sectors on surveillance units, laboratories and related activities on events of national and international concern
- Putting in place a multi-sectoral advocacy framework for IHR implementation.

# Antimicrobial resistance

## Introduction

Bacteria and other microbes 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. Antimicrobial resistance is evolving 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 (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.*

## South Sudan level of capabilities

Antimicrobial resistance (AMR) is an issue of huge global importance and therefore strong actions must be undertaken by every country to control it. South Sudan currently has no AMR reference laboratory, but has a designated NPHL in Juba that could be used for this function. There is no national plan for the detection and reporting of AMR pathogens and no Health Care Associated Infection (HCAI) sentinel sites have been set up.

Furthermore, there is no mention of AMR pathogens in the National Public Health Laboratory Strategic Plan 2010-2015. The National TB programme has demonstrated capacity for the detection of rifampicin resistance, but this does not extend to any other priority pathogens. There is no surveillance for AMR in animal populations.

No antimicrobial stewardship plans exist, and the laws on appropriate prescription of antibiotics are not enforced, making them easily available over the counter.

## Recommendations for priority actions

- Establish a multi-sectoral AMR technical working group.
- Develop a National AMR Plan of Action that includes all critical sectors.
- Develop and institutionalise a national infection prevention and control (IPC) programme.
- Incorporate AMR reporting in MoH and Ministry of Livestock and Fisheries reporting systems with plans/procedures for sharing actionable reports (AMR surveillance in both humans and animals).
- Develop a plan for Antimicrobial Stewardship (including survey on antibiotic use).
- Improve capacity of National Public Health laboratory to do specimen culture and sensitivity as bare minimum.

## Indicators and scores

### P.3.1 Antimicrobial resistance detection – Score 1

#### *Strengths/best practices*

- Infrastructure is available for drug susceptibility testing, and capacity has been demonstrated by the National TB programme, although this is done through the use of the GeneXpert platform specific for Tuberculosis, not culture.
- There is a strong engagement between the National TB Reference Laboratory and the Supra National Reference Laboratory in Uganda.

#### *Areas which need strengthening and challenges*

- Policy, Plan, Guideline documents yet to be developed
- AMR Technical Working Group for South Sudan
- There is no national AMR laboratory in the country
- National Health Laboratory Strategic Plan 2010-2015 should include AMR pathogens
- The human resources are inadequate for AMR activities
- No guidelines like the Clinical Laboratory Standards Institute guidelines
- No Quality Assurance programme for Antimicrobial susceptibility tests
- Limited diagnostic techniques and reagents for Antimicrobial Sensitivity Testing
- Lack of reagents and standard American Type Culture Collections (ATCC) strains
- No designated funding for AMR related activities.
- Lack of coordination between animal and human health (One Health).

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

#### *Strengths/best practices*

- Laboratory and equipment at the NPHL are up to standard

#### *Areas which need strengthening and challenges*

- No surveillance system for infections caused by AMR pathogens
- There is a lack of designated funding, limited resources and insufficiently trained staff.

### P.3.3 Health care-associated infection (HCAI) prevention and control programmes – Score 1

#### *Areas which need strengthening and challenges*

- There is no national plan healthcare associated to infection, prevention, and control programs
- No prescription required for human and animal antibiotic use
- There is a lack of funds to correctly tackle infection prevention and control.

### P.3.4 Antimicrobial stewardship activities – Score 1

#### *Strengths/best practices*

- TB drugs are controlled and are only prescribed upon laboratory confirmation and issued in designated treatment centres.

#### *Areas which need strengthening and challenges*

- There is no national plan for antimicrobial stewardship
- National policy and guidelines on appropriate antibiotic use
- No prescription provided for antibiotic use in humans and animals
- Strengthen the enforcement of laws surrounding purchase and prescription of antibiotics
- Lack of funding for stewardship programmes.
- There are no professional bodies to regulate medical practice of doctors, nurses, and other paramedical.

# Zoonotic diseases

## Introduction

Zoonotic diseases are communicable diseases that can spread between animals and humans. These diseases are caused by viruses, bacteria, parasites and fungi carried by animals, insects or inanimate vectors that aid in its transmission. Approximately 75% of recently emerging infectious diseases affecting humans is of animal origin; and approximately 60% of all human pathogens are zoonotic.

### **Target**

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

## South Sudan level of capabilities

The country recognises that zoonotic diseases contribute significantly to the burden of human disease in the region and that South Sudan is not immune to the impact of zoonotic diseases on human health. In this regard the country has identified zoonotic diseases of the greatest public health concern, which include Ebola, Yellow Fever, cutaneous anthrax, brucellosis, bovine TB, highly pathogenic avian influenza (HPAI), rabies and Rift Valley Fever.

South Sudan has a large animal population, including domestic, commercial and wild animals, although a census of animal populations has not been performed since 2007. The Ministry of Livestock and Fisheries has developed an animal health policy and strategic plan (2012-2016), however, the timeframe of this document has elapsed and a revised/updated document was not available at the time of the evaluation.

Surveillance systems are in place for detection and reporting of priority zoonotic diseases that pose the greatest risk to humans, through the IDSR, and animal health through the Animal Epidemiology Disease Information System. Comprehensive outbreak guidelines and reporting forms are available for zoonotic disease outbreaks. The country is yet to establish a One Health policy, and currently the human and animal health sectors are not coordinated with interactions and operations happening on an ad hoc basis.

## Recommendations for priority actions

- Establish One Health policy for zoonotic diseases in the country.
- Develop control guidelines for all priority zoonotic diseases.
- Form a multidisciplinary RRT to include stakeholders from human health and animal health.
- Establish linkages between the animal health laboratories and public health laboratories in the country.
- Strengthen partnerships between the MoH, Ministry of Livestock and Fisheries and the Ministry of Wildlife Conservation and Tourism as they relate to zoonotic disease detection and response.

## Indicators and scores

### P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens – Score 2

#### *Strengths/best practices*

- Presence of zoonotic disease surveillance at the Ministry of Livestock and Fisheries
- The IDSR has included seven zoonotic diseases
- Mechanisms are in place to identify zoonotic priority diseases that may pose a national risk
- Mechanism in place for interagency response teams in the event of suspected zoonotic disease outbreak
- During a zoonotic disease outbreak response, situational reports are shared widely among stakeholders of human and animal health.

#### *Areas which need strengthening and challenges*

- Strengthen coordination and communication between the MoH, Ministry of Livestock and Fisheries, and the Ministry of Wildlife Conservation and Tourism
- Formalize linkage between public health laboratories and the animal health laboratories
- Strengthen linkage between animal surveillance system and surveillance system used for human health (IDSR)
- Draft a list of zoonotic priority diseases for which control policies exist
- Create a forum to regularly share reports and coordinate activities on zoonotic diseases.

### P.4.2 Veterinary or animal health workforce – Score 2

#### *Strengths/best practices*

- Presence of two public universities that can train animal health professionals
- Presence of one institution offering training to animal health technicians/workers
- Meat inspection system in place.

#### *Areas which need strengthening and challenges*

- The current number of animals in the country has not been updated and the figures being used are those obtained before South Sudan became an independent country
- There is no FETP program in the country where animal health experts and veterinarians can be trained
- There are inadequate numbers of animal health experts and veterinarians in the country
- Meat inspection needs to be improved through training and the construction of a proper slaughter house
- There is no plan in place for sustained recruitment of animal health specialists into the public service
- The Ministry of Livestock and Fisheries and the Ministry of Wildlife Conservation and Tourism are facing high staff attrition.

#### P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases established and functional – Score 1

##### ***Strengths/best practices***

- Zoonotic diseases are part of list of IDSR priority diseases
- Presence of policies and plans for the response to zoonotic events in the country
- Ad hoc collaboration between the stakeholders of animal health and human health sectors during response to zoonotic events in the country.

##### ***Areas which need strengthening and challenges***

- No formal procedures between sectors for the management of zoonotic events
- Capacity to respond to more than 80% of zoonotic events on time
- No multidisciplinary RRTs
- There is understaffing and a lack of funds in the animal health workforce.

# Food safety

## Introduction

Food- and water-borne diarrhoeal diseases are leading causes of illness and death, 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

*Surveillance and response capacity among States Parties for food- and water-borne disease risks or events by strengthening effective communication and collaboration among the sectors responsible for food safety, and safe water and sanitation.*

## South Sudan level of capabilities

The regulatory system for food safety in the Republic of South Sudan is in the developing stages, with political will and commitment of the Government of South Sudan demonstrated by its membership of the CODEX Alimentarius. A CODEX Committee is in existence, with membership from different sectors and a vision to align with CODEX guidelines, standards and recommendations for food safety.

The stakeholders identified and included in the committee include the MoH, Drug and Food Control Authority, Ministry of Agriculture and Food Security, Ministry of Livestock and Fisheries, Ministry of Trade and Industries, Ministry of Environment and Forestry, Office of the President for National Security, and the National Bureau of Standards. Other stakeholders include multilateral agencies like FAO and WHO. Focal points across different sectors have been identified, and this multisectoral approach has the potential of driving the vision of ensuring standards and protecting the public from unsafe food.

Relevant legislation exists including the Drug and Food Control Act, 2012, which provides a legal framework for the regulation of food and drug safety. There are ongoing plans to develop national standards to guide implementation of food safety procedures.

South Sudan applies the IDSR system to monitor, identify and investigate food-borne illnesses specifically during food related outbreak of disease. There is significant capacity in the use of IDSR among healthcare workers and public health experts.

Operational links between different focal points and sectors are yet to be established, leaving no formal mechanism for multi-sectoral collaboration and coordination. Food safety related events are not documented, and there is no information-sharing system in place. These are issues that can, and should be addressed quickly to improve coordination and food safety.

## Recommendations for priority actions

- Establish a Food Safety Technical Working Group to strengthen coordination for effective communication and collaboration among sectors with focus on the water and sanitation sector
- Develop National Guidelines for food safety
- Develop a capacity-building plan for focal points and other relevant stakeholders
- Create awareness among policy makers and the public on food safety.

## Indicators and scores

### P.5.1 Mechanisms for multi-sectorial collaboration established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases – Score 2

#### *Strengths/best practices*

- Country membership of CODEX Alimentarius
- Application of IDSR framework to food safety related events
- Designation of Food Safety focal points among relevant stakeholders in multiple sectors.

#### *Areas which need strengthening and challenges*

- Operational links should be established between different stakeholders (surveillance, response, food safety, animal health and laboratories)
- All food safety related events should be documented
- Information on risks and health safety related events should be disseminated appropriately.

# Biosafety and biosecurity

## Introduction

It is vital to work with pathogens in the laboratory to ensure 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 diseases 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 with especially dangerous pathogens identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach 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 in place as appropriate.*

## South Sudan level of capabilities

Capacity in the area of biosafety and biosecurity in South Sudan is generally weak. Currently there is no specific training on biosafety or biosecurity conducted in the country, however Infection Prevention and Control training was conducted in relation to the Ebola preparedness plan. South Sudan does not have biosafety and biosecurity systems for human, animal and agriculture facilities in place and there are no national guidelines or an oversight mechanism in the country. Training on biological risk management is planned to be rolled out in all regions of South Sudan but as yet has not been implemented. The Laboratory Safety Manual, which is still in draft form, is a comprehensive document and its completion would build capacity in this area.

## Recommendations for priority actions

- Form a TWG for biosafety and biosecurity under the “One health” approach.
- Conduct a needs assessment and identify gaps in biosafety and biosecurity.
- Implement biosecurity and biosafety training in in-service and pre-service facilities.
- Develop national guidelines, manuals and SOPs and standard training curriculum on biosafety and biosecurity.
- Develop a legislative and regulatory framework, national policy and plans on biosafety and biosecurity.
- Complete the laboratory Safety Manual development and roll out its use.

## Indicators and scores

### P.6.1 Whole-of-government biosafety and biosecurity system in place for human, animal and agriculture facilities – Score 1

#### *Strengths/best practices*

- Draft manual on laboratory biosafety available
- Controlled access into the TB Laboratory through fingerprint access
- WHO guidelines on specimen sample collection for referral in use
- International Air Transport Association (IATA) Guidelines used for staff training
- Acid Fast Bacillus Smear Microscopy Manual National TB, Leprosy and Buruli Ulcer Programme
- Draft TB Microscopy Manual
- NPHL has designated locked cold chain storage facilities.

#### *Areas which need strengthening and challenges*

- There is no mechanism for monitoring and developing a record and inventory of pathogens within facilities that process dangerous pathogens and toxins
- There is no legislation or regulations on biosafety and biosecurity
- The country has no regulatory body for licensing laboratories
- Guidelines on laboratory biosafety that exist in various documents do not address animal health
- Most laboratories do not have access controls to minimize potentially inappropriate removal or release of biological agents
- Lack of relevant advocacy and leadership
- Many draft policy and guideline documents are pending approval
- Inadequate funding to support the sector.

### P.6.2 Biosafety and biosecurity training and practices – Score 1

#### *Strengths/best practices*

- Components of biosafety training conducted under IDSR training programme
- IATA training guidelines used for training staff on the shipping of infectious substances
- Triple packaging for category A and B infectious substances applied in transporting samples from the field to National Public Health laboratory
- NPHL has biosafety cabinets.

#### *Areas which need strengthening and challenges*

- Baseline assessment for biosafety and biosecurity in the country
- Policies, plans and guidelines need to be developed
- Capacity building and training on biosafety and biosecurity
- There is no guidance on staff testing or exercising on biosafety and biosecurity procedures
- No funding to support biosafety and biosecurity.

# Immunization

## Introduction

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

### Target

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

## South Sudan level of capabilities

The National EPI programme in South Sudan is responsible for the implementation and management of immunization activities, which is guided by the Comprehensive Multi-Year Plan for Immunization. Despite security challenges, there is a strong commitment towards improving coverage and ensuring access to vaccines. Efforts are ongoing by the government to expand cold chain management, and these efforts are being supported by Gavi– through the Cold Chain Equipment Optimization Plan. Capacity building for healthcare workers on immunization and provision of critical infrastructure, such as the provision of solar panels and refrigerators to ensure effective cold chain management are an integral part of this plan.

The Republic of South Sudan has an established cholera immunization programme, with cholera vaccines being delivered during humanitarian emergencies and through campaigns to vulnerable populations. This has led to improved protection of vulnerable groups especially the internally displaced persons living in camps.

The South Sudanese EPI programme has the buy in of several partners including WHO, UNICEF, CDC, Gavi, Bill and Melinda Gates Foundation, the Health Pooled Fund and IMA World. The government collaborates with these partners to ensure ownership and sustainability of programmes.

Despite challenges with routine data collection related to overwhelmed health systems, the government of South Sudan supports periodic surveys and EPI reviews to ascertain the status of immunization in the country. Significant efforts have been made through information and logistics management, to ensure there is no stock out of vaccines at the national level, but stock outs do occur at regional levels especially in areas affected by conflicts.

Immunization coverage remains low at 34% (Republic of South Sudan EPI and Surveillance Review, September 2017) as the country is faced with challenges of inadequate funds and a high rate of attrition of trained immunization staff due to poor motivation. The presence of difficult terrain and conflicts also means that certain parts of the country are left out for significant periods of time without vaccines, as resources required like flights to transport vaccines are not readily available. Poor awareness at the community level of the benefits of immunization, remains a major challenge to the EPI programme in South Sudan.

However, the coverage for oral polio vaccination is over 70% since the polio national immunization days are well resourced and are conducted 4 times a year nationwide. A mechanism has been put in place to ensure effective vaccine distribution, adequate cold chain and ample human resources are available.

## Recommendations for priority actions

- Conduct outreach, Rapid Response Missions and Periodic Intensification of Routine Immunization plans.
- Sustain and monitor implementation of cold chain equipment optimization plan by Gavi.
- Develop a capacity-building plan for EPI.
- Complete, disseminate and implement the comprehensive Multi-Year Plan 2018 – 2022.
- Actively support the supervision of the vaccination programmes.

## Indicators and scores

### P.7.1 Vaccine coverage (measles) as part of national programme – Score 1

#### *Strengths/best practices*

- South Sudan has a national-level immunization programme which is aligned with the WHO Global Vaccine Action Plan
- The EPI program is guided by a comprehensive Multi-Year Plan
- Continuous capacity building for healthcare workers
- Outreach and Rapid Response Missions to hard-to-reach areas and those affected by conflicts.

#### *Areas which need strengthening and challenges*

- Routine data collection needs to be improved with data captured in the District Health Information Software 2
- Increased funding needed for immunization activities
- Ensure greater security measures for immunization staff.

### P.7.2 National vaccine access and delivery – Score 3

#### *Strengths/best practices*

- Availability of a cold chain equipment optimization plan
- Efficient supply chain management by EPI managers at national level with proper documentation of inventory.

#### *Areas which need strengthening and challenges*

- Build capacity on supply chain management at regional and facility levels to reduce stock outs
- Improved security is required to ensure supply of vaccines and cold chain management in some counties.

# DETECT

## National laboratory system

### Introduction

Public health laboratories provide essential services including disease and outbreak detection, emergency response, environmental monitoring and disease surveillance. National and state 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.*

### South Sudan level of capabilities

Laboratory services in South Sudan operate in the Department of Diagnostic Services, which falls under the Directorate of Medical Services. This Directorate is overseen by the MoH, which provides the overarching leadership. There is one NPHL, four laboratories at national teaching hospitals, seven at state hospital level, 17 at county hospital level and 143 at primary health care centres. There is also a veterinary laboratory located in Juba.

The main reference laboratory in the country is the NPHL, which is able to perform tests for five out of 10 core tests, including HIV, TB, malaria, measles and cholera. However, only rapid diagnostic tests for HIV and malaria are available at peripheral facilities and all other testing must be referred to national or international level. For HIV and TB programmes, there are well-defined referral pathways, including MoUs with Kenya and Uganda for international referrals. However, samples for testing for IDSR priority diseases are transported to the NPHL on an ad hoc basis, utilising NGO vehicles and United Nations Humanitarian Air Service flights as available. Recently a sample transport system using a boda boda (public transport system using motor cycles) has been piloted in Juba.

The diagnostic capability at NPHL is affected by frequent reagent stock outs. Capacity to perform classic techniques in microscopy and bacteriology needs development. The NPHL is enrolled in the SLMTA programme and is currently working towards accreditation.

### Recommendations for priority actions

- Capacity build four regional laboratories in Wau, Aweil, Bentiu and Malakal to enable them to process samples for epidemic prone diseases especially cholera culture.
- Establish a National Laboratory TWG to include all sectors and stakeholders.
- Develop a policy and standard for supply chain and procurement processes for acquiring necessary equipment, reagents and consumables.

- Develop a specimen referral system to include national policy, guidelines, SOPs and trainings, including for the appropriate packaging of specimens
- Complete the SLMTA process as part of quality improvement system
- Establish a system for the regulation of laboratory practice in the country
- Establish national policy and guidelines to regulate the appropriate packaging and referral of specimens.

## Indicators and scores

### D.1.1 Laboratory testing for detection of priority diseases – Score 2

#### *Strengths/best practices*

- National diagnostic algorithms for performance of the WHO core laboratory tests are available
- Malaria and HIV testing available in nearly all health facilities with laboratories
- TB testing available in many facilities in the country
- The PHL offers testing for measles/rubella, cholera, in addition to HIV, TB and malaria
- There are official agreements with laboratories in Kenya and Uganda for specialized testing not available in country
- NPHL and other laboratories have testing algorithms which are disseminated
- IDSR revitalization raised awareness on the need to test for detection of priority diseases, conditions and events.

#### *Areas which need strengthening and challenges*

- Frequent stock out of laboratory commodities, and donated equipment
- Some tests such as meningitis culture not consistently done
- Most of the state laboratories do not have the equipment to test, and rely on RDTs for malaria and HIV
- Majority of the state laboratories have no established SOPs for laboratory tests
- Lack of equipment and reagents for other tests.

### D.1.2 Specimen referral and transport system – Score 1

#### *Strengths/best practices*

Specimen referral network is well documented for TB and HIV vertical programmes, and also VHF, Acute Flaccid Paralysis and measles samples

- A draft policy for specimen transportation has been developed
- The country participates in international laboratory networks for measles, HIV and TB
- IDSR revitalization has contributed to raising awareness on the need to establish a strong specimen referral and transport system for priority diseases, conditions and events.

### ***Areas which need strengthening and challenges***

- There are no specific regulations or guidelines for the appropriate packaging and referral of specimens except for a few priority diseases such as Ebola Virus Disease, polio and measles under IDSR
- There is insufficient funding to support specimen referral and transport systems and inadequate coordination among stakeholders.

### **D.1.3 Effective modern point-of-care and laboratory-based diagnostics – Score 2**

#### ***Strengths/best practices***

- The country has a National Laboratory Strategic Plan in place to improve the availability of point of care diagnostics at clinical sites
- There are procurement processes for purchasing media and reagents to perform core laboratory tests
- IDSR revitalization has contributed to raising awareness on the importance of availability of culture media and reagents for performance of core laboratory tests.

#### ***Areas which need strengthening and challenges***

- There is no in-country production nor procurement processes for acquiring the necessary media and reagents for performance of core laboratory tests
- The country is heavily dependent on donors to access all laboratory supplies
- There are frequent stock outs of media and reagents for the performance of core laboratory tests.

### **D.1.4 Laboratory quality system -Score 1**

#### ***Strengths/best practices***

- National laboratories refer to foreign national or regional accreditation bodies
- Laboratory accreditation process is currently ongoing (SLMTA)
- Supportive supervision and laboratory quality audits are done with feedback
- The country has national External Quality Assurance (EQA) programmes for TB, HIV, and measles
- Good collaboration between laboratories, IDSR and EPI stakeholders contributes to improving laboratory quality system.

#### ***Areas which need strengthening and challenges***

- There is no national body in charge of laboratory licensing, inspection, certification or accreditation
- There is no laboratory currently accredited in the country
- There is no specific national document describing the registration procedure for in vitro diagnostics;
- There are no guidelines for mandatory EQA, although a draft exists for TB microscopy
- Improvement is needed on monitoring laboratory quality indicators
- Insufficient coordination and collaboration between human and animal health laboratory systems
- Insufficient funds for EQA programme.

# Real-time surveillance

## Introduction

The purpose of real-time surveillance is to advance the safety, security and resilience of the nation 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 and OIE standards.*

## South Sudan level of capabilities

The IDSR strategy has been implemented and is functional, with trained healthcare workers at 80% of the functional health facilities. Further, IDSR and epidemiological bulletins and cholera outbreak situation reports are produced weekly and shared with stakeholders. The country has identified 26 priority diseases for surveillance purposes, where IBS and EBS systems are functional and coordinated under the IDSR strategy.

Syndromic surveillance is also conducted, under IDSR for a number of diseases and conditions including Acute Flaccid Paralysis, Acute Respiratory Illness, VHF, Acute Jaundice Syndrome, Acute Bloody Diarrhoea, Acute Watery Diarrhoea. The Early Warning Alert and Response Network (EWARN) is operational in areas with high internally displaced persons (IDPs). Indicator based surveillance (IBS) on 14 epidemic-prone diseases is performed in health facilities and reporting is done weekly. Event based surveillance (EBS) is being conducted but currently collects information on events reported through the formal reporting system. The current EBS systems should be expanded to integrate events from the informal reporting channels. The recently introduced Boma Health Initiative will enhance community-based surveillance and reporting.

Data analysis is mainly performed at the national and state levels while capacity is limited at lower levels of the health system. Two platforms are used for reporting and data analysis District Health Information Software (DHIS) 1.4 and Early Warning, Alert and Response System (EWARS), however these applications are not interoperable. Both paper based and electronic data reporting are in place based on the level of health system and reporting forms capture surveillance, outbreak, and laboratory information.

## Recommendations for priority actions

- Develop a comprehensive EBS system that integrates events from formal and informal sources for both human and animal health.
- Data collection through IDSR to be upgraded to DHIS 2 and operationalize the IDSR module.
- Develop a system to collect and share real-time laboratory data (animal and human) that is connected to MoH and Ministry of Livestock and Fisheries systems.
- Roll out of electronic EWARS reporting platform to all the counties and health facilities.

## Indicators and scores

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

#### *Strengths/best practices*

- Both indicator and event based surveillance systems exist along with a list of priority diseases
- Reporting structure for IDSR is clearly laid down
- IDSR reporting tools have been developed, printed and distributed to all functional health facilities
- More than 80% of the functional health facilities have at least one trained healthcare worker to support reporting
- Animal health surveillance systems also exist
- Missions from the higher levels to the lower levels to motivate healthcare workers to continue to report timely and regularly
- Regular production of weekly epidemiological bulletin and cholera situation reports to provide feedback
- Holding of weekly Emergency Preparedness and Response meeting by the health experts to review and provide action points to improve reporting and response.

#### *Areas which need strengthening and challenges*

- Train more healthcare workers to support surveillance
- Strengthen animal health surveillance
- Expand event based surveillance to capture events from the informal sources.
- Strengthen the Boma Health Initiative
- Roll out electronic EWARS reporting platform to the facility level
- Develop mechanisms to counter current high attrition rates of health care workers
- Lack of information sharing between different sectors.

### D.2.2 Interoperable, interconnected, electronic real-time reporting system – Score 2

#### *Strengths/best practices*

- Use of DHIS 1.4 and EWARS software for reporting
- Use of paper based system for reporting so that copies of the reports remain at the different levels (facility, county and state)
- Use of several channels and means of reporting.

### **Areas which need strengthening and challenges**

- Improving the interoperable and interconnected electronic real-time reporting system
- The country has not passed legislation or other policies related to procedures and/or approvals for reporting on a potential Public Health Emergency of International Concern (PHEIC) to WHO
- No standard operating procedures in place for approving and reporting on a potential PHEIC to WHO but the national IDSR technical guidelines are used.

### **D.2.3 Integration and analysis of surveillance data – Score 3**

#### **Strengths/best practices**

- Laboratory involvement at all steps of outbreak investigation
- Availability of the standardized case-based investigation form
- Capacity for data analysis at the national and subnational levels
- EWARS application generates analysis and epidemiologic bulletin automatically
- Production of the IDSR epidemiological bulletin which incorporates the trends of the common priority diseases in the country.

#### **Areas which need strengthening and challenges**

- System to collect real-time laboratory data that is connected to the MoH system to be developed
- Mechanism for the MoH to share laboratory data with other ministries to be put in place
- Capacity for data analysis at the county and facility levels to be developed/enhanced
- Limited human resources at the lower levels
- High attrition rate among the government supported health staff.

### **D.2.4 Syndromic surveillance systems – Score 4**

#### **Strengths/best practices**

- Involvement of certain laboratories to support the syndromic surveillance such as Acute Flaccid Paralysis
- Initiation of environmental surveillance for wild polio virus in Juba
- Monitoring performance of syndromic surveillance through indicators like non-acute flaccid paralysis detection rate.

#### **Areas which need strengthening and challenges**

- Strengthen sites that participate in syndromic surveillance system
- Systemize the sharing of the reports produced by syndromic surveillance system.

# 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.*

## South Sudan Level of Capabilities

Currently the country is using the reporting mechanism prescribed in the IDSR technical guidelines for internal reporting from the community/facility level up to the national level, and IHR annex 2 for the NFP reporting to WHO. However, South Sudan needs to ensure the national system is fully developed to guide reporting to WHO, FAO, and OIE.

Further, South Sudan should embark on training more people to report potential PHEICs to WHO and OIE World Animal Health Information System (WAHIS). The National IHR focal point and OIE delegate are in place but there is no mechanism for sharing information. The NFPs should also have toolkits with best practices, model procedures, reporting templates, and training materials to facilitate rapid (within 24 hours) notification of potential PHEICs.

The IHR NFP is the directorate of International Health and Coordination in the MoH and there is an OIE delegate at the Ministry of Livestock and Fisheries. The OIE delegate was trained on the roles and responsibilities of WAHIS, data management and reporting. There is an MoU between the Ministry of Livestock and Fisheries and the Ministry of Agriculture and Animal Industry and Fisheries of Uganda.

## Recommendations for priority actions

- Establish a mechanism for systematic information sharing/exchange between IHR NFP and the OIE delegate, the food safety focal point, radiation emergencies focal point, chemical events focal point, as well as the designated security focal point.
- Fast track the development and dissemination of guidelines and SOPs for reporting
- Conduct training and simulation exercises for reporting potential public health emergencies of national and international concern and zoonotic events.

## Indicators and scores

### D.3.1 System for efficient reporting to WHO, FAO and OIE – Score 3

#### **Strengths/ Best Practices**

- The country has a designated IHR NFP and OIE contact point
- The OIE contact point was trained

- The country has IDSR as a national disease surveillance system with revised Technical Guidelines to support IHR implementation
- An MoU exists between the Ministry of Livestock and Fisheries of South Sudan and the Ministry of Agriculture, Animal Industry and Fisheries in Uganda
- IDSR as the national surveillance system has clear reporting channels and it has enormous support from partners, and a large number of the healthcare workforce were trained on the strategy.

#### ***Areas which need strengthening/Challenges***

- Ensure the training of the IHR NFP, OIE delegate and relevant sector Focal Points on their IHR specific roles
- Urgently recruit a team to support the IHR NFP
- Establish a mechanism for the exchange of information between the IHR NFP and the OIE delegate, as well as hazard-specific focal points
- Food safety issues of microbiological origin to be reported through the IHR NFP and the OIE delegate
- Mechanisms for public health, animal health and security authorities to make decisions on reporting
- Establish a formal bilateral MoU with other neighboring countries to share information with other IHR NFPs.

#### **D.3.2 Reporting network and protocols in country – Score 2**

##### ***Strengths/ Best Practices***

- The country has a functional Emergency Preparedness and Response department at the MoH to coordinate surveillance activities such early detection, reporting and response
- IDSR reporting protocol has been designed in way that at any level there is evidence of data reported for review and quality assurance
- Over 80% of the public health workforce are trained on detection and reporting of PHEICs
- Reporting has been made very much flexible so that any person can report events of PHEIC directly to the state or national level and the report will be verified.

##### ***Areas which need strengthening/Challenges***

- Establish a mechanism for systematic exchange of information between the IHR NFP and the OIE delegate
- Report food safety risks of antimicrobial origin through the IHR NFP and the OIE delegate
- Strengthen mechanisms for decision making and reporting to public health, animal health and security authorities
- Establish formal bilateral MoUs with neighboring countries for sharing information with other IHR NFPs
- Put in place legislation/policies, procedures for reporting on a potential PHEIC to the WHO and OIE/FAO.

# 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 with skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR (2005).*

## South Sudan level of capabilities

The health workforce capacity of South Sudan is quite low at all the levels in terms of numbers and skill mix of the requisite human resource. The MoH human resource database does not include information on core IHR personnel such as epidemiologists. There is a national human resource development strategy but it does not cover public health professionals.

Available data indicates that there are 18 field epidemiologists (eight at national level and 10 at sub-national level) that support disease outbreak investigations. The MoH has no establishment for epidemiologists, and as such most of the available epidemiologists are employed in the NGO/UN sectors. No mechanism is in place to track field epidemiology capacity, and staff attrition is high. The situation regarding biostatisticians and laboratory scientists is similar as well as with animal health experts, veterinarians, and farming/livestock professionals.

Capacity of local training institutions to produce the quality of human resource to meet effective IHR implementation is also low. An initiative to train surveillance officers in field epidemiology with support from US Centres for Disease Control and prevention (CDC) was terminated in 2013. There are three public universities offering medical training and two universities that produce public health officers. There are some institutions that train nurses, laboratory assistants and animal/livestock professionals.

## Recommendations for priority actions

- Conduct a comprehensive human resource mapping and revise the national human resource strategy to include the public health workforce such as epidemiologists, laboratory specialists, biostatisticians and veterinarians.
- Engage the relevant training institutions and other stakeholders (i.e. CDC and AFENET) to re-establish the FETP training programme in universities throughout the country. The programme should be open to other professionals like veterinarians, nurses, and laboratorians. The MoH should also explore instituting short courses or continuous on-the-job in-service training to improve knowledge and skills of its staff.
- Revise the scope of the national MOH human resource database to capture information on all relevant personnel and also establish a mechanism to monitor and track them. Initially, the tracking could focus on core IHR workforce such as public health specialists (epidemiologists), clinicians, biostatisticians and laboratory workers.

- The Human Resource Directorate of the MoH, working with other relevant bodies should put in place establishment and progression mechanisms for epidemiologists and key professionals to facilitate their recruitment.

## Indicators and scores

### D.4.1 Human resources available to implement IHR core capacity requirements – Score 1

#### *Areas which need strengthening and challenges*

- Mechanisms to continuously improve the competence of staff
- Staff demotivation and attrition are of major concern not only for IHR implementation but for the national public health system as a whole.

### D.4.2 FETP or other applied epidemiology training programme in place – Score 1

#### *Strengths/best practices*

- Variety of education and training courses available at all pre-service levels.

#### *Areas which need strengthening and challenges*

- Engage relevant stakeholders to locally produce a pool with frontline FETP, and related professionals for both human and animal health
- Create a system to continuously update the knowledge and skills of staff.

### D.4.3 Workforce strategy – Score 2

#### *Strengths/best practices*

- There is a national human resource development strategy for the period 2006 to 2017.

#### *Areas which need strengthening and challenges*

- Map and review the human resource development strategy to encompass all professions
- Develop and continuously update workforce database for the human and animal health sectors
- Advocate for buy-in by donors/partners to implement HR strategy.

# 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 maintenance 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

*Development and maintenance of national, intermediate (district) and local/primary level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. This covers mapping of potential hazards, identification and maintenance of available resources, including national stockpiles and the capacity to support operations at the intermediate and local/primary levels during a public health emergency.*

### South Sudan level of capabilities

The country carried out a national risk assessment in July 2017 and classified diseases and other hazards into four groups: high, moderate, low and very low. An all hazard national emergency preparedness and response plan is yet to be developed, however, some disease specific response plans have been developed (i.e. Ebola Virus Disease, malaria, measles, cholera, hepatitis E and meningitis). The country is yet to carry out a comprehensive resource mapping in line with the identified risks and hazards. A plan is in place to create a directory of the RRTs and relevant human resources, determine the capacities of the different health facilities, map the capabilities, available partners, and decide on locations to stockpile key logistics.

Though RRTs have been constituted at the national, state and county levels, there is limited information on their current availability due to a high attrition rate in the country. Simulation exercises to assess the operational readiness of the National RRT to respond to disease outbreaks was undertaken in 2015 in readiness for the Ebola virus outbreak that was ravaging several counties in West Africa at the time.

Generally, the available emergency response materials and the capacity for logistics management are partner or donor driven.

### Recommendations for priority actions

- Develop and operationalize a national all-hazard emergency preparedness and response plan and SOPs at national and state level.
- Carry out comprehensive resource (e.g. supplies, human and infrastructure) mapping for emergency response according to the hazard profile.
- Determine, synchronize and put in place mechanisms for resource mobilization for preparedness and response to emergencies from all key stakeholders.

## Indicators and scores

### R.1.1 National multi-hazard public health emergency preparedness and response plan developed and implemented – Score 1

#### *Strengths/best practices*

- Disease specific response plans have been developed for Ebola Virus Disease, malaria, measles, cholera, hepatitis E and meningitis.

#### *Areas which need strengthening /challenges*

- Develop and operationalize a National Hazard Preparedness and Response Plan and related SOPs in line with the findings of the risk assessment. This includes dissemination and training of all key stakeholders on their role and responsibilities
- Implement systems to regularly test the emergency response plan and procedures, and review as necessary.

### R.1.2 Priority public health risks and resources mapped and utilized – Score 1

#### *Strengths/best practices*

- Risk assessment for hazards has been done country wide using the Strategic Tool for Assessing Risks prioritization tool.

#### *Areas which need strengthening and challenges*

- Carry out comprehensive national mapping of resources (e.g. supplies, human and infrastructure) in line with the prioritized hazards/risks. This exercise should also cover the gaps and how they will be addressed, sites to locate them and re-distribution plan
- Engage relevant stakeholders and document mechanisms for resource mobilization (within and outside the country) as well as mechanisms for accessing funds for emergency response.
- Institute mechanisms to regularly update the country hazard/risk profile.

# Emergency response operations

## Introduction

A public health emergency operations centre is a central location for coordinating operational information and resources for strategic management of public health emergencies and emergency exercises. Emergency operations centres 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

*Country with public health emergency operations centre (EOC) functioning according to minimum common standards; maintaining trained, functioning, multisectoral rapid response teams and “real-time” biosurveillance laboratory networks and information systems; as well as trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.*

## South Sudan level of capabilities

The South Sudan Emergency Operations Centre (EOC) is currently under construction, and is situated within the NPHL in the Public Health Directorate. Multi-sectoral RRTs are in the process of being set up but with the EOC still under construction, only a virtual EOC system is currently in place. This operates for eight hours daily, although personal contact details including phone numbers are made available and team members respond to emergencies at any time of the day.

There is an established coordination mechanism, with an EOC focal person that can support and convene partners at short notice. South Sudan has case management guidelines for the epidemic prone diseases, and there is continuous capacity building for identified ad hoc EOC personnel. The ad hoc EOC personnel are drawn from different sectors including the ministries of health, agriculture, environment, animal resources, water and irrigation as well as security agencies.

Capacity gaps exist among ad hoc EOC team members in the areas of information sharing, public communication and coordination. There are no training, exercise or activation plans for emergency response. Resources including funds and emergency supplies are inadequate, with some areas being inaccessible due to insecurity and geophysical factors.

## Recommendations for priority actions

- Establish EOC structure, plans, staffing and describe Incident Management Structure.
- Conduct comprehensive training or orientation for all staff and relevant stakeholders.
- Update guidelines and SOPs for all priority diseases, including transportation and referral.

## Indicators and scores

### R.2.1 Capacity to activate emergency operations – Score 1

#### *Strengths/best practices*

- Functional ad hoc EOC team exists despite resource constraints

#### *Areas which need strengthening and challenges*

- Deploy dedicated EOC staff to ensure 24/7 availability
- Ensure a dedicated physical space for the EOC.

### R.2.2 EOC operating procedures and plans – Score 1

#### *Strengths/best practices*

- Existence of an emergency preparedness plan for cholera and Ebola.

#### *Areas which need strengthening and challenges*

- EOC plans, procedures and incident management structure should be described.

### R.2.3 Emergency operations programme – Score 1

#### *Strengths/best practices*

- Activation of national taskforce for cholera response.

#### *Areas which need strengthening and challenges*

- There is need to develop exercise plans for EOC.

### R.2.4 Case management procedures implemented for IHR relevant hazards – Score 2

#### *Strengths/best practices*

- Case management guidelines are available for priority epidemic-prone diseases
- Training of staff on case management of IHR related emergencies
- Use of media and Information, Education and Communication materials to raise public awareness on IHR related emergencies.

#### *Areas which need strengthening and challenges*

- No case management guidelines for some IHR relevant hazards
- Inadequate funding for case management.

# Linking public health and security authorities

## Introduction

Public health emergencies pose special challenges for law enforcement, whether the threat is manmade (e.g. the anthrax terrorist attacks) or naturally occurring (e.g. flu pandemics). 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.*

## South Sudan level of capabilities

South Sudan has very limited functional links between public health and security authorities. More effort needs to be taken to raise the capabilities in this technical area in order for this new country to effectively implement the IHR in this technical area. There is very little awareness by some security personnel of their role in coordinating with public health authorities. The JEE team has realized that some security authorities have their health committee which is not linked to the Ministry of Health. As this report is assembled, there is no signed protocol, MoU, or any written agreement linking public health to the security forces. No joint exercises nor simulations by public health and security authorities linked to biological and toxins events have been done. The scarcity of resources hinders the improvement of the country's capability.

However, a joint training exercise was done with the medical corps of the national army for IDSR training. The medical corps from the national army have participated in cholera taskforce meetings. The cholera taskforce has provided training and logistical support to the medical corps to facilitate cholera and Ebola Virus Disease prevention and control in military locations. Additionally, there was representation from other relevant government ministries in cholera and Ebola Virus Disease epidemic taskforce. Security agencies and other bodies informally share information of any suspected diseases outbreaks with the MoH.

## Recommendations for priority actions

- Develop and sign MoUs between public health and security authorities to coordinate their activities during emergencies as well as during routine activities.
- Conduct joint trainings and simulations exercises.
- Designate a point of contact between public health and security authorities.
- Initiate system exchange reports and information on events of joint concern at national and high level advocacy.

## Indicators and scores

### R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) linked during a suspect or confirmed biological event – Score 1

#### *Strengths/best practices*

- Sharing of information between MoH and other agencies
- Any disease or outbreak suspected by security agencies and other actions from around the country is communicated to MoH for appropriate action especially at designated points of entry.
- Security authorities and other actors are aware of the leading role of the MoH in emergency preparedness and response.

#### *Areas which need strengthening and challenges*

- Develop protocols, MoUs or other agreements between public health, animal health and security authorities
- Put in place formal SOPs or agreements on joint risk assessments
- Establish mechanisms for joint simulation exercises by public health and security authorities linked to biological and toxic threats.

# 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 be deployed in case of a public health emergency for response.

### Target

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

## South Sudan level of capabilities

South Sudan does not have a national framework for the transfer of medical countermeasures, public health and medical personnel, despite a history of several PHEICs ranging from infectious disease outbreaks to armed conflict. During such emergencies, response is largely supported by relevant government agencies and international partners with limited coordination from government. This leads to duplication of efforts sometimes, as there are no proper coordination and communication mechanisms in place.

The country has yet to sign up for, and explore available regional and international agreements for the sending and receiving of medical countermeasures and personnel deployment, although it has received and deployed personnel for various responses under the surge support plan of various partners like WHO, UNICEF and International Organization for Migration (IOM).

There are limited national stockpiles of medical countermeasures, and those available are mainly for communicable diseases like measles and meningitis. The country has received large stocks of cholera vaccines periodically to help contain outbreaks.

There are no agreements with international manufacturers of medical countermeasures, but an agreement with Gavi on procurement of vaccines exists. There is limited capacity for logistics management, with storage capacity being available at the national level, but state storage capacities have not been assessed. There are no formal plans for surge staffing for public health response.

## Recommendations for priority actions

- Review the draft public health bill and other relevant bills to ensure the inclusion of legal measures for the implementation of medical countermeasures and personnel deployment, and institute relevant measures.
- Develop and operationalize plans and guidelines for decision making related to sending and receiving of medical countermeasures and personnel.
- Sign agreement with regional institutions and international agencies for the importation of medical countermeasures and personnel deployment during emergencies
- Conduct an assessment of storage and logistics management capacity and address identified gaps.

## Indicators and scores

### R.4.1 System in place for sending and receiving medical countermeasures during a public health emergency – Score 1

#### *Strengths/best practices*

- Although there is no specific medical countermeasures transfer plan, the Drug and Food Control Authority exercises oversight functions
- South Sudan has received millions of doses of cholera vaccines, and successfully deployed them to the different counties.
- Countermeasures for cholera, polio, measles and meningitis are in place.
- Surge staff have been deployed through the humanitarian partners to support response to recurrent crises.

#### *Areas which need strengthening and challenges*

- Plan to outline system for sending and receiving medical countermeasures, including the animal health component
- Plan to address security concerns related to sending, receiving and distributing medical countermeasures.

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

#### *Strengths/best practices*

- Personnel are easily deployed from tertiary institutions during emergencies
- Health personnel have been deployed from international organizations during emergencies.

#### *Areas which need strengthening and challenges*

- There is no plan in place for procedures and decision-making related to sending and receiving health personnel during a public health emergency out or into the country
- There is no agreement or policy document that addresses liability, safety, and financial concerns for medical personnel
- No formal agreements with other sectors such as security authorities and animal health.

# Risk communication

## Introduction

Risk communications should be a multilevel and multifaceted 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 disease outbreaks. 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, including 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 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 should be tested and updated as needed.

## Target

*State Parties use multilevel and multifaceted risk communication capacity. Real-time exchange of information, advice and opinions between experts and officials or people who face a threat or hazard (health or economic or social wellbeing) to their survival, so that informed decisions can be made to mitigate the effects of the threat or hazard and protective and preventive action can be taken. This includes a mix of communication and engagement strategies, such as media and social media communications, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement and community engagement.*

## South Sudan level of capabilities

The Health Education and Promotion (HE&P) department in the MoH is responsible for health promotion and community engagement. The department and a national working group implement risk communication activities during outbreaks and emergencies. Membership of the working group is limited but includes health care workers and representatives from civil society organisations, partners, the private sector, and other non-state actors. The last meeting of the TWG was in 2016. Ad hoc TWGs for social mobilisation and hygiene promotion for cholera exist and their members are mainly national NGOs. This notwithstanding, risk communication to the public is usually coordinated by the office of the President during an emergency. The capacity (human, material and funding) of the HE&P department and at the sub-national levels is very low.

Risk communication is included in the disease specific preparedness and response guidelines and plans for VHF, cholera, polio and meningitis. Generally, risk communication activities are ad hoc and not well coordinated at any level. There is neither a national risk communication strategy nor any formal agreements between the agencies that carry out such activities. It appears that there is a mechanism to coordinate communication between hospitals and the national Emergency Preparedness and Response structure at the MoH. There is also an agreement for endorsement/clearing of some risk communication materials between the MoH and some partners. No formalised systems exist for monitoring and addressing media, rumours and other misinformation. Mechanisms for surge staff for risk communication during emergencies are ad hoc.

## Recommendations for priority actions

- Review the composition and ToRs of the existing risk communication TWG at the MoH to include all relevant stakeholders.
- Develop a risk communication strategy and plan, and operationalize it. These should incorporate all aspects of dynamic listening, community engagement and operational research.
- Develop and implement guidelines/SOPs for internal and multi-sectoral ("One Health" sectors) communication routinely and during emergencies.
- Map, assess and build country capacity for risk communication at all levels under the "One Health" approach.

## Indicators and scores

### R.5.1 Risk communication systems (plans, mechanisms, etc.) – Score 1

#### *Strengths/best practices*

- There is a department responsible for risk communications at the MoH
- Risk communication is incorporated in some disease specific preparedness and response plans (e.g. cholera and polio)
- Some partners support the risk communication activities of the MoH during emergencies.

#### *Areas which need strengthening and challenges*

- There is no national multi-hazard risk communication strategy or plan
- There is low capacity at national and sub-national level structures to effectively implement risk communication interventions. For example, there is no dedicated budget for emergency response risk communication.

### R.5.2 Internal and partner communication and coordination – Score 2

#### *Strengths/best practices*

- Agreement between the MoH and some partners for endorsement/clearing of risk communication messages.

#### *Areas which need strengthening and challenges*

- Reviewing the membership of TWG and formalisation of coordination and collaboration mechanisms with government and all relevant agencies involved in risk communication routinely and during emergencies.

### R.5.3 Public communication – Score 1

#### *Strengths/best practices*

- Involvement of the Office of President in the coordination of risk communication to the public during outbreaks and emergencies
- Use of Toll Free Telephone line, jingles and bulk SMS messages that enables (mainly for cholera) the community to call and report sick persons, ask questions and receive medical advice
- Some media surveys have been carried out to determine the preferred channels of communication by the community as part of implementation of the EPI programme.

### ***Areas which need strengthening and challenges***

- No standardised SOPs for public communications within the MoH media and communications department
- No system for media monitoring
- Lack of operational research on communication methods for behavioural change during emergencies
- Inadequate mechanism for sharing new strategies with partner organizations to continually improve communication response.

### **R.5.4 Communication engagement with affected communities – Score 1**

#### ***Strengths/best practices***

- Availability of social mobilisation and hygiene promotion working group in the communities that support interventions during some disease outbreaks.

### ***Areas which need strengthening and challenges***

- There is no systematic mechanism for continuous assessment and provision of feedback to at-risk or affected populations and agencies implementing response activities in the communities.

### **R.5.5 Dynamic listening and rumour management – Score 2**

#### ***Strengths/best practices***

- Availability of toll-free line with dedicated staff to receive and advise community members health and related issues.

### ***Areas which need strengthening and challenges***

- No unit or team responsible for media monitoring routinely nor during crises.

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

### South Sudan level of capabilities

The control and containment of diseases and other potential public health risks remains a fundamental element for the implementation of the IHR at designated PoEs. Routine capacities must be in place at designated PoEs including for the assessment and care of ill travellers, trained personnel for the inspection of conveyances, as well as facilities for the holding and transfer of ill travellers. A competent authority must be responsible for the supervision and provision of healthcare at the PoEs. So far in South Sudan there is no port health unit which would oversee health centres and vaccination centres for international travellers in the country.

There are four main points of entry in South Sudan that will be earmarked as designated PoEs in the coming two years, they include: Juba International Airport (JIA), Nimule ground crossing with Uganda, Joda ground crossing with Sudan, and Renk river crossing with Sudan.

During the JEE assessment, the team visited JIA and Nimule ground crossing, to assess their capacity. It was discovered that only JIA has three port health personnel, and none of them conduct routine screening for travellers. On the other hand, Nimule has no health personnel at the border crossing. Immigration officers in Nimule sometime asks travellers to show proof of vaccination and they advise them to get vaccinated in Juba for those who do not have it.

Currently, the health personnel working in JIA have no designated area for the provision of health services such as vaccinations, and therefore are still unable to correctly apply the IHR procedures. Once the new terminal is completed, there will be dedicated space for port health services, already earmarked by the authorities. On the other hand, in Nimule, space for health personnel may be obtained after negotiation between the heads of immigration and health departments.

## Recommendations for priority actions

- Conduct an assessment of the current PoEs and designate them based on the findings.
- Build capacity at the designated PoEs as stipulated in IHR Annex 1B.
- Conduct public awareness/high level advocacy and train PoE health staff and stakeholders on IHR implementation.
- Develop a comprehensive National Public Health Contingency plan for the PoEs.

## Indicators and scores

### PoE.1 Routine capacities established at points of entry – Score 1

#### *Strengths/best practices*

- Availability of an ambulance at JIA for emergency transport
- The country has personnel available for training on the inspection of conveyances at JIA
- Existence of the Passports and Immigration Act 2011 which dictates the provision of a room to perform traveler health screening
- Availability of a draft Public Health Bill 2013, that provides a chance to implement port health services.

#### *Areas which need strengthening and challenges*

- Establish routine port health services, support and encourage the staff for all designated PoEs in South Sudan
- Develop capacity building and training courses for the port health staff
- Conduct IHR implementation advocacy from high level to ground staff at PoEs
- Develop guidelines and standard operating procedures for all port health services
- Ensure appropriate medical facility and equipment for the assessment, care and transfer of ill travelers at PoEs
- Improve coordination and information sharing among stakeholders at PoEs.

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

#### *Strengths/best practices*

- Availability of a draft National Civil Aviation Security Programme which incorporates public health emergency preparedness at the airport
- Presence of an ambulance at JIA which can be used to transfer ill travelers.

#### *Areas which need strengthening and challenges*

- Develop public health emergency preparedness and response plan for the PoEs
- Establish mechanisms for the transfer of ill travelers from PoEs to appropriate medical facilities
- Conduct joint training exercises and drills at PoEs
- Ensure availability of emergency equipment for all public health risks at PoEs
- Create holding centers for suspect cases that can appear at PoEs.

# Chemical events

## Introduction

Timely detection and effective response of potential chemical risks and/or events require collaboration with other sectors responsible for chemical safety, industries, transportation and safe disposal. This would entail that State Parties need to have surveillance and response capacity to manage chemical risk or events and effective communication and collaboration among the sectors responsible for safety.

### **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.*

## South Sudan level of capabilities

The country has limited overall capacity in this area but has a National Environment Policy (2015-2026) and has the overall mandate to effectively protect and sustainably manage the environment and natural resources to ensure a quality environment adequate for human health and wellbeing of all those who reside in South Sudan. Additionally, an environmental bill is in draft form and currently under review. The Petroleum Act is in place and contains provisions for "health, safety and protection of environment". The country has oil drilling sites in Upper Nile and Unity states. In April 2016, a multisectoral investigation was commissioned by government to investigated a chemical event in Paloich oil fields in Melut county. A cluster of 90 individuals were investigated with non-specific symptoms including fevers, general weakness, paresthesia, abdominal pains, and erectile dysfunction. Toxicological investigations revealed exposure to heavy metals – Mercury, manganese, and selenium.

## Recommendations for priority actions

- Establish a TWG for chemical safety (all relevant stakeholders) and strengthen coordination.
- Develop a chemical events emergency response plan.
- Develop and adopt national guidelines or manuals for surveillance, assessment and management of chemical events.
- Strengthen the National Bureau of Standards and the Public Health laboratory capacity for detection and response to chemical events.
- Establish a poison centre.
- Sign MoUs with WHO collaborating centers for testing chemical samples.

## Indicators and scores

### **CE.1 Mechanisms established and functioning for detecting and responding to chemical events or emergencies – Score 1**

#### ***Strengths/best practices***

- A multisectoral investigation into chemical event in Paloich undertaken in April 2016 with toxicological testing being undertaken by the National Health Laboratory Services in South Africa
- The country has a Petroleum Act 2012
- There is a National Environmental Policy and an Environmental Strategic plan for the coming 10 years, as well as a draft National Environmental Bill
- Existence of a draft Environmental Management System
- Environmental assessments conducted by the US Energy Information Administration (Environment Impact Assessment, Social Impact Assessment, the Strategic Environmental Assessment), as well as an environmental audit
- DAR petroleum is able to manage chemical accidents when transporting oil from Mombasa to Paloich, in line with the country's environmental policy
- Environmental friendly awareness activities carried out by DAR Petroleum.

#### ***Areas which need strengthening and challenges***

- There are comprehensive guidelines and manuals for holistic surveillance, assessment and management of chemical events, but they are not adequately implemented
- Chemical incident surveillance does include air, noise and soil but is not adequately implemented
- There is no efficient information flow towards chemicals surveillance and monitoring
- The National Bureau of Standards laboratories have limited capacity which needs to be strengthened
- There is no coordination mechanism for detection and responding to chemical events at state and national levels
- There is no legal framework for environmental protection
- There is inadequate capacity to enforce regulation and measures
- There is a lack of coordination between ministries, stakeholders, and agencies in sharing information and decision making
- There are no MoUs with international collaborating laboratories for testing human and environmental samples from chemical events.

### **CE.2 Enabling environment in place for management of chemical events – Score 1**

#### ***Strengths/best practices***

- An environmental bill including chemical management and hazardous waste penalties is under development
- There is a Disaster Management Department at the Ministry of Humanitarian Affairs
- There is an environmental audit system
- Staff have been recruited and trained to develop a database of chemicals in the country
- National Adaptation Programmes of Action to climate change are being introduced

- The Ministry of Environment conducted a status of the environment assessment for 2017
- Ministry of environment collected all assessment done by three petroleum companies (GPOC, SPOC, and DPOC)
- Baseline assessment by CORDAID of the impact of petroleum production on the community in Upper Nile and Unity State (May 2014).

#### ***Areas which need strengthening and challenges***

- There is no strategic plan for chemical safety, this needs to be in place
- There is no public health plan in place for chemical incidents and emergencies
- Limited coordination mechanism at state and national levels
- There is limited capacity of the National Standards Bureau Laboratory, which need strengthening
- There are no national protocols or guidelines for case management with regard to chemical hazards.

# Radiation emergencies

## Introduction

To counter radiological and nuclear emergencies, timely detection and an effective response towards potential radiological and nuclear hazards/events/emergencies are required in collaboration with sectors responsible for radiation emergency management.

### Target

*States Parties with surveillance and response capacity for radiological and nuclear hazards/events/emergencies. This requires effective communication and collaboration among the sectors responsible for radiological and nuclear emergency management.*

## South Sudan level of capabilities

South Sudan has limited to no capacity in the area of radiation emergencies, as they have not as yet been considered at the national level in any surveillance, detection or response planning.

Capacity and expertise in this area is lacking in South Sudan and the country is in need of technical and financial support to build up its resilience at the National and sub-national levels.

## Recommendations for priority actions

- Establish a science and technology commission to regulate and oversee the radiation activities across the country.
- Develop policies, strategies and plans for the detection, assessment and response to radiation emergencies.
- Sign MoUs with WHO collaborating centres for the testing of radiation samples.
- Incorporate response to chemical and radiological emergencies in the public health incident and emergency response plan.
- Conduct trainings and simulation exercises for the response to radiation emergency.

## Indicators and scores

### RE.1 Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies – Score 1

#### Strengths/best practices

- Hospital X-ray department has protective measures.

#### Areas which need strengthening and challenges

- Needs the establishment of an independent institution to monitor and regulate radiation
- Laboratory facility to be established to monitor radio-nuclear sources
- There are no protocols or guidelines for case management with regard to radio-nuclear hazards
- There are no reference healthcare facilities for the management of radiation emergencies
- Lack of awareness and commitment by the responsible bodies.

## RE.2 Enabling environment in place for management of radiation emergencies – Score 1

### *Areas which need strengthening and challenges*

- Public Health Incident and Emergency Response Plan which incorporates chemical and radiological emergencies
- Need to establish an institution for radio-nuclear monitoring and regulation
- National and state level coordination among stakeholders needs to be established
- Continuous awareness and advocacy creation
- Lack of awareness of the threats and challenges of radioactive materials.

# Appendix 1: JEE background

## Mission place and dates

Juba, South Sudan, 16 to 20 October, 2017

## Mission team members:

- Dr. Ambrose Talisuna, Congo, WHO AFRO (team lead)
- Dr. Chum K. Amour, Tanzania, Ministry of Health
- Dr. Gertrude Avortri, Zimbabwe, WHO AFRO
- Dr. Elisha Andebutop, Nigeria, Ministry of Health
- Lisa Carter, France, WHO Lyon
- Dr. Belinda Herring, Congo, WHO AFRO
- Dr. Juma Mohamed Juma, Tanzania, Ministry of Health
- Allie Pasieka, WHO Consultant
- Roland Wango, Congo, WHO AFRO

## Objective

To assess South Sudan's capacities and capabilities relevant to the 19 technical areas of the JEE tool for providing baseline data to support South Sudan's efforts to reform and improve their public health security.

## The JEE process

The JEE process is a peer-to-peer review. 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 irreconcilable disagreements between the external team members and the host country experts, or among the external, or among the host country experts, the JEE team lead will decide the outcome; this will be noted in the final report along with the justification for each party's position.

## Limitations and assumptions

- The evaluation 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 evaluation will be publicly available.
- The evaluation is not just an audit. Information provided by <host country> will not be independently verified but will be discussed and the evaluation rating mutually agreed to by the host country and the evaluation team. This is a peer-to-peer review.

## Key host country participants and institutions

### South Sudan lead representatives

1	Dr Samson Baba Advisor to the Minister of Health Republic of South Sudan
2	Undersecretary Ministry of Disaster and Humanitarian Affairs
3	Dr Luka Monoja, MP South Sudan National Legislative Assembly(former Minister of Health)

### Participating institutions

South Sudan Ministry of Health
South Sudan Ministry of Humanitarian Affairs and Disaster Management.
South Sudan Ministry of Justice and Constitutional Affairs
South Sudan Ministry of Livestock and Fisheries
South Sudan Ministry of Environment and Forestry
South Sudan Ministry of Wildlife Conservation and Tourism
South Sudan Ministry of Petroleum
Ministry of Interior Directorate of Police Medical Services
Ministry of Interior Directorate of Immigration
South Sudan Civil Aviation Authority
South Sudan Urban Water Corporation
Food and Drug Control Authority (MOH)
Rumbek State Ministry of Health (Surveillance Unit)
International Organization for Migration (IOM South Sudan)
UNICEF
AMREF
Food and Agricultural Organization (FAO South Sudan)
Central Public Health Laboratory (MOH)
Animal Health Laboratory(Ministry of Livestock and Fisheries)

## Supporting documentation provided by host country

### Legislation:

- The Community Health System in South Sudan, The Boma Health Initiative, A community anchored health system for sustainable health sector development, The Republic of South Sudan, May 2011
- Draft National Disaster Risk Management Policy, Republic of South Sudan, Ministry of Humanitarian Affairs and Disaster Management, December 2016
- Draft National Public Health bill, Arrangement of parts, 2013
- Draft National Health Sector Strategic Plan, 2017-2021, The Republic of South Sudan, 2017
- Drug and Food Control Authority Act, 2012, Act No.37, Ministry of Justice, February 2012
- Assessment of Public Health Core Capacities of the International Health Regulation (2005), South Sudan, World Health Organization, February 2013
- National Health Policy, 2016-2025, Republic of South Sudan, March 2015
- Policy Framework and Strategic Plans 2012-2016, Ministry of Animal Resources and Fisheries, Republic of South Sudan
- Revised technical guideline, integrated disease surveillance and response (IDSR) for Health workers, Ministry of Health, Republic of South Sudan, 2013

### Coordination, Communication and Advocacy

- Cholera prevention and response plan, 2017, Ministry of Health, Republic of South Sudan
- Outbreak response evaluation report, Republic of South Sudan, June 2016
- Malaria response plan for Northern Bahr el Ghazal states, August 2016
- Meningitis epidemics preparedness and response plan 2016-2017, Republic of South Sudan, Ministry of Health
- South Sudan viral Haemorrhagic fever preparedness and response plan, with emphasis on Ebola and Marburg, 2017 Ministry of Health, 2014
- Emergency Preparedness and Response Weekly Meeting, Minutes from 02/03/17 to 16/08/17
- Minutes from the EPR and Cholera Taskforce meeting, from 25/01/17 to 23/06/17

### Anti-microbial resistance

- Culture and DST report, National Tuberculosis Reference Laboratory, Kampala, 25 July 2017
- Genexpert EAQ Feedback report, External Quality Assessment Programme, Ministry of Health, December 2016
- Algorithm for utilization of the GeneXpert Technology for TB/ DR TB Diagnosis, Republic of South Sudan, Ministry of Health
- Table of GeneXpert MTB/RIF Data 2015 for CTRL Juba PHL, Republic of South Sudan, Ministry of Health, April 2017

## Zoonoses:

- Disease Investigation form
- Draft report of the Assessment of capacity needs for establishment of disease surveillance and reporting system in South Sudan, Sophycate Njue, November 2012
- Livestock Disease Outbreak Reporting and Investigation Guideline, Directorate of veterinary services, Dr. Nimaya Kenyi Mogga, 2008
- Assessment report Community based animal health services, Sudan Productive Capacity Recovery Programme, January 2009

## Food safety:

- Drug and Food Control Authority Act, 2012, Act n°37, Ministry of Justice, Republic of South Sudan, 2012
- Water Quality Monitoring Report Form, Government of Southern Sudan, Ministry of Water Resources and Irrigation
- National Medical Laboratory Policy 2010, Republic of South Sudan, Ministry of Health, 2010
- National Medical Laboratory Strategic Plan 2011-2015, Republic of South Sudan, Ministry of Health, 2011
- Revised technical guideline for Integrated Disease surveillance and response (IDSR) for Health workers, Ministry of Health, Republic of South Sudan, 2013

## Biosafety and Biosecurity

- Manual on laboratory biosafety (Draft)

## Immunization:

- Overview of EPI Programme in South Sudan, Republic of South Sudan, 2017
- Assessment of EPI Barriers in South Sudan, Draft Report, WHO, September 2013
- South Sudan Effective Vaccine Management Assessment, February 2012
- Immunization in Practice in South Sudan, A practical guide for Health Staff, Ministry of Health, February 2011
- National Guideline Acute Flaccid Paralysis Surveillance, Polio Eradication Program, Ministry of Health, August 2017
- National Expanded Programme on Immunization Multi-Year Plan, 2012-2016, Republic of South Sudan, January 2012
- Immunization Policy, Ministry of Health, Government of Southern Sudan, September 2009

## National Laboratory System:

- National Medical Laboratory Policy, Ministry of Health, 2010
- National Medical Laboratory Strategic Plan 2011-2015, Ministry of Health
- Revised technical guideline integrated disease surveillance and response (IDSR) for Health workers, Ministry of Health, 2013
- Public Health Laboratory and national blood transfusion services situational and Gap Analysis report, Republic of South Sudan, March 2017
- Stepwise process for improving the Quality of HIV Rapid Testing (SPI-RT) Checklist, version 2.0
- Integrated disease Surveillance and Response (IDSR), South Sudan, from May 2017 to September 2017, World Health Organization, Ministry of Health
- Weekly Epidemiological Bulletin, IDSR, Republic of South Sudan, from January 2017 to April 2017
- Remote support from Senior EWARS Developer spreadsheet and calendar
- Quarterly Surveillance Data Quality Audit Mission report, Ministry of Health, April 2014
- Revised facilitators training manual on integrated disease surveillance and response (IDSR) for health workers, Facilitators modules, Ministry of Health, 2012
- Mid-term evaluation of the integrated disease surveillance and response project, USAID, December 2011
- Revised participants training modules on IDSR for health workers, Ministry of health, 2012
- Suspect Viral Haemorrhagic Fever in Northern Bahr el Ghazal, Investigation report by the national Rapid Response Team, Ministry of Health, March 2016
- Quarterly Support Supervision Mission report, Torit, Imatong State, South Sudan, WHO, February 2017
- Revised technical guideline IDSR for health workers, Ministry of Health, 2013
- Weekly Reporting form, Ministry of Health, Revised June 2012
- Weekly Surveillance Summary of the Country Surveillance Office, Ministry of Health, revised June 2012
- Standard case definitions at facility level and epidemic/ action thresholds for priority diseases in South Sudan, Ministry of Health, revised June 2012
- Record of supervisory visits, Ministry of Health, June 2012
- IDSR supportive supervision checklist for health facility level, Ministry of Health, June 2012
- Monthly Record of Supervision Visits to Health Facilities by Country Surveillance Officer, Ministry of Health, June 2012
- Monthly Record of Supervision Visits to Health Facilities by State Surveillance Officer, Ministry of Health, June 2012
- Facility information for disease surveillance reporting form, IDSR, June 2012

## Reporting:

- Quarterly Surveillance Data Quality Audit Mission report – WES, Ministry of Health, April 2014
- DHIS on job training and Data Auditing report: Western Bahr el Ghazal and Warrap HUBs, Ministry of Health, March 2017
- Revised facilitators training manual on IDSR for health workers, Ministry of Health, 2012
- Quarterly Support Supervision Mission Report – Torit, Imatong State (Former Eastern Equatoria), South Sudan, WHO, February 2017
- Revised technical guideline IDSR for Health workers, Ministry of Health, 2013
- Cholera response updates as of September 1, 2017, Republic of South Sudan, September 2017
- Cholera response updates as of August 25, 2017, Republic of South Sudan, August 2017
- Cholera response updates as of July 7, 2017, Republic of South Sudan, July 2017

## Workforce development:

- Policy for Human Resource for health, 2006-2011, Ministry of Health
- Strategic plan for Human Resources for Health, 2007-2017, Ministry of Health

## Preparedness:

- Cholera prevention and response plan, Ministry of Health, 2017
- Malaria response plan for northern Bahr el Ghazal states, August 2016
- Meningitis epidemics preparedness and response plan 2016-2017, Ministry of Health, 2016
- South Sudan viral Hemorrhagic fever preparedness and response plan, with emphasis on Ebola and Marburg, Ministry of Health, November 2014
- Integrated risk assessment of public health threats, Narrative report, July 2017
- Risk assessment on yellow fever virus circulation in endemic countries, working document from an informal consultation of experts, a protocol for risk assessment at the field level, WHO, 2014
- Work plan for implementation of public health emergency operations center for the Republic of South Sudan, September 2016
- Prevention and Treatment guidelines for primary health care centres and hospitals, Ministry of Health, Government of Southern Sudan, 2006
- Basic package of Health and Nutrition Services for Southern Sudan, Ministry of Health, January 2009

## Risk Communications:

- 1144 Hotline reports from February 2017 to July 2018, Communities calls reported of suspected cases AWD
- New Ministry of Health Structure Organogram, Republic of South Sudan
- Rapid Risk Assessment and Oral Cholera Vaccine Recommendations for Cholera control in South Sudan, Ministry of Health
- Cards for definitions of Qualities and Questions to determine qualities



