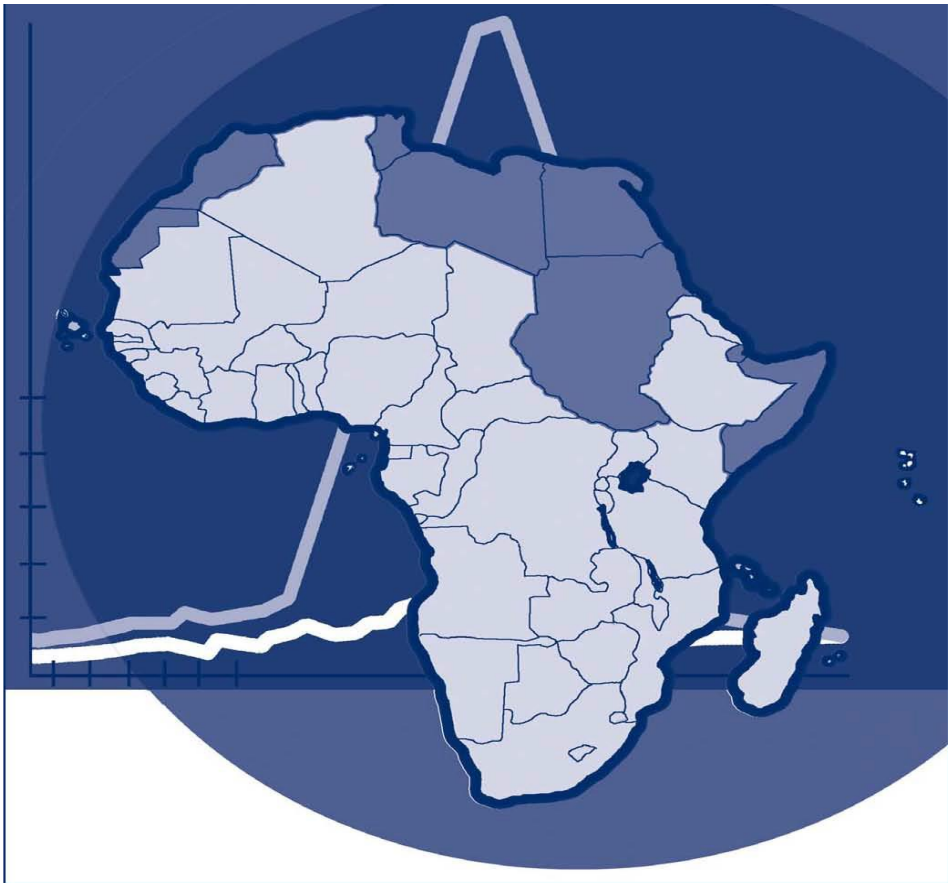
TECHNICAL GUIDELINES FOR INTEGRATED DISEASE SURVEILLANCE AND RESPONSE IN THE WHO AFRICAN REGION

THIRD EDITION

BOOKLET ONE: INTRODUCTION SECTION



World Health Organization
REGIONAL OFFICE FOR Africa

This booklet introduces all 11 sections of the Integrated Disease Surveillance and Response (IDSR) Technical Guidelines

TECHNICAL GUIDELINES FOR INTEGRATED DISEASE SURVEILLANCE AND RESPONSE IN THE WHO AFRICAN REGION

THIRD EDITION

BOOKLET ONE: INTRODUCTION SECTION

MARCH 2019

World Health Organization
Regional Office for Africa
WHO Health Emergency Programme
Brazzaville, Republic of Congo

Centers for Disease Control and Prevention
Center for Global Health
Division of Public Health Systems and Workforce Development
Atlanta, Georgia, USA

Integrated Disease Surveillance and Response Technical Guidelines, Booklet One: Introduction Section

WHO/AF/WHE/CPI/05, 2019

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ABBREVIATIONS

AAR	after action reviews
AFP	acute flaccid paralysis
AFRO	WHO Regional Office for Africa
CDC	Centers for Disease Control and Prevention
CEBS	community event-based surveillance
DPC	Disease Prevention and Control Department
DRM	Disaster Risk Management
DSO	District Surveillance Officer
EBS	event-based surveillance
EPI	Expanded Program on Immunization
EPR	Emergency Preparedness and Response
EVD	Ebola virus disease
HCF	healthcare facility
HIV/AIDS	human immunodeficiency virus and acquired immune deficiency syndrome
IDSR	Integrated Disease Surveillance and Response
IBS	Indicator Based Surveillance
IMS	Incident Management System
IPC	Infection Prevention and Control
IHR 2005	International Health Regulations (2005)
JEE	Joint External Evaluation
MDR	multidrug resistance
MoH	Ministry of Health
NGO	nongovernmental organization
PHEIC	Public health emergency of international concern
RRT	Rapid response team
SARS	Severe Acute Respiratory Syndrome
WHE	World Health Emergency
WHO	World Health Organization
XDR	Extensively drug-resistant

GLOSSARY (DEFINITIONS OF KEY TERMS)

Acute	Any disease having a rapid (sudden) onset and following a short course.
Alert	An indirect early warning signs of a potential public health event occurring in a community under surveillance. Alerts must be investigated further and verified as to whether they represent a true event or not
Chronic	Any health condition that develops slowly or is of long duration and tends to result in some functional limitation and need for ongoing medical care.
Cluster	An aggregation of cases or health-related conditions in a given area, over a particular period, regardless of whether the number of cases is more than expected in relation to time or place or both.
Disease	An illness or medical condition, irrespective of origin or source, which presents or could present significant harm to animals, humans and plants.
Disaster	The serious disruption of the functioning of a community or a society, causing widespread human, material, economic or environmental losses exceeding the ability of the affected community or society to cope using its own resources.
Elimination	Reduction to zero (or a very low defined target rate) of new cases in a defined geographical area
Endemic	A disease or condition regularly found among particular people or in a certain area.
Epidemic	Refers to an increase in the number of cases of a disease or an event above what is normally expected in that population in a given area over a particular period of time.
Epidemiological link	When a patient has or had exposure to a probable or confirmed case.
Epidemiology	The study of the distribution and determinants of health-related states and the application of this information to controlling public health problems.
Eradication	The purposeful reduction of specific disease prevalence to the point of continued absence of transmission in the world.
Aetiology	Refers to the cause, set of causes, or origin of a disease or condition.
Event	Under the IHR (2005) (Article 1), an event is defined as 'a manifestation of disease, or an occurrence that creates a potential for disease' (with particular reference to public health events of international concern (PHEIC)). An emergency incident or occurrence. An event may be insignificant or could be a significant occurrence, planned or unplanned (e.g. extreme weather event or mass gathering), that may impact the safety and security of communities. NB: 'Event' and 'incident' are often used interchangeably.
Health management information system	A monthly reporting system for diseases, conditions, and risks that is reported to the MOH from every healthcare facility electronically or on paper.

Human-animal-environment interface	A continuum of contacts and interactions among people, animals, their products, and their environment(s); in some cases, facilitating transmission of zoonotic pathogens or shared health threats.
Incident	An occurrence or event, natural or human-caused, that requires an emergency response to protect life, property, or the environment. An incident may be geographically confined (for example, within a clearly delineated site or sites) or dispersed (for instance, a widespread power outage or an epidemic). Incidents may start suddenly (for example, a chemical plant explosion) or gradually (a drought). They may be of very short duration (for example, a call for emergency medical assistance), or continue for months or even years. War-related disasters, public health and medical emergencies, and other emergencies.
Incident Management System (IMS)	This is a standardized approach to emergency management, encompassing personnel, facilities, equipment, procedures, and communications operating within a common organizational structure. The IMS Standardized processes allow all who respond to the same incident to formulate a unified plan to manage the incident
International Health Regulations (2005)	International legal instrument that is binding in 196 countries. The regulations aim to help the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide.
Multisectoral	Participation of more than one sector working together on a joint programme or response to an event (for example, a joint investigation by public health and law enforcement).
One Health	An approach to address a shared health threat at the human-animal-environment interface, based on collaboration, communication, and coordination across all relevant sectors and disciplines, with the ultimate goal of achieving optimal health outcomes for both people and animals. A One Health approach applies to the local, regional, national and global levels.
Outbreak	The occurrence of more cases than expected in a defined geographical area or time.
Pandemic	An epidemic occurring worldwide, or over a very wide area, crossing international borders and usually affecting a large number of people.
Point of entry	Any passage, via land, air or sea, for international entry or exit of travellers, baggage, cargo, containers, conveyances, goods and postal parcels as well as agencies and areas providing services to them on entry or exit.
Reporting site	A site which reports about surveillance and outbreak data to the district level. A reporting site includes all health facilities (public, private and quasi-governmental, faith based), standalone laboratories and points of entry. A reporting site also contains event reports from community surveillance and response,
Zoonotic disease or zoonosis	An infectious disease that can be shared between animals and people.

FOREWORD

In 1998, the World Health Organization (WHO) Regional Office for Africa (AFRO), together with its technical partners, adopted a strategy for developing and implementing comprehensive public health surveillance and response systems in African countries, initially called Integrated Disease Surveillance. However, to highlight the linkage between surveillance and response, the strategy was later renamed Integrated Disease Surveillance and Response (IDSR). The first edition of the IDSR technical guidelines (2002) was widely adopted by Member States. Although progress towards a coordinated, integrated surveillance system has been mixed, almost every country in the Region and their partners invested human and material resources in the process, in an effort to build capacities for public health surveillance systems for early detection, confirmation and response to public health threats, to prevent unnecessary illness, death and disability. The coming into force in 2007, of the International Health Regulations (IHR 2005), the emergence of new diseases, conditions and events and the formulation of strategies for disaster risk management (DRM) resulted in the need to revise the first edition of the IDSR guidelines. There was also a need to address the increasing burden of noncommunicable diseases. Also, community-based surveillance for early detection, rapid confirmation and response to public health threats had to be enhanced, while alignment with broader system strengthening objectives was necessary. This led to the development of the second edition of the IDSR guidelines in 2010.

Despite the availability of the IDSR technical guidelines, the Region continues to face challenges in public health surveillance systems, which hinder its capacity to prevent, detect and respond to public health threats. The unprecedented Ebola virus disease (EVD) outbreak in 2014 in West Africa, and other recent health emergencies have shown that the IHR (2005) has not been fully implemented in many Member States. Consequently, addressing health emergencies remains a major challenge.

Following my election in January 2015 as Regional Director, after internal and external consultations, in May 2015, I unveiled the *Transformation Agenda of the WHO Secretariat in the African Region, 2015-2020.* One of the five interrelated and overlapping priorities in the Transformation Agenda is improving health security.

I am glad to unveil the third edition of the IDSR guidelines, prepared by the WHO Health Emergencies (WHE) Programme in the WHO African Region, with the active participation of all the clusters. In addition, WHO headquarters, the intercountry support teams, hubs, WHO country offices, Member States, and the United States Centers for Disease Control and Prevention (CDC) and other relevant stakeholders all provided valuable support.

Many public health events and emergencies and their associated risk factors could be prevented, or their effects mitigated. However, the health systems in most countries remain inadequate. To avert and mitigate the effects of future health security risks and emergencies, all Member States are urged to implement these IDSR guidelines.

These guidelines recommend thresholds for action on priority diseases, public health events and conditions and for responding to alerts. Using these action thresholds can be lifesaving. I therefore urge all Member States to fully implement this third edition of the IDSR guidelines everywhere in the WHO African Region because they explicitly describe what needs to be established at each level of the health system in order to detect, confirm, and respond to diseases/health events that are responsible for all preventable illnesses, deaths and disabilities in local communities.

The cost of good public health surveillance, as a public health good, is relatively low, compared to many other strategies. I appeal to all Member States, national, regional and international partners and funders to join us in beginning the hard work now. Let us all embrace these IDSR guidelines to strengthen capacities for preparedness, alert and response for health security throughout the WHO African Region. The guidelines should be used by:

(a) health workers at all levels (including surveillance officers, clinicians, laboratory personnel and public health workers)
(b) provincial and district health teams
(c) data managers
(d) IHR national focal points and other sectors implementing IHR
(e) competent authorities at points of entry (PoE)
(f) veterinary and wildlife health officers
(g) environmental health officers
(h) health training institutions
(i) supply chain officers
(j) other public health experts, including nongovernmental organizations (NGOs).

The guidelines are intended for use as:

(a) a general reference for surveillance activities at all levels;
(b) a set of standard definitions for threshold levels that initiate action for responding to specific diseases;
(c) a stand-alone reference for level-specific responsibilities;
(d) a resource for developing training, supervision, monitoring and evaluation of surveillance activities;
(e) a guide for improving early detection and response to epidemic-prone diseases.

Finally, I appeal to you all to ensure that the third edition of the IDSR guidelines are implemented within the broader context of health system strengthening; better coordination between human and animal health surveillance and other sectors involved in the One Health approach; improved use of laboratory network capacity in surveillance and response; and better community engagement in public health interventions.

Dr Matshidiso Moeti
WHO Regional Director for Africa

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The third edition of the Integrated Disease Surveillance and Response (IDSR) Technical Guidelines was prepared by the WHO Health Emergencies (WHE) Programme with the active participation and involvement of programmes dealing with disease surveillance at the WHO Regional Office for Africa (AFRO), Brazzaville, Congo and with technical reviews provided by the U.S. Centers for Disease Control and Prevention (CDC) and the U.S. Agency for International Development (USAID).

The purpose of revising these IDSR technical guidelines was to:

(a) Align with the current situation and needs of the Member States.
(b) Align with the objectives, targets and elements of the WHO Africa Region's strategy for health security and emergencies 2016–2020.
(c) Update the guidelines with contemporary information, taking into consideration new developments such as: emerging and re-emerging priority diseases, conditions and events.
(d) Incorporate recent recommendations from expert panels on strengthening the IHR, 2005 that are underpinned on the One Health approach.
(e) Holistically address disaster risk management (DRM) strategies.
(f) Take into account lessons learnt from the unprecedented EVD outbreak in West Africa, polio eradication and other humanitarian crises.
(g) Take advantage of technology advancement and utilize the opportunities offered by the internet and mobile phones to scale up the implementation of real time community event-based surveillance (CEBS), with robust geographical information system (GIS) platforms.
(h) Scale up other electronic surveillance systems and incorporate new ways for capacity building using the IDSR eLearning tools.

In planning to update these guidelines, suggestions and advice for improving the recommendations were sought and gratefully received from the IDSR development teams who prepared the 1st and 2nd editions. This revision builds on the technical expertise from more than 100 surveillance and disease experts at WHO, CDC and Ministries of Health in African countries who conceived and produced the 1st and 2nd Editions.

The revision process involved internal WHO consultation followed by a wider consultation that involved a series of meetings with various partners and Member States. In addition, the IDSR task force was constituted to help with the revision process. The final draft was peer reviewed by the *ad hoc* task force as well as during a final partner consultative meeting held in March 2018.

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INTEGRATED DISEASE SURVEILLANCE AND RESPONSE TECHNICAL GUIDELINES

THIRD EDITION

BOOKLET ONE: INTRODUCTION SECTION

MARCH 2019

INTRODUCTION SECTION

1.1 Introduction

This section introduces the concept of Integrated Disease Surveillance and Response, which incorporates indicator-based and event-based surveillance as integral parts of an Early Warning Alert and Response (EWAR) system. The section also provides guidance on how IDSR works, its objectives, and how it can help to build and sustain the International Health Regulation core capacities, thereby facilitating its implementation. The section introduces other aspects such as: the One Health approach; the linkage between Disaster Risk Management and IDSR; the core surveillance functions; how the subnational level (for example districts) can use these guidelines to reinforce surveillance and response; the roles and responsibilities of the various actors at different levels; and the priority diseases, conditions and events recommended in IDSR.

It is important to emphasize from the outset that these guidelines are to help build and strengthen surveillance systems for priority diseases, conditions and all other public health events, whether they are known or unknown, whether they are disease events or other IHR hazards. These guidelines are NOT limited to only known diseases.

1.2 Public health surveillance

Public Health Surveillance is the ongoing systematic identification, collection, collation, analysis and interpretation of disease occurrence and public health event data, for the purposes of taking timely and robust action, such as disseminating the resulting information to the relevant people, for effective and appropriate action. Surveillance is also essential for planning, implementation, monitoring and evaluation of public health practice. WHO AFRO has decided to achieve its public health surveillance objectives through the implementation of the IDSR strategy.

1.2.1 Definition of the different types/approaches of public health surveillance

(a) **Passive surveillance**. A system whereby a health institution receives routine reports submitted from health facilities, such as hospitals, clinics and public health units, the community or other sources. There is no active search for cases. This is the most common form of surveillance, which includes the surveillance of diseases and other public health events using routine surveillance; routine health management and information system or any other public health information system.

(b) **Active surveillance**. It involves an ongoing search for cases in the community or health facilities. This may involve regular contacts with key reporting sources, by making telephone calls to health care workers at a facility or laboratory or physically moving to the source and carrying out record review of data. Examples include active search for cases of measles and polio, including during outbreaks, where mechanisms must be put in place for active finding of additional cases.

(c) **Integrated disease surveillance**. It is an approach that aims at collecting health data for multiple diseases, using standardized tools. To ensure robust early warning and prompt response, the IDSR data collection and analysis system relies on two main channels of information or signal generation: Indicator-based surveillance (IBS); and event-based surveillance (EBS).

Indicator-based surveillance

Indicator-based surveillance is the systematic (regular) identification, collection, monitoring, analysis and interpretation of structured data, such as indicators produced by well-identified, mostly health-based formal sources.

What are the common methods of indicator-based surveillance?

(a) **Facility-based surveillance**. All reporting units, such as health facilities, are required to report on a weekly, monthly, quarterly or annual basis to the next level, based on the categories of the diseases, conditions and events. Additionally, they are also required to report any epidemic-prone disease to the next level immediately.

(b) **Case-based surveillance**. This involves the ongoing and rapid identification of identifiable cases for the purpose of case follow-up. It is the type of surveillance used for diseases targeted for elimination or eradication or during confirmed outbreaks. In these scenarios, every individual case identified is reported immediately to the next level, using a case-based form.

(c) **Sentinel surveillance**. This type of surveillance is done for specific conditions in a specific cohort, such as a geographical area or population subgroup, to estimate trends in a larger population. A given number of health facilities or reporting sites are usually designated as sentinel sites for monitoring the rate of occurrence of priority events such as pandemic or epidemic events and other health events of public health importance, where they act as early warning and reporting sites. Sentinel sites are usually designated because they are representative of an area or are in an area of likely risk for a disease or condition of concern. Examples of sentinel surveillance include sentinel surveillance for influenza, rotavirus, paediatric bacterial meningitis, and environmental sewage sampling for polio.

(d) **Syndromic surveillance**. This is an active or passive system that uses Standard Case Definitions, based entirely on clinical features, without any laboratory diagnosis. Examples of these are: collecting the number of cases of Acute Flaccid Paralysis (AFP) as an alert for polio; acute watery diarrhoea among people aged two years and older as an alert for cholera; "rash illness" as an alert for measles; acute haemorrhagic fever as an alert for viral haemorrhagic diseases, or severe acute respiratory infection or influenza-like illness as alerts for influenza. Because of the lack of specificity of this system, reports require more investigation from higher levels.

(e) **Laboratory-based surveillance**. This consists of surveillance conducted at laboratories to detect events or trends, which may not be seen as a problem at other locations or originate from laboratory testing, mainly done routinely or used when conducting sentinel surveillance. Laboratories can be the source of an initial alert for a specific outbreak or public health event that necessitates further epidemiological investigations. For example, the laboratory may be the first to detect the emergence of resistant strains, such as multi-drug resistant tuberculosis, in the community. Other examples of laboratory-based surveillance are virological surveillance for influenza and bacteriological surveillance under the antimicrobial resistance surveillance system. Recently, WHO established a global antimicrobial resistance surveillance system (GLASS) for clinical specimens, which is focusing initially on priority human bacterial infections namely E. coli, K. pneumonia, S. aureus, S. pneumoniae, Salmonella spp., Shigella spp and N. gonorrheae. This type of laboratory surveillance provides information about antimicrobial resistance incidence, prevalence and trends.

(f) **Disease-specific surveillance** involves surveillance activities aimed at targeted health data for a specific disease for vertical surveillance. Examples include tuberculosis, malaria and HIV surveillance systems.

(g) **Community-based surveillance (CBS)** is defined as the systematic detection and reporting of events of public health significance within the community by community members. CBS incorporates both indicator-based and event-based surveillance methods. Under CBS, focal persons are identified to report cases or events to the designated focal point at nearby local health delivery points. Community-based surveillance strategies focus on two approaches to collect community information. The first one relies on identifying and reporting events based on agreed indicators (lay case definitions). For example, trusted community members are trained to identify diseases such as measles, cholera, polio and Guinea worm, using community (lay) case definition and use the standardized reporting system to the next level. The second strategy relies on reporting of unusual events (alerts) which can alert the early stages of an outbreak or any other public health threat in the community. Alerts may capture a wide variety of unusual events emerging at the community level, and information from these alerts may be incomplete and unconfirmed and as such, need to be triaged and verified. Information using this strategy can also come from people who have already been oriented on the agreed indicators (lay case definitions), for example, the CBS volunteers, or any other representatives from community, who have been trained to detect events, such

as unusual animal deaths and report them to the next level. Often, CBS focal persons would link the patient identified, through any of the strategies, to a nearby health facility and can help identify contacts.

Event-based surveillance

Event-based surveillance is the organized and rapid capture of information about events that are of potential risk to public health. Information is initially captured as an alert, considered by the early warning and response system as representing a potential acute risk (such as an outbreak) to human health. All alerts may not necessarily become real events, and as such, need to be triaged and verified before a response is initiated. Alerts which may signify potential risks include:

(a) occurrence of disease in humans, such as unexplained clustered cases of a disease or syndromes, unusual disease patterns or unexpected deaths, as recognized by health workers and other key informants in the community;

(b) events related to potential exposure for humans, such as to diseases and deaths in animals, contaminated food products or water, and environmental hazards, including chemical and radio-nuclear events;

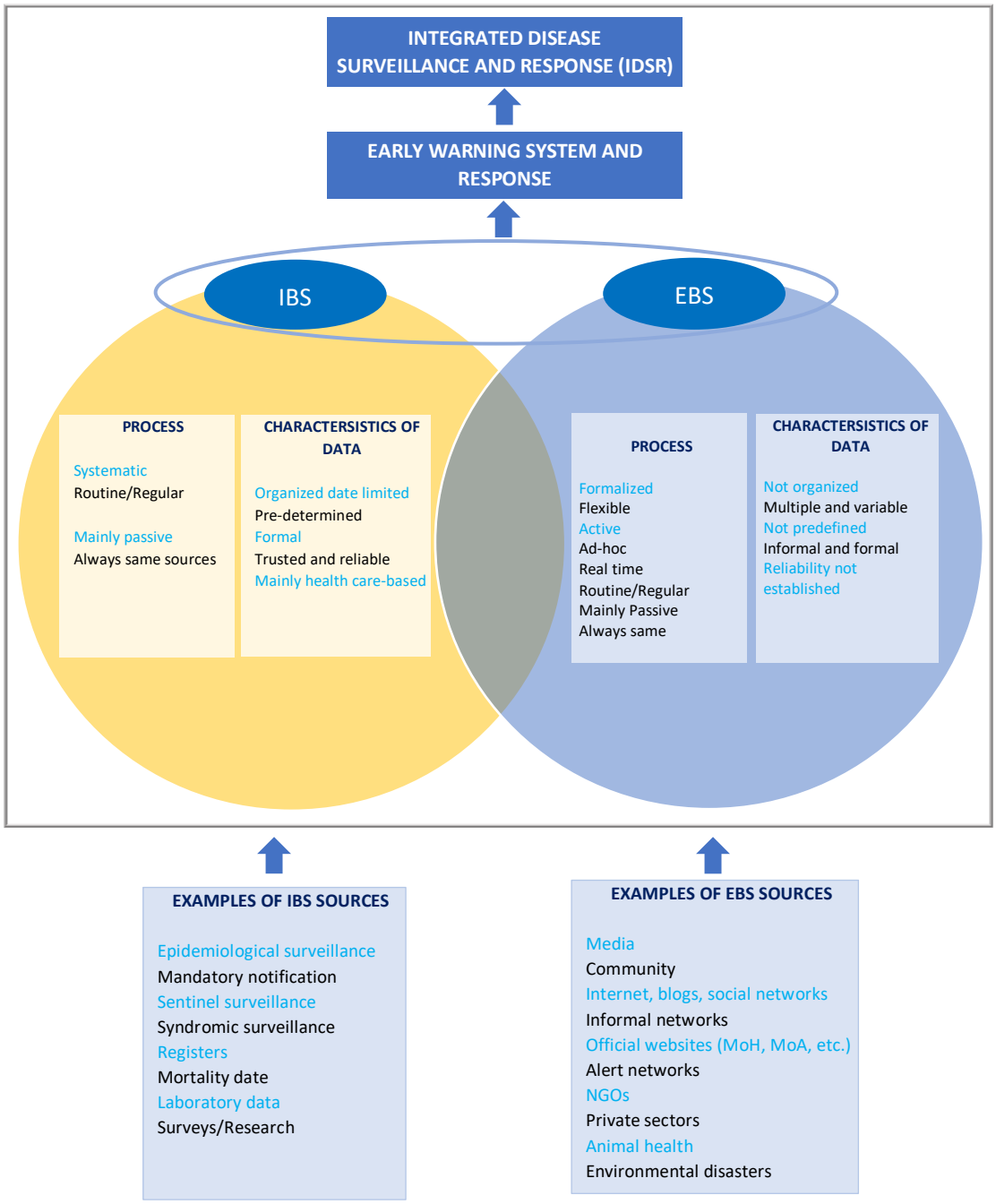
(c) alerts of potential exposure of human beings by biological, chemical or radiological and nuclear hazards, or occurrence of natural or man-made disasters.

Event-based surveillance also involves media monitoring, which entails regular scanning of newspapers, internet sites and media alert systems, such as ProMed, blogs, social media, radio, and television.

The event-based surveillance system is very sensitive, and information received through it should be synchronized with IBS and rapidly assessed for the risk the event poses to public health and responded to appropriately (illustrated in Figure 1).

Unlike indicator-based surveillance, event-based surveillance is not based on the routine monitoring of indicators and automated thresholds for action, but rather on the screening of all available information to detect any event happening in the community (unusual disease or deaths in humans or animals, and unusual or clustering of cases, events/conditions in the community, including environmental conditions).

Figure 1: Indicator-based and event-based surveillance for Early Warning Alert and Response (EWAR) for IDSR Strategy

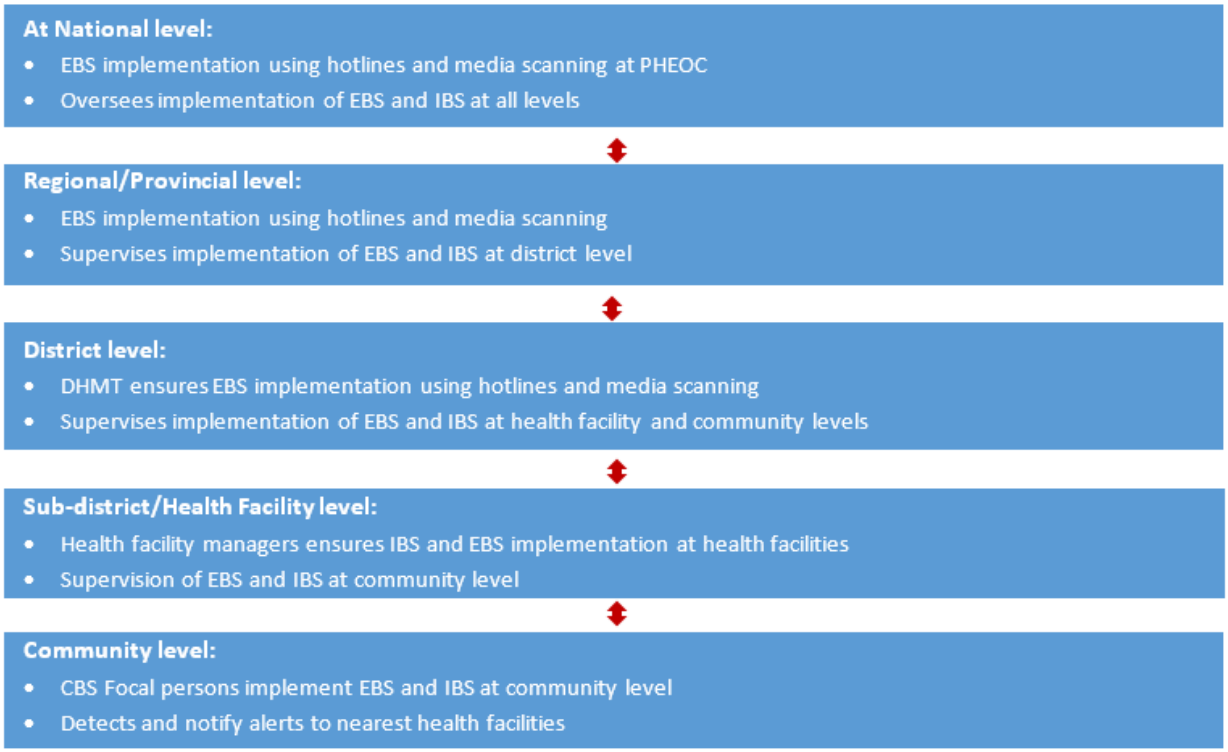


Intersection of IBS and EBS: All events detected in the EBS system that are investigated and meet the standard case definition should be captured in the IBS system and reported to the next level of the health care system.

1.2.2 Event-based surveillance and indicator-based surveillance as backbone to the IDSR strategy

Event-based surveillance and indicator-based surveillance are components of the early warning and response and epidemic intelligence, incorporated into the IDSR strategy. EBS and IBS complement each other, albeit with separate roles and purposes. EBS is most likely to pick up alerts to detect small outbreaks early, while IBS is better at monitoring disease trends overtime, and useful for signalling the start of regular seasonal outbreaks of endemic diseases, using alert and epidemic thresholds. IBS may not be useful for smaller events because they are either averaged out in large data sets or lost in smaller data sets. EBS is also better at picking up alerts indicating outbreaks in areas where access to healthcare is limited. In the context of IDSR strategy, the flow of EBS information follows the same reporting lines as IBS, that is from community to sub-district/district, to region/province and to national level. EBS and IBS are applied at all levels of the health system - community, health facility, district regional/provincial and national (illustrated in figure 2).

Figure 2: Levels of application and reporting of EBS and IBS in the context of IDSR



NB: IBS and EBS are complementary sources of information, and both contribute to the early warning function, critical for a prompt and proportioned response. The two are not necessarily separate surveillance systems; both are processed through a single activity and some of the surveillance functions might be common to both types.

1.3 Integrated Disease Surveillance and Response strategy

The Integrated Disease Surveillance and Response strategy was adopted by WHO/AFRO Member States in September 1998 as the approach for improving public health surveillance and response for priority diseases, conditions and events at community, health facility, district and national levels. IDSR promotes rational and efficient use of resources by integrating and streamlining common surveillance activities and functions. The IDSR strategy makes surveillance and laboratory data more usable and helps public health managers and decision-makers to improve detection and response to the leading causes of illness, death and disability in African countries. As part of improvement to the health care system, the IDSR strategy also assisted countries to better monitor and track planned, time-bound targets.

Surveillance activities for different diseases involve similar functions (detection, sample collection, reporting, analysis and interpretation, feedback, and action), and often use the same structures, processes and personnel. As such, the principles of surveillance are the same whether applied to a single disease, condition or event or multiple diseases. What may differ is whether the target is elimination or eradication, which may require time-limited intensive efforts aimed at proving the absence of disease.

What takes place in an integrated system?

(a) All surveillance activities are coordinated and streamlined. Rather than using scarce resources to maintain multiple surveillance systems with separate vertical activities, resources are combined to collect, manage and analyse information at a single focal point at each level.

(b) Several activities are combined into one integrated activity, and take advantage of similar surveillance functions, skills, resources and target populations. For example, surveillance activities for Acute Flaccid Paralysis (AFP) often address surveillance for neonatal tetanus, measles and other vaccine preventable diseases (VPDs) or any unusual events. Thus, health workers who routinely visit health facilities to search for AFP cases also review district and health facility records for information about other priority diseases in the area. Community focal persons interact with their community members on a regular basis and ask about a range of diseases, conditions and events. Communities know they can bring anything unusual to the attention of their focal persons.

(c) The district level is the hub and focus for integrating surveillance functions. It is the first level in the local health system. It has dedicated staff for all aspects of public health, such as planning, supporting implementation of the National Health Strategy Plan, monitoring health events in the health facility and the community, mobilizing community action, seeking assistance at the national level, and accessing regional resources for protecting at the district level. Similar functions also occur at the various administrative levels.

(d) Surveillance focal points at the district, regional and national levels collaborate with emergency response committees at each level to plan relevant public health response actions and actively seek opportunities for combining resources.

(e) The focus is on the creation of an overall public health surveillance system with sufficient capacity for detecting, confirming and responding to diseases, conditions and events. IDSR ensures that the information flow is bi-directional (horizontal and vertical), so that each level is informed promptly of potential outbreaks and response interventions. Information flow should also reach adjoining communities and districts.

Integration refers to the efficient use of human resources, and harmonizing different methods, software, data collection forms, standards and case definitions in order to prevent inconsistent information and maximize efforts among all disease prevention and control programmes and stakeholders. Where possible, countries use a common reporting form, a single data entry system for multiple diseases, and common communication channels. Training and supervision are integrated, a common feedback bulletin is used, and other resources, such as computers and vehicles are shared. IDSR involves full-time coordination of surveillance activities and joint action (planning, implementation, monitoring and evaluation), whenever possible and useful.

Coordination refers to working or acting together effectively for the rational and efficient use of available, but limited resources, such as the Health Management Information System and various disease programmes. Coordination involves information sharing, joint planning, monitoring and evaluation to provide accurate, consistent and relevant data and information to policy-makers and stakeholders at district, provincial/regional and national levels.

To facilitate coordination and collaboration, a national, regional/provincial and district multi-sectoral, multidisciplinary coordination body or committee is formed to coordinate surveillance activities in close collaboration or synergy with the committee set up for epidemic response (please see Section 5 of these guidelines).

1.3.1 Objectives of Integrated Disease Surveillance and Response

Broad objective. Improve countries' abilities to detect, report, confirm and effectively respond to high-priority communicable and non-communicable diseases.

Specific objectives:

(a) Strengthen the capacity of countries to conduct effective surveillance activities: train personnel at all levels; develop and carry out plans of action; and advocate and mobilize resources.

(b) Increase involvement of clinicians and other cadres of health staff in surveillance activities.

(c) Integrate multiple surveillance systems so that tools, personnel and resources are used more efficiently.

(d) Improve the triangulation and use of information to detect changes in trend in order to conduct a rapid response to suspected and confirmed outbreaks; monitor the impact of interventions (for example, declining incidence, spread, and case fatality); and facilitate evidence-based response to public health events; health policy design; planning; and management.

(e) Improve the flow of surveillance information between and within levels of the health system, using electronic tools.

(f) Build strong laboratory systems and networks at national, regional/province and district levels, to confirm pathogens and other hazards, monitor drug sensitivity and increase efficacy of point-of-care tests.

(g) Trigger epidemiological investigations of reported public health problems and implementation of effective public health interventions.

(h) Mount an effective response to public health emergencies.

(i) Emphasize community participation in detection, reporting and response to public health problems, including case-based and event-based surveillance and response and risk communication in line with International Health Regulations.

1.4 IDSR and IHR (2005)

The International Health Regulations (2005) is a binding and legal instrument, which urges all States parties to develop minimum core public health capacities.

IHR (2005) purpose and goal

The purpose of the IHR (2005) is to prevent, protect against, control and provide public health response to the international spread of disease in ways that are relevant and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.

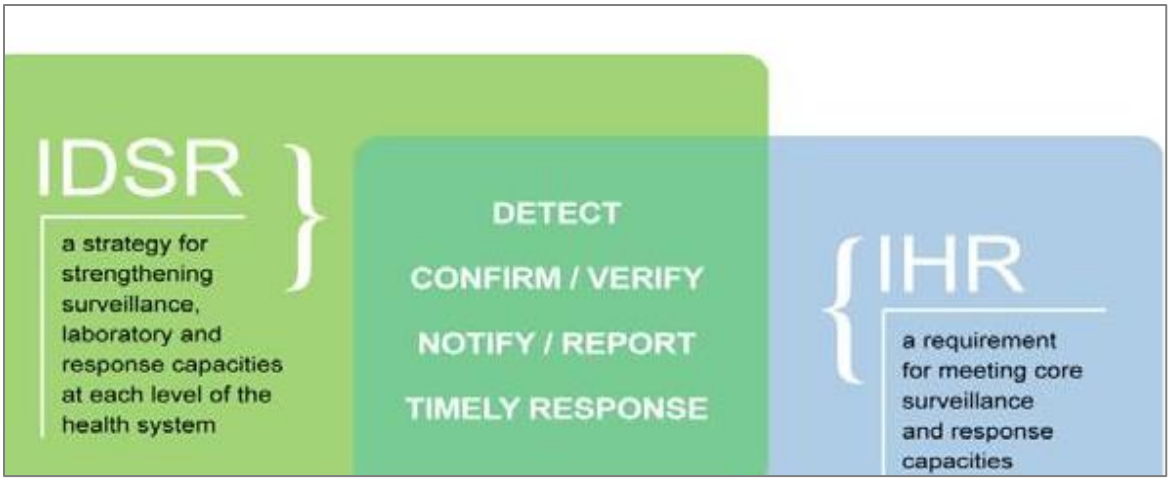
The scope of IHR has been expanded from three diseases (cholera, plague and yellow fever) to all PHEICs. They include those caused by infectious diseases, chemical agents, radioactive materials and contaminated food. Since the goal of IDSR is to strengthen the overall national system for the surveillance of diseases, particularly at the district level, and ensure continuous and timely provision and use of information for public health decision-making, IDSR provides the following resources for the implementation of IHR (2005):

(a) An infrastructure for surveillance, investigation, confirmation, reporting and response.
(b) Skilled human resources.
(c) Defined implementation process (sensitization, assessment, plan of action, implementation, monitoring and evaluation).
(d) Generic guides for assessment; plan of action development; technical guidelines training materials; tools and Standard Operating Procedures that incorporate IHR (2005) components.

Member States in the African Region have thus recommended that IHR (2005) should be implemented in the context of IDSR. IHR (2005) is therefore not a separate surveillance system, but rather, one that requires countries to put in place a “sensitive, reliable and flexible surveillance system that meets international standards”. IDSR is such a system, which will ensure a reliable supply of information to the national level to fulfil IHR requirements. The IHR (2005) provides an opportunity to address the threat to international public health security and trade caused by emerging and re-emerging infectious diseases, including PHEIC. It also provides an excellent opportunity for strengthening surveillance and response systems and acting as a potent driver for IDSR implementation.

IDSR and IHR (2005) share common functions, as described in figure 3 below (detection, notification, reporting, verification and confirmation, and timely response).

Figure 3: Implementing IHR through IDSR[1]



[1]A guide for assessment teams. International Health Regulations (2005): Protocol for assessing national surveillance and response capacities for the International Health Regulations in accordance with Annex 1A of the regulations, February 2009.

The IHR (2005) guidelines have practical implications for IDSR. In the IHR (2005) guidelines, all public health emergencies of international concern should be detected, assessed and responded to promptly, using an adapted response rather than pre-set measures. The IHR (2005) guidelines include the measures at points of entry (airports, ports and ground crossings) and containment at source of public health events. The IHR (2005) guidelines also include capturing rumours of "unexplained illness or clusters" as an event category for reporting from lower levels. Because of the major role IHR (2005) plays for timely detection and verification of suspected public health emergencies and events, event-based surveillance is now part of IDSR and the IHR.

Monitoring and evaluating the functional core capacity for implementation of IHR (2005)

Following the Ebola outbreak experience in 2015, several IHR 2005 review committees and various expert panels have recommended the use of other tools to monitor and evaluate IHR (2005) implementation, to complement its annual monitoring. Consequently, since 2016, WHO Member States and partners have adopted the combined approach to the IHR (2005) monitoring and evaluation process**.** The four components of the IHR (2005) monitoring and evaluation framework are:

(a) Mandatory annual reporting to the World Health Assembly

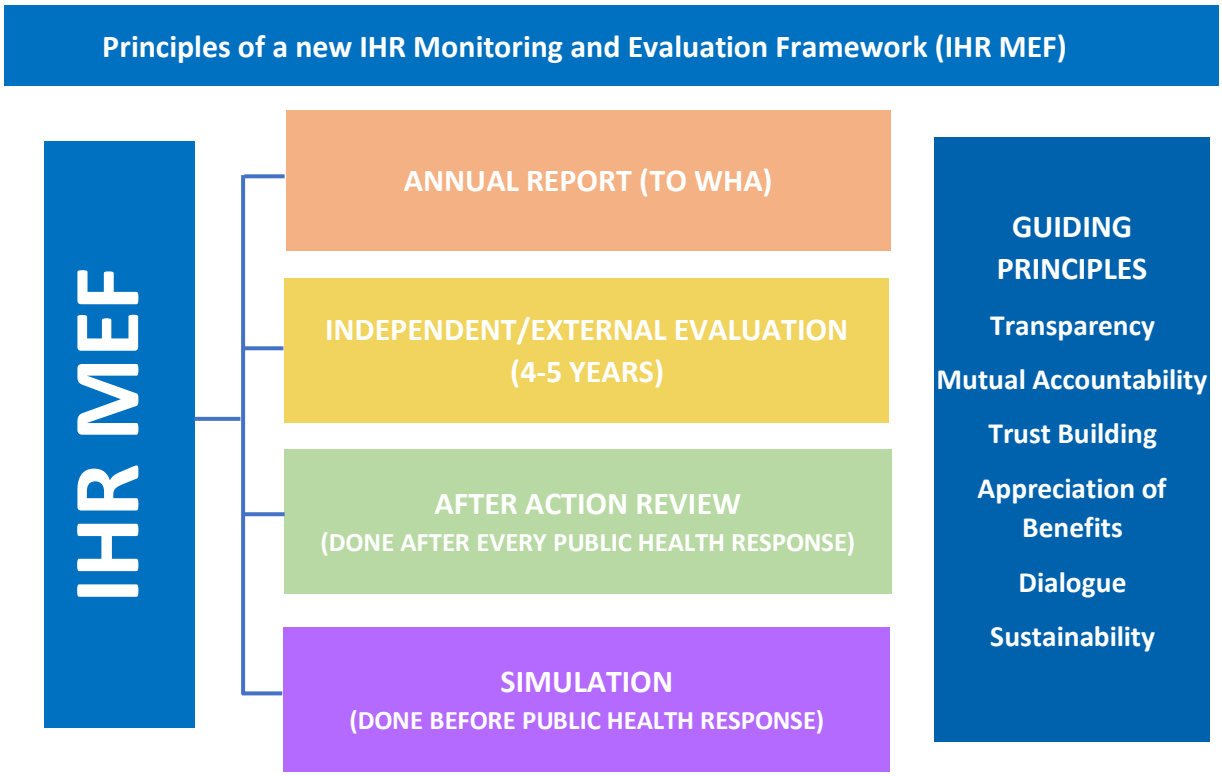
(b) Joint external evaluation (JEE)

(c) After Action Review (AAR)

(d) Simulation exercises

The four components highlight a more functional approach to assessing IHR (2005) capacities and foster transparency and mutual accountability. This is illustrated in figure 4 below.

Figure 4: IHR monitoring and evaluation framework



1.5 One Health and IDSR

One Health is an approach to address a shared health threat at the human-animal-environment interface, based on collaboration, communication and coordination across all relevant sectors and disciplines, with the ultimate goal of achieving optimal health outcomes for humans and animals alike. The One Health approach applies to the local, regional, national, and global levels. Humans and animals (domestic and wildlife) share the same eco-system and opportunities for spillover of diseases are increasing with modern trends in globalization, growing population pressures, climate change, economic development, mass urbanization and increasing demand for animal-sourced foods.

The One Health approach is intrinsic to and strongly reinforced by WHO's IHR (2005) and the IDSR strategy, as well as other global health frameworks. It is meant to improve indicator- and event-based surveillance, which is the cornerstone of the early warning function of the IDSR. Animal and human health workers as well as other relevant partners should be engaged at various levels, as information sources for IDSR, to further facilitate information sharing and joint rapid response activities. The One Health approach offers a comprehensive framework for IHR (2005) implementation and helps to address PHEIC of all sources. The key principles of the One Health approach include prevention and control of emerging infectious diseases (reference to IHR 2005

and the World Organization for Animal Health (OIE) international standards), and support for national public health services, building on existing structures.

The One Health approach principle also considers the role of changing environments, with regard to infectious and chronic disease risks affecting humans and animals. By utilizing data, expertise and management approaches in the environment, environmental health practitioners can assist in enhancing the understanding of the root causes of diseases, and better account for the complexity of environmental factors.

A strong functional IDSR thus requires improved communication, coordination and collaboration from all sectors, for the implementation of an effective One Health framework.

1.6 IDSR and disaster risk management

Disaster is defined as the serious disruption of the functioning of a community or society, causing widespread human, material, economic or environmental losses, exceeding the ability of the affected community or society to cope, using its own resources. At its sixty-second session held in November 2012 in Luanda, the Regional Committee for Africa adopted a paper entitled "Disaster risk management: a strategy for the health sector in the African Region", in an effort to adopt a comprehensive approach to tackling DRM.

Disaster risk management is defined as the systematic process of using administrative and organizational directives, operational skills and capacities to implement strategies, policies and improved coping capacities, thereby lessening the adverse impact of hazards and possibility of disaster. In disaster risk management, a hazard analysis is conducted, followed by an assessment of the level of vulnerability and available coping capacity. The ultimate objective of DRM is to lower risk by reducing vulnerability or improving the capacity to mitigate the impact of a hazard. IDSR is an important tool in the DRM, as it provides early warning information, which is crucial for risk assessment and ultimately, risk reduction. IDSR assists in identification of hazards, assessment, risk communication and monitoring of disaster risks, thereby enhancing the early warning component.

1.7 Implementing cross-border activities in the context of IDSR

Given the ecological distribution of communicable diseases and the porosity of international borders, it is imperative that countries in the region work together to control and contain the spread of these diseases. The free movement of people and goods across the region's borders provides opportunities for cross-border spread of diseases. In addition, at urban centres located at border points, a disaster on one side of the border can easily affect the health of a large number of people on both sides of the border. It is therefore logical that countries in the region would coordinate and synchronize interventions, in an effort to control the spread of communicable diseases. Developing a cross-border framework will therefore provide an opportunity for countries to initiate and boost priority cross-border activities for disease control, including, but not limited to, disease surveillance, epidemic preparedness and outbreak control, as well as building core capacities to ensure compliance with IHR (2005).

(a) Countries, in collaboration with WHO, should establish a cross-border surveillance and response framework with neighbouring countries, using the existing IDSR systems in the respective countries.

(b) Countries should establish procedures for data sharing within the framework of IDSR.

(c) When outbreaks are detected through the IDSR system, the neighbouring cross-border areas and districts should be notified, using the IDSR reporting tools. If they are reporting a similar outbreak, coordinate response efforts with the IDSR response structures as described in Sections 4, 5 and 6 of the third edition of the IDSR Technical Guidelines.

(d) Ensure cross-border (district-district) coordination and collaboration on surveillance issues and provide notification of any outbreaks in the neighbouring district. International or cross-border notification should also be given if needed.

(e) Develop and organize simulation exercises with cross-border district teams.

(f) Organize regular cross-border meetings.

(g) Political leaders should assist districts to facilitate cross-border district surveillance and response initiatives.

1.8 Electronic IDSR (e-IDSR) as a platform for enhancing real time surveillance

The application of e-tools in the health sector has the potential to provide real-time validated data for public health surveillance, investigation and prompt outbreak response. Electronic IDSR provides new opportunities for accelerating the achievement of the IHR (2005) core capacities. Electronic IDSR is the application of electronic tools to the principles of IDSR, to facilitate prevention, prediction, detection, reporting and response. It is based on:

(a) standardized interoperable and interconnected information systems administered within the national context;

(b) rapid collection, analysis, reporting and use of disease/events data in real-time for appropriate public health action.

While paper-based tools can also provide timely information, countries should aim to have electronic tools to facilitate timely data transmission and response to public health threats. Countries implement eIDSR to:

(a) fulfil the regional committee recommendations on use of information technology, which is core to the achievement of IHR (2005) requirements by countries;

(b) assist in standardization of data;

(c) assist in improving timeliness and completeness of reporting;

(d) assist in early detection, investigation, and response to outbreak or public health events;

(e) reduce manual data entry, as it is prone to errors;

(f) ensure systematic information sharing across levels and sectors;

(g) enable better data transmission and management including data storage and easy access;

(h) enhance virtual, near real-time disease monitoring capability;

(i) improve data quality;

(j) reduce system costs and easily generate automated alerts.

Section 9 describes in detail the key guiding principles for establishing eIDSR

1.9 Description of surveillance functions as described in these guidelines

The guidelines assume that all levels of the health system are involved in conducting surveillance activities for detecting and responding to priority diseases, conditions and events (even though the different levels do not perform identical functions). These activities include the following core functions:

Step 1—Identify and record cases, conditions and events**.** Standard case definition is used for health service delivery points (human, animal and environment); simplified case definition is used at the community level to identify priority diseases, conditions, and alerts that may signal emerging public health events. Additionally, case identification can be done through other health service delivery points (animal and environment) using the formal health system, private health systems or community structures. Case definitions and a functioning alert and verification system are vital for detecting cases and outbreaks. After identification, all alerts, including true events, must be recorded in a recognized register, such as the line list register.

Step 2—Report suspected cases, conditions or events to the next level for action. If this is an epidemic-prone disease, a potential PHEIC or a disease targeted for elimination or eradication, respond immediately by investigating the case or event, collecting the necessary diagnostic sample, and submitting a detailed report. For events to be notified under IHR to WHO, the national focal point is required to use the decision instrument (Annex 2 of IHR) to identify any potential PHEIC.

Step 3—Analyse (person, place and time) and interpret findings. Surveillance data should be compiled, analysed for trends, compared with data from previous periods and interpreted for use in public health actions.

Step 4—Investigate and confirm suspected cases, outbreaks or events. Case/outbreak confirmation involves the epidemiological investigation of suspected cases and capacity of the laboratory to make confirmation. Take action to ensure that the case and contacts, and the outbreak or event are investigated, and laboratory confirmed. The capacity for case confirmation is enhanced through improved referral systems, networking and partnerships. Gather evidence about what may have caused the outbreak or event, by including non-human (animals - domestic and wildlife), and environmental sources of information, and using this to select appropriate control and prevention strategies. Social, gender and behavioural factors should also be collected and used to produce locally appropriate responses and risk communication.

Step 5—Prepare. Preparedness refers to the availability of public health emergency preparedness and response plans, including stockpiling (vaccines, drugs and laboratory reagents), designation of isolation facilities, setting aside resources for outbreak response, and training of relevant personnel. Take steps in advance of occurrence of outbreaks or public

health events, to prepare teams to respond quickly, and set aside essential supplies and equipment to be used for immediate action. Ensure that a mechanism for coordinating response measures is set even before an outbreak occurs. Establishing pre-positioned 'outbreak response contracts' and memorandums of understanding between United Nations agencies and non-governmental organizations or civil society speeds up the process of sending logistical support to the lowest level for action. Use historical data from human health and other relevant sectors (such as meteorological, animal and environment) to assess vulnerabilities and risks to the population. The risk analysis can also be conducted through prediction models.

Step 6—Respond. When an outbreak, acute public health event or condition is detected, an investigation should take place to determine the cause of the problem, identify gaps and vulnerabilities, coordinate and mobilize resources and personnel to implement the appropriate public health response. The results of the investigation should guide the response. If needed, at national level, a public health emergency operations centre or similar coordination mechanism should be activated under the leadership of a government official with decision-making authority. At the subnational level, a similar coordination mechanism should be activated for response. A spokesperson should be identified, and a risk communication plan and coordination platform set up for all relevant communication stakeholders. Meet with community political and religious leaders and elders to ensure adequate community engagement for successful responses.

Step 7—Risk communication. Risk communication is an essential element for all surveillance systems, as well as for disaster and emergency preparedness and response. It is the real-time exchange of information, advice and opinions between experts, community leaders, or officials and people who are at risk. Encourage future cooperation by communicating with all levels, including communities that provided data and reported outbreaks, cases and events about the investigation outcome and success of response efforts. Acknowledge reporting by communities.

Step 8—Monitor, evaluate, supervise and provide feedback to improve the surveillance system. Assess the effectiveness of the surveillance and response systems, in terms of timeliness, quality of information, preparedness, (thresholds, case management) and overall performance. Provide feedback to reinforce health workers' efforts to participate in the surveillance system. Take action to correct problems and make improvements. Different evaluation procedures such as After Action Review, Joint External Evaluation, simulation exercises, and operational review may be used. Community representatives, the private sector and NGOs should be included in these evaluation activities.

1.9.1 Different levels where surveillance activities are performed

The levels are defined as follows:

Community—Represented by basic community-level services such as trained birth attendants, community or village health agents, or similar care providers, village or community leaders (religious, traditional or political) or school teachers, health extension workers, locally identified community-based surveillance volunteers, veterinarians, chemical sellers and traditional healers.

Health facility—Defined by each country. For surveillance purposes, all institutions (public, private, NGOs or faith-based organizations) with outpatient and/or inpatient facilities are defined as a health facility.

District, region, or province—The intermediate administrative unit generally serves a population of 100 000 to 300 000. Countries may have two intermediate levels, for example, the district and the region or province.

National level—In many countries, this is the central level where policies are set, and resources allocated. In relation to surveillance, this level reports on priority diseases and uses the IHR decision instrument in Section 2 to report to WHO, all public health events of international concern.

In an integrated system, some laboratory services are available at each level described above. A description of laboratory functions by level is in Section 1. These guidelines focus on improving surveillance for all service delivery points (public and private).

1.9.2 How districts can strengthen surveillance and response

Most countries have assessed their surveillance systems using the standard protocol for evaluating the surveillance system developed by WHO-AFRO (Protocol for the Assessment of National Communicable Disease Surveillance and Response Systems WHO/CDS/CSR/ISR/2001.2).

Districts can also use a matrix of IDSR functions and skills to describe their role in the surveillance system. Such a matrix describes a complete system in which all the skills and activities are in place. Each level supports activities at other levels and reinforces the opportunity for successful decision-making at corresponding levels and functions. In an IDSR system under development, the matrix provides a systematic framework for improving and strengthening the system.

Practical uses of the IDSR matrix include:

(a) Ensuring that all necessary functions and capacities have been identified
(b) Establishing accountability to provide a basis for assigning functions to appropriate levels and determining what capacities should be present
(c) Organizing activities and training for human resource development
(d) Managing, monitoring and evaluating programmes
(e) Strengthening district laboratory capacity, including laboratory information system
(f) Planning for resources (human, material/supplies and financial).

The IDSR matrix also illustrates several key assumptions that need to occur for the core functions of the surveillance system. If one or more of the elements at each level is not present or is being performed poorly, the risk of failure increases for the achievement of surveillance and control objectives. An effective system will be supported at each level from the levels above and below. A complete system minimizes delay in taking public health actions.

The functions of detection, reporting, analysis, investigation, response, risk communication, monitoring and evaluation and providing feedback are interdependent and should always be linked. The IDSR matrix in Annex A, defines the surveillance functions and how they are achieved at each level of the health system including the role of WHO in relation to IDSR core functions.

1.10 Efforts by WHO in the African Region to strengthen IDSR

WHO-AFRO provides technical support for implementation of surveillance and response at every level of the health system, including:

(a) The development of comprehensive technical guidelines for each level.
(b) A protocol for adapting the guidelines to every level within each country.
(c) Training of human resources involved in surveillance and response system.
(d) Advocacy for resources and resource mobilization.
(e) Coordinating the monitoring, detection and control of diseases, conditions and events, epidemics and public health emergencies across countries.
(f) Sharing public health information and promoting documentation of best practices.

1.11 Contents of the guidelines

1.11.1 Key people and entities that will use these guidelines

The previous edition of the guidelines has been revised in order to incorporate lessons learnt from previous epidemics, new frameworks or strategies, such as the regional strategy for health security and emergencies, the revised IHR monitoring and evaluation framework, the initiatives for enhancing prevention, detection and response to public health events (GHSA, One Health, DRM), key regional strategies and rising non-communicable disease threats and road traffic injuries in the context of development of resilient health systems. The revised guidelines also aim to address implementation of the IHR (2005) requirements and capacities for surveillance and response. These guidelines should be adapted to reflect national priorities, policies and public health structures, and used in conjunction with other similar guidelines/strategies or initiatives. Overall, the revised guidelines will incorporate the following:

(a) Strengthening indicator-based surveillance with better analysis, reporting and use of routine data for decision making.
(b) Strengthening event-based surveillance.
(c) Improving community-based surveillance.
(d) Improving cross-border surveillance and response.
(e) Scaling up e-IDSR implementation.
(f) Improving reporting and information sharing platforms.
(g) Sharing improved data between sectors.
(h) Tailoring IDSR to emergency or fragile health system contexts.

The guidelines are intended for use as:

(a) A general reference for surveillance activities across all levels.
(b) A set of definitions for thresholds that trigger some action for responding to specific diseases or conditions.
(c) A stand-alone reference for level-specific guidelines.
(d) A resource for developing training, supervision and evaluation of surveillance activities.
(e) A guide for improving early detection and preparedness for outbreak response.

These guidelines are to be used by health care workers at the Primary Health Care level (public and private), where illness is presented for the first time. Additionally, these guidelines will be used by:

(a) Disease surveillance managers and officers at all levels
(b) IHR national focal points

(c) Health authority at point of entry
(d) Hospital managers, clinicians and infection control officers
(e) National laboratory directorates
(f) Veterinary and wildlife health officers
(g) Environmental health officers and sanitarians
(h) District health management teams
(i) Physician assistants/clinical officers
(j) Public health staff
(k) Medical doctors
(l) Nurses
(m) Pharmacists
(n) Health facility managers
(o) Medical and nursing educators
(p) Other health educators
(q) Communication officers
(r) Logisticians
(s) Laboratory personnel
(t) Community leaders, ward leaders, councillors and district/regional political officers
(u) Other public health experts and practitioners in specialized institutions
(v) Public health training institutions
(w) Other health partners including NGOs
(x) Other line ministries

1.12 Priority diseases, conditions and events included in the IDSR

The WHO Regional Office for Africa suggests the following communicable and non-communicable diseases and conditions or events as priorities for integrated disease surveillance in the African Region (see Table 1 for the priority diseases, conditions and events). The diseases or conditions are recommended because they are:

(a) required internationally under IHR (for example, smallpox, poliomyelitis due to wild-type poliovirus, human influenza caused by a new subtype, SARS);
(b) diseases with highly epidemic potential to cause serious public health impact due to their ability to spread rapidly internationally (for example, cholera, plague, yellow fever, viral haemorrhagic fever);

(c) principal causes of morbidity and mortality due to communicable diseases and conditions in the African Region (for example, malaria, pneumonia, diarrhoeal diseases, tuberculosis, HIV/AIDS, maternal deaths and injuries);

(d) priority non-communicable diseases or conditions in the region (high blood pressure, diabetes mellitus, mental health and malnutrition).

Effective control and prevention interventions are available for addressing the public health problems they pose (for example onchocerciasis, trypanosomiasis). Intervention programmes supported by WHO for prevention and control, eradication or elimination of the diseases exist. These include the Expanded Programme on Immunization (EPI), the Integrated Management of Neonatal and Childhood Illness.

These IDSR priority diseases, conditions and events call for special reporting requirements, which are different from other routine reporting mechanisms for other diseases. Section 2, on reporting priority diseases, conditions and events, sheds more light on how to report priority diseases and conditions.

The list of priority diseases and public health events may vary from country to country depending on the local epidemiological situation, needs of the health system, and resources available. The list of priority public health events to be reported by healthcare facilities should be established by a group of relevant stakeholders from and related to the National Health Surveillance System. Countries are encouraged to keep the list as short as possible to ensure that adequate resources are available to carry out a response, and the list is manageable by the system.

WHO has developed a guide to assist countries in the adaptation of these technical guidelines, which should be used to assist in the selection of priority diseases.

Table 1 below shows the list of priority diseases and conditions under IDSR.

Table 1: Priority diseases, conditions and events for Integrated Disease Surveillance and Response - 2018[1]

<table>
<tr>
<th>Epidemic-prone diseases, conditions or events which require immediate reporting</th>
<th>Diseases targeted for eradication or elimination</th>
<th>Other major diseases, events or conditions of public health importance</th>
</tr>
<tr>
<td rowspan="3">1. Acute haemorrhagic fever syndrome*
2. Anthrax
3. Bacterial Meningitis
4. Chikungunya
5. Cholera
6. Dengue fever
7. Diarrhoea with blood (Shigella)
8. Listeriosis
9. Malaria
10. Middle East respiratory syndrome (MERS)
11. Monkey pox
12. Plague
13. SARIs**
14. Typhoid fever
15. Yellow fever
16. Zika virus disease

Also:
A cluster of deaths in the community (animal or human deaths)

A cluster of unwell people or animals with similar symptoms

* Ebola, Marburg, Rift Valley, Lassa, Crimean Congo, West Nile Fever, Dengue

** National programmes may wish to add Influenza-like illnesses to their priority disease list</td>
<td>1. Buruli ulcer
2. Bacterial Meningitis
3. Dracunculiasis (Guinea Worm Disease)
4. Leprosy
5. Lymphatic filariasis
6. Malaria
7. Measles
8. Neonatal tetanus
9. Noma
10. Poliomyelitis***
11. Onchocerciasis
12. Rabies (Human)
13. Trachoma
14. Yaws and endemic syphilis or bejel

*** Disease specified by IHR (2005) for immediate notification</td>
<td>1. Acute and chronic viral hepatitis
2. Adverse events following immunization (AEFI)
3. Diabetes mellitus (new cases)
4. Diarrhoea with dehydration less than 5 years of age
5. Epilepsy
6. Human Rabies
7. HIV/AIDS (new cases)
8. Hypertension (new cases)
9. Injuries (road traffic accidents)
10. Malaria
11. Malnutrition in children under 5 years of age
12. Maternal deaths
13. Non-neonatal tetanus
14. Perinatal deaths
15. Severe pneumonia less than 5 years of age
16. STIs
17. Schistosomiasis
18. Soil transmitted helminths
19. Trachoma
20. Trypanosomiasis
21. Tuberculosis (new cases)
22. MDR/XDR Tuberculosis</td>
</tr>
<tr>
<td colspan="2">Diseases or events of international concern</td>
</tr>
<tr>
<td colspan="2">Human influenza due to a new subtype***
SARS***
Smallpox***
Zika virus disease
Yellow fever
Any public health event of international or national concern (infectious, zoonotic, food borne, chemical, radio nuclear, or due to unknown condition.

*** Disease specified by IHR (2005) for immediate notification</td>
</tr>
</table>

Note: It is important to remember that countries may select from this list according to national priorities and the epidemiologic situation. Disease-specific summary pages are available in Section 12 of this guide.

[1] Some diseases, such as malaria, trachoma, bacterial meningitis, appear more than once in the table. Countries should maintain the name of the disease in the most appropriate column according to their epidemiological context.

1.13 Organization of the IDSR guidelines

The Technical Guidelines for Integrated Disease Surveillance and Response presents a comprehensive vision of a disease surveillance and response system. In the IDSR, all levels of the health system are involved in surveillance activities for responding to priority diseases and conditions. The sections in the guidelines are organized according to these core activities:

Section 1:	Identify and record cases of priority diseases, conditions and events
Section 2:	Report priority diseases, conditions and events
Section 3:	Analyse and interpret data
Section 4:	Investigate suspected outbreaks, and other public health events
Section 5:	Prepare to respond to outbreaks and other public health events
Section 6:	Respond to outbreaks and public health events
Section 7:	Risk communication
Section 8:	Monitor, evaluate, supervise and provide feedback to improve surveillance and response
Section 9:	Electronic Integrated Disease Surveillance and Response (eIDSR)
Section 10:	Tailoring IDSR to emergency or fragile health system contexts
Section 11:	Summary guidelines for specific priority diseases and conditions

The various sections of the 3rd Edition IDSR Technical Guidelines have been put into six separate booklets in the following order:

- **Booklet one: Introduction Section**
- **Booklet two: Sections 1, 2 and 3**
- **Booklet three: Sections 4, 5, 6 and 7**
- **Booklet four: Sections 8 and 9**
- **Booklet five: Section 10**
- **Booklet six: Section 11**

Each section has annexes which reference key functions highlighted in the guidelines. Each section is relevant for all levels of the health system and provides a perspective on how countries can carry out each function to attain the required level of surveillance and response. Furthermore, a section on Electronic Integrated Disease Surveillance and Response has been included to summarize and guide countries as they embark on establishing their eIDSR system.

1.14 Annexes for the Introduction Section

Annex A	IDSR matrix: Core functions and activities by health system levels
Annex B	Tool for assessment of surveillance and response at the district level
Annex C	IHR 2005 Decision Instrument
Annex D	Potential public health emergencies of international concern that require reporting to WHO under the International Health Regulations (2005)
Annex E	Guide for establishing community-based surveillance and response system
Annex F	Required surveillance and response core capacities as described in the IHR (2005)
Annex G	Roles and Responsibilities of various actors in IDSR.
Annex H	Guide for establishing surveillance and response systems at PoE

Annex A: IDSR matrix: Core functions and activities by health system level

Levels	Identify	Report	Analyse and Interpret	Investigate and confirm	Prepare	Respond	Communicate risk	Monitor, evaluate, supervise and provide feedback for improvement
Community	Use alert triggers to identify priority diseases, events, conditions or other hazards in the community Support community in case finding and promote use of alert triggers	Report essential information on alert triggers to health care facility (HCF) and appropriate authorities	Involve local leaders in observing, describing and interpreting disease patterns, events, and trends in community Map community catchment area.	Support investigation activities Follow up on rumours or unusual events reported by community leaders or members Act as liaisons for feedback to community on follow-up actions	Participate in community health and emergency preparedness committees Participate in identifying potential diseases, conditions and events Participate in training and simulation exercises	Implement response activities. Encourage community participation Ensure that community seeks care immediately in case of emergency and signs of disease Participate in prevention and response-based activities Follow and model best practices in basic infection prevention and control measures and social distancing Carry out social research and conduct community health education for behavioural and communication change	Identify people who can ensure ownership of communication process Build relationship with nearby health facility for communication and coordination Liaise with healthcare facility Incorporate cross-sectoral communication with animal and environmental sectors to establish a One Health approach at the community level.	Verify community response to the public health action Give feedback to community members about reported cases, events, and prevention activities Verify if public health interventions took place as planned Participate in after-action reviews
Health care facilities	Use standard case definitions to detect, laboratory confirm and record priority diseases or conditions Collect and transport specimens for laboratory confirmation Verify alert triggers from community Ensure appropriate storage of surveillance materials	Report case-based information for immediately reportable diseases Report weekly summary data to next level	Prepare and periodically update graphs, tables, and charts to describe time, person and place for reported diseases, events and conditions From the analysis, report immediately, any disease, event or condition that: • exceeds an action threshold • occurs in locations where it was previously absent • presents unusual trends or patterns	Take part in investigation of reported outbreaks Collect, package, store and transport specimens for laboratory confirmation during investigation	Participate in emergency preparedness and response committees Participate in response training and simulation exercises Monitor and maintain emergency response supplies	Participate in response activities, including case management and contact tracing according to the standard guidelines Take relevant additional control measures Participate as part of rapid response team	Ensure the communication system has a link to the community leadership structure Communicate with community members about outcome of prevention and response activities and maintain close contact with community Conduct regular listening sessions and meetings with CBS workers/volunteers about surveillance and response activities integrated with other health programmes	Assess community participation Conduct self-assessment on surveillance and response activities Monitor and evaluate prevention activities and modify them as needed Provide weekly summary data to community level Provide outcome of laboratory test to community-based surveillance workers/volunteers

Levels	Identify	Report	Analyse and Interpret	Investigate and confirm	Prepare	Respond	Communicate risk	Monitor, evaluate, supervise and provide feedback for improvement
Districts	Support HCF to verify alerts from community Collect surveillance data from HCF and the community and review the quality Ensure that reliable supply of data collection and reporting tools are available at reporting sites Ensure that all HCFs have materials for laboratory collection and transport	Ensure that HCF and community-based surveillance workers/volunteers know and use standard case definitions for reporting priority diseases, conditions and events Maintain list of reporting sites Provide instructions and supervision for surveillance and reporting of priority diseases, conditions and events for HCF and communities Report data on time to the province/region surveillance officer	Aggregate data from HCF Use and refine denominators for rates Analyse data by time, place and person Assist HCF to update graphs, tables, and charts to describe reported diseases, conditions and events weekly Integrate epidemiological and laboratory data for better analysis Compare data and make conclusions about trends and thresholds	Support HCF to verify alerts from the community Arrange and lead investigation of verified cases or outbreaks Maintain an updated line list of suspected cases Assist HCF in safe collection, packaging, storage and transport of laboratory specimens for confirmatory testing Receive laboratory results from province/region and pass on to HCFs Report finding of initial investigation to Province/Region	Establish and ensure functionality of the emergency preparedness and response committees Participate in risk mapping and community assessment Organize, establish and ensure functionality of district rapid response teams Participate in and support response training for HCF and community	Together with Province/Region, select and implement appropriate public health response Plan timely community information and education activities Document response activities In case of outbreaks send daily district Sitrep	Establish risk communication systems and structure Ensure engagement of risk communication partners and stakeholders at regional level Develop an up-to-date risk communication plan and test during an actual emergency or simulation exercise Develop and build on relevant district stakeholder and organizational networks to improve information flow Ensure risk communication is part of the emergency response systems Alert and inform communities about outbreaks or events	Conduct regular supervisory visits of healthcare facilities Provide feedback to the HCF and community on surveillance activities and priority events Provide regular, periodic feedback to health care facilities and communities on routine control and prevention activities and outbreaks Monitor and evaluate programme timeliness and completeness of reporting from health facilities to the district Monitor and evaluate timeliness of response to outbreaks Gather information from affected communities on needs and impact of response Conduct district-level surveillance review meetings to include key community members and partners.
Region/Province	Ensure coordination with respective community units/departments to oversee and support community services and CBS with district Ensure that reliable supply of case definition posters, data collection and reporting tools are available at reporting sites Ensure that laboratory specimen collection and	Ensure that districts know and use standard case definitions for reporting and verifying priority diseases conditions and events Provide instructions and supervision for surveillance and reporting priority diseases, conditions and events for health care facilities and communities. Receive regular surveillance data from the District Surveillance Officer (DSO) and review the quality	Ensure accuracy of denominators for province/region Aggregate data from DSO reports Analyse data by time, place and person Prepare weekly update graphs, tables, and charts to describe reported diseases, conditions and events Calculate rates and thresholds and compare current data with previous periods, to make conclusions	Arrange and support investigation of reported diseases conditions and events Receive and interpret laboratory results Compile district- level line lists of suspected cases Report the confirmed outbreak to national level Ensure that specimen collection kits for investigation activities are available	Convene emergency preparedness and management committee meetings Develop and manage contingency plans Conduct training and simulation exercises for staff Periodically conduct risk assessment for risk factors and potential diseases, conditions and events Organize and support Rapid Response Team	Select and implement appropriate public health response Activate epidemic preparedness and response committee and plan response Conduct training for emergency activities Plan timely community information and education activities Disseminate health education and behaviour change messages During epidemics send daily situation reports	Establish risk communication systems and structure Ensure engagement of risk communication partners and stakeholders by doing mapping Develop an up-to-date regional risk communication plan, and test during an actual emergency or simulation exercise Develop standard operation procedures (SOPs) covering clearance and release of a public health emergency information Ensure that regular update sources are accessible to the media and the public for information dissemination Ensure that accessible and relevant information, education and communication materials are tailored to the needs of the population	Monitor and evaluate programme targets and indicators for measuring quality of the surveillance system for districts and health care facilities Give feedback to districts on surveillance and data quality findings Give district regular, periodic feedback about routine control and prevention activities and outbreaks Produce monthly province/ region surveillance bulletin Provide regular assessment of staffing needs for IDSR implementation and inform the next level

Levels	Identify	Report	Analyse and Interpret	Investigate and confirm	Prepare	Respond	Communicate risk	Monitor, evaluate, supervise and provide feedback for improvement
	transport material is available Track specimens for laboratory confirmation	Report data on time to the National MOH					Release information quickly in a transparent manner Ensure the use of evaluation to inform risk communication planning Ensure engagement of the public to facilitate peer-to-peer communication, create situational awareness, monitor and respond to rumours and public reactions to facilitate local-level responses. Ensure that risk communication is part of the emergency response systems Ensure that trained personnel for risk communication are available across all levels Alert nearby areas and regions and districts about the outbreak, including cross-border areas	Conduct regular supervisory visits Monitor and evaluate timeliness of response to outbreaks and events Assess acceptability of response to community and refine as needed Ensure involvement of partners in monitoring surveillance and response activities Conduct province/ region-level surveillance review meetings to include key community members and partners

Levels	Identify	Report	Analyse and Interpret	Investigate and confirm	Prepare	Respond	Communicate risk	Monitor, evaluate, supervise and provide feedback for improvement
National	Define and update national policy and guidelines and ensure compliance Set policies and procedures for the reference laboratory networks, including quality assurance systems Use reference laboratories for confirming, and specialized testing if necessary Collect and transport specimens for additional analysis at WHO collaborating centre (CC) as necessary	Train, inform and support lower levels on surveillance and response Aggregate province/region reports of immediately reportable diseases and events Report other priority diseases, conditions and events on time, to relevant programmes and stakeholders Include all relevant laboratories in the reporting network Use IHR Decision Instrument (**Annex 2**A) to determine risks for priority diseases, conditions and events Inform WHO in line with IHR (2005)	Set policies and procedures for analysing and interpreting data Define denominators and ensure accuracy Analyse and interpret data from a national perspective for action Calculate national rates and compare current data with previous periods Describe risk factors for priority diseases, conditions and events Regularly convene a meeting of the technical coordinating committee to review the analysed and interpreted data before wider dissemination Carry out special analyses to forecast magnitude and trends of priority events	Ensure guidelines and standard operating procedures for outbreak investigations are available at all levels Deploy Rapid Response team for outbreak investigation and response Coordinate and collaborate with international authorities, as needed, during investigations Coordinate response with province/region and district health teams, as needed, during investigations Alert and support laboratory participation Provide logistic support for the field investigation Share information with regional and international networks about confirmed outbreak Process specimens from investigation and send timely results	Set policies, procedures, and training for each level Undertake risk mapping Prepare and distribute emergency preparedness and response plans Develop national risk communication plan, including messages for community education Organize and support National Public Health Emergency Rapid Response Teams (RRTs) Develop and organize simulation exercises (including cross border) Develop and manage contingency plans Establish and ensure functionality of national public health emergency operations centre Monitor operational readiness using readiness checklist (Reference tool)	Set policies and procedures for responding to outbreaks of priority diseases, conditions and events Develop and support response activities that promote the psychology wellbeing of patients, health care workers, affected families and communities Coordinate response with province/region and district health teams Support epidemic response and preparedness activities, including deployment of public health emergency RRTs Follow and adapt risk communication guidelines and social mobilization (Health Promotion Unit, MOH)	Establish risk communication systems and structure Ensure engagement of risk communication partners and stakeholders Develop an up-to-date risk communication plan and test during an actual emergency or simulation exercise Develop policies, SOPs and guidelines, covering clearance and release of information during a public health emergency Ensure that regular update information sources are made accessible to the media and the public for information dissemination Ensure that accessible and relevant information, education and communication materials are tailored to the needs of the population Release information quickly in a transparent manner Ensure use of evaluation to inform risk communication planning Develop and build on relevant stakeholder and organizational networks to improve information flow Ensure engagement of the public, to facilitate peer-to-peer communication, create situational awareness, monitor and respond to rumours and public reactions to facilitate local-level responses. Ensure risk communication is part of the emergency response systems Ensure that trained personnel for risk communication are available across all levels	Monitor IDSR and laboratory core indicators regularly Give regions/ provinces regular feedback about routine and prevention control activities Share epidemiological data and reports, including outbreak response information with neighbouring countries Develop and periodically distribute national bulletin for epidemiology and public health Conduct IDSR regular review meetings Conduct regular supervisory visits Ensure involvement of partners in surveillance and response activities, AAR, including lessons learned from outbreak investigation and response Support annual monitoring of IHR core capacities Update and revise work plan and budget line for implementation of IDSR activities Document provision of appropriate and timely feedback

Levels	Identify	Report	Analyse and Interpret	Investigate and confirm	Prepare	Respond	Communicate risk	Monitor, evaluate, supervise and provide feedback for improvement
WHO country office, WHO AFRO Regional Office	Develop and disseminate generic guidelines for surveillance Encourage documentation and sharing of IDSR best practices Provide technical support to national level for detection and confirmation of priority diseases, conditions and events Coordinate international reference laboratory network support, including centres of excellence	Collect and compile reports of outbreaks and international notifiable diseases and events Produce annual regional profiles or situation reports by priority diseases, conditions and events	Provide guidance for better data analysis and development of bulletins/information products Develop and disseminate best practices for analysis of data for each priority disease, condition and event Provide technical support to national level, to improve capacity for analysis	Disseminate updated guides and tools on specific diseases Provide support to countries to conduct assessments or investigations of priority diseases and events upon request Provide support for the coordination of laboratory participation during investigations Provide support for risk assessment using IHR decision instrument	Mobilize resources for training, logistics and supervision Set up network of experts for IDSR training and implementation Develop, update or revise guidelines for disaster or risk management Maintain and update a roster of experts for rapid response teams Develop, update/revise training for IDSR and IHR implementation Centre and support the Incident Management System.	Coordinate and support response activities (strategic health operations centre, technical experts, SOPs, guidelines, etc.) Mobilize resources and facilitate partnerships Support activation of the IMS team Activate the IMS team.	Disseminate risk communication guidelines, manuals, training modules and other forms of guidance related to risk communication Assist in coordination of partners and share information with partners and stakeholders	Provide feedback to aid collaboration with national and regional levels Post on the WHO website and disseminate relevant links to all individuals and partners Use reports from regions/provinces to assess IDSR systems and advocate for improvements Develop, update or revise guidelines and tools for IDSR/IHR monitoring and evaluation Develop and disseminate regional surveillance bulletin Promote, guide and support operational research Ensure functionality of the IDSR Task Force Regularly monitor the key performance indicators for IDSR and IHR and performance standard according to revised Emergency Response Framework

Levels	Identify	Report	Analyse and Interpret	Investigate and confirm	Prepare	Respond	Communicate risk	Monitor, evaluate, supervise and provide feedback for improvement
Point of entry	Use case definitions or alert triggers to identify suspected passengers or events related to travel and transport Support community in case finding	Report immediately to the IHR NFP and at the same time, district/national level Report monthly summaries to the national surveillance department/unit, and at the same time, share with the respective district and region	Prepare and periodically update database of cases/events detected	Participate in assessing potentially exposed/infected travellers in a holding/treatment centre Support investigation of suspected passengers and contacts Follow up on rumours or unusual events reported by community leaders or members	Participate in emergency preparedness and response committees within PoE Participate in preparation of PoE contingency plan Participate in training and simulation exercises Participate in cross- border meeting	Assist in referring the ill passenger to the appropriate medical facility Liaise with the emergency and preparedness committee in response activities Assist in case and contact finding Follow and model best practices in basic infection prevention and control measures	Build relationships, communicate and coordinate for information sharing with various stakeholders (IHR FP, civil aviation/port authorities, ICAO Build communication with ship and ship industry operators, regarding authorization and the Maritime Health Declaration, Build relationship with surveillance officers across all levels and the IHR national focal point	Monitor and evaluate prevention activities and modify them as needed Conduct periodic simulation exercises

Annex B: Tool for assessing surveillance and response at the district level

Most countries have used an assessment tool developed by WHO/AFRO to assess their national surveillance, epidemic preparedness and response systems and to identify where improvements are needed. Others have used newly developed tools such as the JEE as a means of assessing country capacity to prevent, detect and respond to public health events. The assessment provides results that can be used to solve problems with resources, quality and timeliness of surveillance data, and use of information. The national strategic plan could also be used as reference while preparing a district-specific action plan. For other countries, which have undergone JEE, the National Action Plan for Health Security can also be used.

The Integrated Disease Surveillance and Response is not proposing the establishment of a new system, but rather providing guidance on how to prepare to conduct surveillance and response activities. However, if the district has the resources and skills to conduct an assessment to document the situation of surveillance and response activities within the district, or wishes to update the district profile, then they may use the checklist below after adapting it to the local context. This tool could guide districts in identifying activities to improve their performance and capacity for disease surveillance and response.

Case and event identification

1. Determine availability and knowledge of standard case definitions for reporting suspected priority diseases and conditions, including events of public health concern.
2. Define the sources of information about health events in the district, including points of contact the community has with health services. For example, list the following sources on a list of district reporting sites:
    (a) Health facilities and hospitals
    (b) Laboratories (including non-public ones: private for profit, military, NGOs, faith-based)
    (c) Point of entry
    (d) Community health workers (including community animal health workers)
    (e) Community volunteers or focal points (shopkeepers, market women, barbers, farmers, etc.)
    (f) Birth attendants
    (g) Traditional healers

(h) Rural community leaders who have knowledge of health events in the community (for example, the village elders, traditional healers, school teachers and leaders of faith-based communities)

(i) Public health officers

(j) Private sector practitioners

(k) Public safety officers from the fire, rescue or police departments

(l) Animal health and veterinary structures and services

(m) Industry, food safety and environmental health laboratories

(n) Mass media, web sites and health news search applications

(o) Others, including NGOs.

It is important to also have and maintain a logbook of rumours to report events and feedback loop to confirm or dispel rumours.

3. Identify surveillance focal points for each source of information. Identify and specify opportunities for community involvement in surveillance of health events.

Reporting

4. Specify the priority events, diseases and conditions for surveillance within the district and those directed by national policy. List diseases that are:

   (a) epidemic prone or events, such as unexplained cluster of illness or deaths, which require immediate reporting;

   (b) targeted for eradication and elimination;

   (c) of public health importance, including non-communicable diseases.

5. For each priority event, disease or condition, review the minimum data elements that health facilities and other sources should report. State when they should be reported, to whom and how. State the information that should be reported from inpatient and outpatient sources. For example, a minimum requirement would be to report all cases and deaths for the selected diseases and conditions.

   (a) State the diseases or conditions that require immediate reporting and communicate the list to health facilities in the district.

   (b) Define the means for reporting data to the district (by phone, form or voice). If there is electronic reporting, do all facilities have access to computers and modems? Specify how electronic reporting should be done and if paper forms will be used to collect data, how transcription will occur from paper to electronic form.

   (c) Define how often the required data should be reported.

   (d) Define a feedback mechanism from district to higher levels (region and district levels).

6. Define the data management tools available in the district and how they should be used in an integrated system. Define how frequently the tools should be used for reporting diseases, conditions or events. The tools may include:
    (a) Case-based surveillance reporting forms;
    (b) Diagnostic (if point of care is used) and lab-specimen-based surveillance reporting forms;
    (c) Specimen tracking forms/logbooks (within the laboratory) and also forms/logbook for referral of specimens;
    (d) Line lists for use in outbreaks while also ensuring comprehensive capture of variable from other non-human sectors;
    (e) Contact tracing forms;
    (f) Tables for recording summary totals:
        (i) Routine weekly reporting forms
        (ii) Routine monthly reporting forms
        (iii) Routine quarterly reporting forms
        (iv) Graphs for time analysis of data
        (v) Maps for place analysis of data
        (vi) Charts for data analysis by person
7. Periodically update the availability of relevant supplies at each reporting site for conducting surveillance. (Note: If a reporting site has the capacity for electronic reporting, there should be an electronic format that is compatible with the methods used at the district, regional and national levels. In most countries, where there is eIDSR, the District Health Information System version 2 has frequently been used as a data system. If electronic reporting is not available, ensure that the focal points responsible for managing data have a reliable supply of data collection forms, paper, coloured pencils, graph paper, and log books.
8. Define mechanism to ensure that data is collected as per given timelines and introduce mechanism for accountability if reports are not submitted on time.

Data analysis

9. Define the data management requirement for each reporting site. For example, develop and disseminate the procedures, including deadlines, so that reporting sites know that they must report each reporting period (for example, monthly).
    (a) Tally, compile and report summary totals
    (b) Periodically check data quality and eventually clean them
    (c) Analyse data: produce weekly/monthly/quarterly/annual summaries in tables, graphs or maps
    (d) Provide some interpretation to the next higher level
    (e) Submit data to the next level (SMS, e-mail, fax/case-based forms, and line list)
    (f) File and secure back-up copies of the data
    (g) Provide feedback and recommendations to the community focal points, all relevant reporting sites and community leaders, and track implementation of recommendations.
10. Decide if current forms address the priorities of integrated disease surveillance and response. For example, do current forms provide the information necessary for detecting problems and signalling a response to priority diseases targeted for surveillance?
11. Gather and present relevant data about your district that can be used to advocate for additional resources for improving surveillance and response activities. (Example: Health workers are able to document an increase in malaria cases; they know that an effective response is available with insecticide-treated bed nets. The district surveillance officer used data to show the expected reduction in malaria cases if some of the community's bed net cost could be supported by local businesses).

Investigation and confirmation of suspected cases, outbreaks or events:

12. Describe the laboratory and diagnostic referral network for confirming priority diseases and conditions in the district. For example, list the following:
    (a) Public, private or NGO district facilities which have point-of-care diagnostics or use Rapid Diagnostic Tests laboratory services.
    (b) Public, private or NGO district facilities with reliable laboratory services for confirming priority diseases.
    (c) Prevention, control or special surveillance activities in the district with laboratory access (for example, any HIV sentinel surveillance sites in the district).
13. Describe the methods or mechanism for active case search, and where appropriate, the procedures for searching for contacts.

Preparation for response to outbreaks and other public health events

14. Update the policies of the district rapid response team so that assessing preparedness becomes a routine agenda item for the team. Refer to Section 4 for composition of the public health emergency RRT.

15. Identify a coordination mechanism which will oversee the meetings for preparedness and response. Refer to Section 5 on how to formulate a coordination mechanism and the composition of the team, which will lead the response and planning process for meetings. Specify and disseminate schedules for:

    (a) meetings to routinely assess preparedness for public response and discuss current problems or activities. Put mechanisms such as reminders in place to ensure that meetings take place as planned;

    (b) meetings to discuss outbreak response, including reviewing key recommendations and actions, and status of implementation.

16. For each priority event, disease or condition selected, state the available public response activity and develop a contingency plan for the particular priority event, disease or condition. Identify possible activities and interventions for which the district would require help from outside. Refer to Sections 4, 5, 6 and 9 for key standard elements needed in the preparedness and response activities.

17. For each disease or condition that the district can respond to, specify the target and alert threshold, or analyse results that would trigger an action.

Communication and feedback

18. Define methods for informing and supporting health workers in the implementation of integrated disease surveillance by:

    (a) listing the current opportunities for training health workers in surveillance, response or data management in the district.

    (b) coordinating training opportunities between disease programmes that take advantage of overlapping skills such as supervision, report writing, budgeting, data analysis, and using data to set priorities.

    (c) defining the training needs for each category of health workers, based on supervision, or during response to a particular event. Decide whether this will be an initial training in surveillance and response skills or a refresher training on how to integrate surveillance activities.

    (d) establishing indicators of quality (management) performance of health workers and regularly assess the performance of health workers.

19. Describe how communication about surveillance and response takes place between the district and the surveillance focal points and other focal points from animal and other key relevant sectors. Clarify who is responsible for periodic reporting at each level. Include methods such as monthly meetings, newsletters and telephone calls.

20. Review and update feedback procedures and methods between the district, health facilities and community, as well as between the district and higher levels. Specify the feedback methods and update as necessary:

    (a) Bulletins summarizing data reported by health facilities to the district.
    (b) Periodic meetings to discuss public health problems and recent activities.
    (c) Supervisory visits.

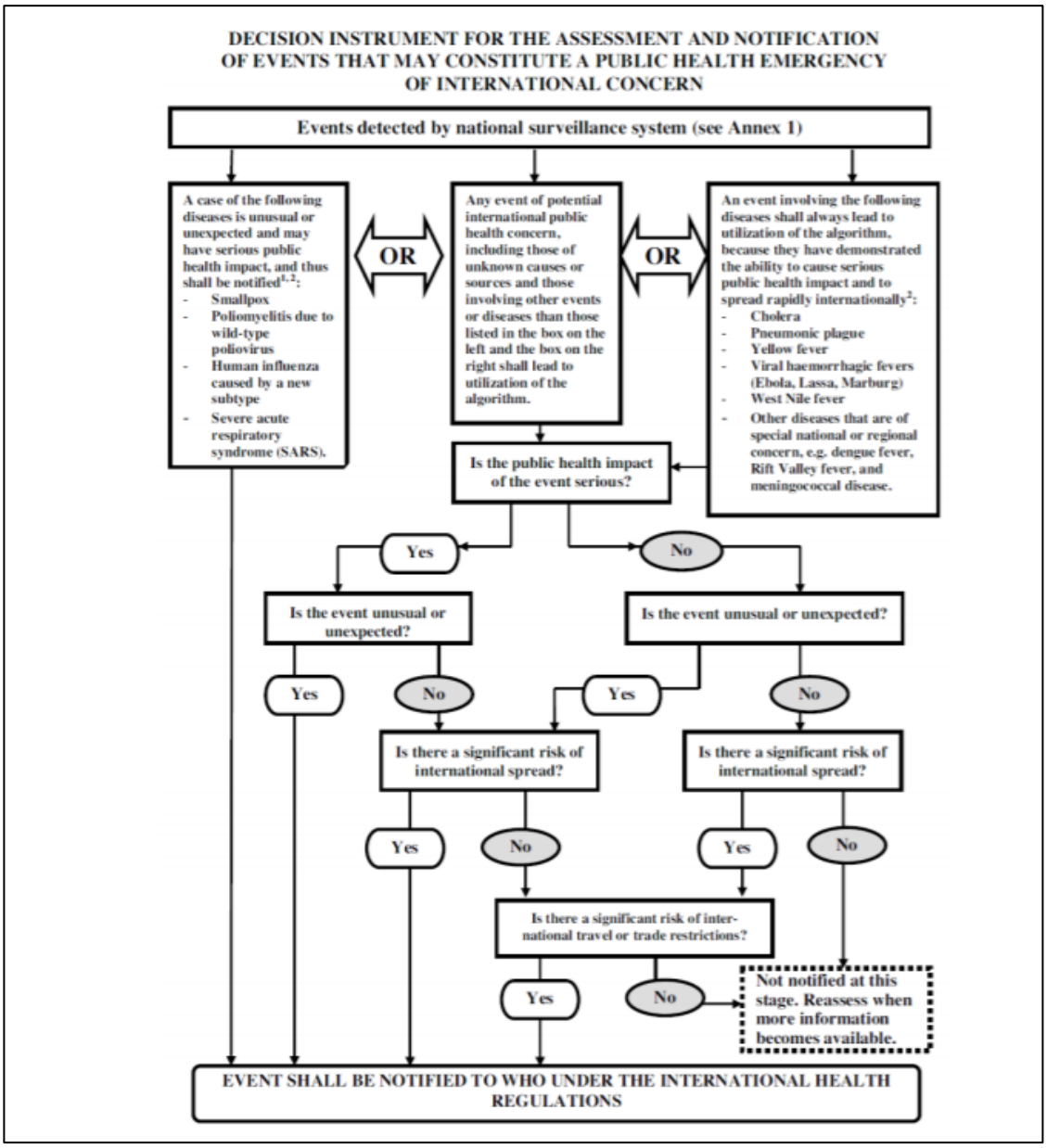
21. Outline the communication mechanism available, including protocols and guidelines for risk communication. Identify a spokesperson and ensure training has been done on required protocols. Develop a mechanism of linkage between the community and health facilities with the epidemic preparedness and response committee that can be activated during an outbreak and for routine activities. Refer to Sections 6 and 7 of the guidelines, on the key elements for risk communication before, during and after the outbreak.

Evaluation and improvement of the surveillance system

22. Decide if additional indicators will be evaluated and plan on how to monitor and evaluate timeliness and completeness of reporting.

23. State three or more objectives you would like to achieve for improving surveillance in your district over the next year, based on evidence.

Annex C: IHR 2005 Decision instrument



[1] As per WHO case definitions.
[2] The disease list shall be used only for the purposes of these Regulations.

*States Parties that answer "yes" to the question whether the event meets any two of the four criteria above shall notify WHO according to Article 6 of the IHR

Annex D: Events of potential international health concern requiring reporting to WHO under IRH (2005)

Surveillance on specific risks

The control or containment of known risks to public health is one of the most powerful ways to improve international public health security. The threat posed by known risks constitutes the vast majority of events with a potential to cause public health emergencies that fall within the scope of the International Health Regulations (2005). There are control programmes which address infectious diseases and food and environmental safety and contribute significantly to the WHO global alert and response system.

Environmental hazards include, but are not limited to:

(a) Chemicals
(b) Food
(c) Ionizing radiation
(d) Non-ionizing radiation

Technical information on these risks can be obtained from various sources (See the references at the end of this document). Areas of interest for the purpose of capacity-building of integrated surveillance should include partnerships to address the following:

1. Environmental health emergencies such as:
    (a) Natural events
    (b) Technological incidents
    (c) Complex emergencies
    (d) Deliberate events

2. Chemical risks in food:

    Acute and chronic dietary exposure (environmental or intentional pollution).

3. Zoonosis:
    (a) Emerging zoonosis
    (b) Neglected zoonosis

TOPICS FOR SURVEILLANCE ON SPECIFIC RISKS

1. Infectious disease hazards

Known, new and unknown infectious disease threats

2. Zoonotic disease events

Using a One Health approach is critical to linking human health to animal health at the human-animal-environment interface. Coordinating, collaborating, and communicating across sectors and One Health partners allows us to maximize resources while achieving optimal health for people and animals living in a shared environment. Detecting diseases that affect animals is important, as they may pose a risk to human health and could save lives.

3. Food safety events

Food and waterborne diarrhoeal diseases are the leading causes of illness and death in less developed countries, killing approximately 1.8 million people annually, mostly children. The identification of the source of an outbreak and its containment are critical to the IHR.

4. Chemical events

The detection and control of chemical, toxic and environmentally-induced events are critical for the implementation of the IHR.

5. Radiological and nuclear events

A radio-nuclear emergency at a nuclear facility may be caused by accidental spills or the result of a deliberate act. It may also be detected as the result of clinical examination, when patients with radiation injuries are admitted to a health care facility, even if the source of exposure has not been confirmed.

Source: A guide for assessment teams. International Health Regulations (2005): Protocol for assessing national surveillance and response capacities for the International Health Regulations (IHR) in accordance with Annex 1A of the regulations. February 2009.

Annex E: Guide for establishing community-based surveillance and response

Community-Based Surveillance (CBS) is a simple, adaptable and low-cost public health initiative managed by communities in coordination with the formal surveillance structures. Communities and designated community focal points are trained and empowered to be aware of potential health risks, including emerging events that might indicate a new health risk. They are also to ensure close monitoring for notifiable and seasonal diseases or signs of an existing disease outbreak. An event that appears 'unusual, odd or inexplicable' to the community might be to a health-trained professional an early warning sign of a more serious and larger health risk or public health event.

Two different strategies of community-based surveillance can be used to collect community information:

(a) **Community event-based surveillance (CEBS)** relies on reporting of unusual events and is designed to rapidly identify problems in the community. Information may be incomplete, unconfirmed or even a rumour. The definition of an 'unusual event' changes from one community to another, and needs to be defined in each context. It can be one event, or a cluster of events, that may be unusual for a specific community or during a certain time of year. For example, an unusual event could be "a cluster of deaths from an unknown cause in the same household or adjacent households".

(b) **Community-indicator based surveillance (CIBS)**. This type of surveillance is used to identify/report events, based on agreed indicators (case definitions). Information from the community may come from people, including CBS volunteers, who have already received guidance on the indicators.

CIBS relies on reporting a suspected case or the trend of specific diseases, using a community case definition. A community case definition is two or three easily identified symptoms associated with a specific disease. It is a more basic form of syndromic (symptom) reporting that is used by health professionals in national/IDSR and other disease surveillance systems. Examples include influenza, whose community case definition is "sudden illness, fever, cough and difficulty in breathing, and acute flaccid paralysis (AFP), defined as sudden onset of paralysis/weakness in any part of the body of a child less than 15 years of age.

Both systems should be established to ensure that all information from the community is captured and reported quickly to a designated surveillance focal person at the next level for follow up. These two elements of surveillance should also be integrated at the community level.

Steps for establishing community-based surveillance (CIBS)

A crucial step in establishing the community-based surveillance is to ensure buy-in of both national and subnational level authorities. This will enable the CBS system to be recognized formally as part of the National Surveillance System and people will then be designated. A designated health facility manager or surveillance officer responsible for coordinating CBS activities should therefore:

(a) determine within the facility, the availability and knowledge of standard community case definitions for reporting suspected priority diseases and conditions and events of public health concern;

(b) sensitize community leaders, elders and other influencers about the need for CBS, what information is needed, how the information will be used, the process being proposed, the characteristics of successful CBS focal persons, the financial or human resource support being offered by the district, and what the community gains by participating;

(c) define the sources of information about health events in the community, including points of contact that the community has with health services. A key informant selected from these sources can form community networks that support the CBS focal persons in early detection of alerts (for example, sensitizing the women and men that often visit the grain milling or tea drinking places). The sources of information include:

  (i) Home visits - where CBS focal persons are expected to visit all homes in their catchment area regularly to inquire about the priority diseases, any deaths that might have occurred since their last visit.

  (ii) Gathering places - Another way to pick up information on priority events will be for CBS to frequently go to village gathering/meeting places. This will not serve as a substitute to the home visits, but rather, another approach to ensuring that all priority events are identified in good time. Gathering or meeting places in the community are where people gather to talk and share news by word of mouth. Examples include community wells, pumps or rivers, where women gather every to collect drinking water or wash clothes. While they work, women exchange news about their families and neighbourhood.

  (iii) Grain milling or grain pounding places - In some communities, women gather every day at the same place to mill, grind or pound grain into flour. They often exchange news about their families and the neighbourhood as they work.

  (iv) Beer, palm wine or tea drinking places - In some communities, men gather every day at bottle shops, other drinking places, in a home or shop, or in the shade under a special tree, to drink and socialize. As they drink, they sometimes tell each other the news about their families, friends and neighbours.

  (v) At the market - A good deal of information and news is exchanged at the market. People who go there spend some of their time buying or selling things and the rest of their time talking to friends and neighbours.

(vi) At churches, mosques or temples - Sometimes religious leaders make announcements before or after the service to let people know about things happening in the neighbourhood. Also, people who attend church or go to the mosque often talk together before or after the service to exchange news about their families, friends and neighbours.

(vii) At the home of the village chief or the place where the village elders meet - The village chief and elders are usually kept informed about things that happen in their community. They often gather to talk about community news or to discuss problems and make decisions.

(viii) At schools and in school yards - Teachers and pupils often share information and news about their families and friends when they see each other at school or when they play in the school yard.

(d) identify surveillance focal persons for each source of information, in collaboration with the community. Identify and specify the opportunities for community involvement in surveillance of health events and the role of the CBS focal persons(s). Focal persons should be people trusted by the community and committed to 'zero-case' reporting. They should be reassured that reporting bad news won't get them into trouble, hence they do not need to falsify data;

(e) specify the alerts, events, diseases and conditions for surveillance within the catchment area and those directed by national policy; also specify the trigger mechanisms;

(f) compile a list of epidemic-prone diseases, those targeted for eradication and elimination, and other diseases of public health importance including non-communicable ones;

(g) define methods for informing and supporting focal points in the implementation of CBS. These may be through monthly meetings, or telephone calls. List the current opportunities for training focal persons in surveillance and response;

(h) define training needs. Develop and pre-test picture-based/simplified training material development for non-literate/semi-literate populations for surveillance and reporting; develop picture and game-based job aids and illustrative daily/weekly schedules;

(i) train CBS focal persons in surveillance and response skills as well as improved interpersonal skills, using interactive training, adult learning techniques and role playing. Use of cell phone-based opportunities to show MP3s or other video clips can be helpful during training and in the community;

(j) describe how communication about surveillance and response takes place and will be tracked between the health facility/surveillance officer and the CBS focal persons. For literate CBS focal persons, design simple alert forms (See Annex 2B) and show them how to fill out information; and for those who are non-literate, develop mechanisms for capturing information on events from them. Think of mechanisms such as identifying a family member who can assist with actual writing;

(k) Include methods such as monthly meetings and telephone calls to ensure tracking of CBS focal persons;

(l) review and update procedures and methods of supportive supervision and feedback between the health facility and the community focal persons. Regular refresher trainings should also occur to ensure that community focal points understand which and how alerts should be reported;

(m) describe the communication links between the community focal points and health facilities with the epidemic management committee that can be activated during an outbreak and for routine activities;

(n) develop general, pictorial, and social mobilization materials for community, youth-based or school-based awareness;

(o) conduct periodic meetings between the health facility surveillance focal points, CBS focal persons and community leaders, to discuss progress, issues, concerns and provide two-way feedback;

(p) State three or more objectives you would like to achieve for improving surveillance in your community over the next year.

Formalized CBS framework

CBS should be implemented in a formalized framework where participants are well versed in what constitutes an unusual type of event (an alert) to report (unexplained cluster of similar severe illnesses within one week, high absenteeism at school) and how and when to report (for instance, through messages or mobile calls). The framework should be supported by a trained facility or dedicated district staff and should be regularly evaluated.

Community representatives that can be members of CBS team

Community members who gain the trust of the community can be CBS focal persons. They should be selected by the communities they live in so as to increase empowerment and ownership of CBS. Representation could be from basic village-level services such as community health volunteers, community health workers, trained birth attendants, community or village health agents, or similar care providers, village leaders (religious, traditional or political), school teachers, veterinarians, health extension workers, chemical sellers, and traditional healers and in other communities, a respected non-health person such as the barber, shopkeeper or grandmother who regularly talks to community members are all effective focal points.

Once selected, the CBS focal persons should receive training and carry out their role on how to recognize certain diseases or health conditions for the purpose of reporting suspect cases.

CBS supervision

The goal of supervision is to improve timeliness of reporting, fine-tune understanding of case definitions, and improve interpersonal communication skills. It is important that supervision is done with evidenced-based approaches so as to know what to improve in the surveillance. All activities for implementation by CBS should be coordinated by a surveillance officer or health facility manager in his or her locality. He or she will:

(a) prepare a list of priority diseases, events or conditions for inclusion in the CBS, based on the adapted IDSR technical guidelines;

(b) share, as appropriate, a list of simplified community case definitions to facilitate case detection, event detection and monitoring;

(c) develop, test and provide pictorial-based training materials and job aids;

(d) develop an interactive training module;

(e) build capacity of CBS focal persons in all aspects of surveillance and response;

(f) regularly strengthen the skills and practices of focal points in all appropriate aspects of surveillance and investigation, particularly the handling and dissemination of data;

(g) establish feedback loops, which is a critical action for ensuring that CBS continues to work. Ensure that constructive and position supervision is done, where they are credited and praised for the good job done; and pinpoint areas for improvement;

(h) disseminate simplified case definitions and alerts, using posters or any other latest intervention methods (banners, leaflets, etc. that have been shown to work in that area) to relevant places within the community, as appropriate;

(i) monitor surveillance and response activities, including timeliness and completeness of reporting;

(j) supervise activities of the CBS focal points, including fine-tuning understanding of the case definitions. In case CBS focal points are used for contact tracing, ensure that the facility-based person leads the process, in collaboration with the health facility-based person;

(k) identify and map key health determinants in the area;

(l) provide regular and timely feedback to CBS teams and ensure a two-way process for feedback, to build trust between the CBS and the health facility person.

NB: In some countries, CBS focal persons may be quite a few, and coordination might pose a challenge. A district may then appoint a CBS focal supervisor in a particular community (possibly from among the CBS FPs) to oversee a specific number of CBS focal persons. Community supervisors should be assigned clear roles, to avoid situations where they are the ones deciding if something is a health risk, based only on notification.

Sources of information for CBS

A functioning CBS should establish relationships with key sources of information. This includes, but is not limited to, the following sources of information:

(a) All community-based health workers, community volunteers, including traditional birth attendants, school teachers, pharmacists, who have relationships of trust with the local community. They are often located in remote areas where access to primary health care is scarce. Families often share information with a trusted and known health worker.

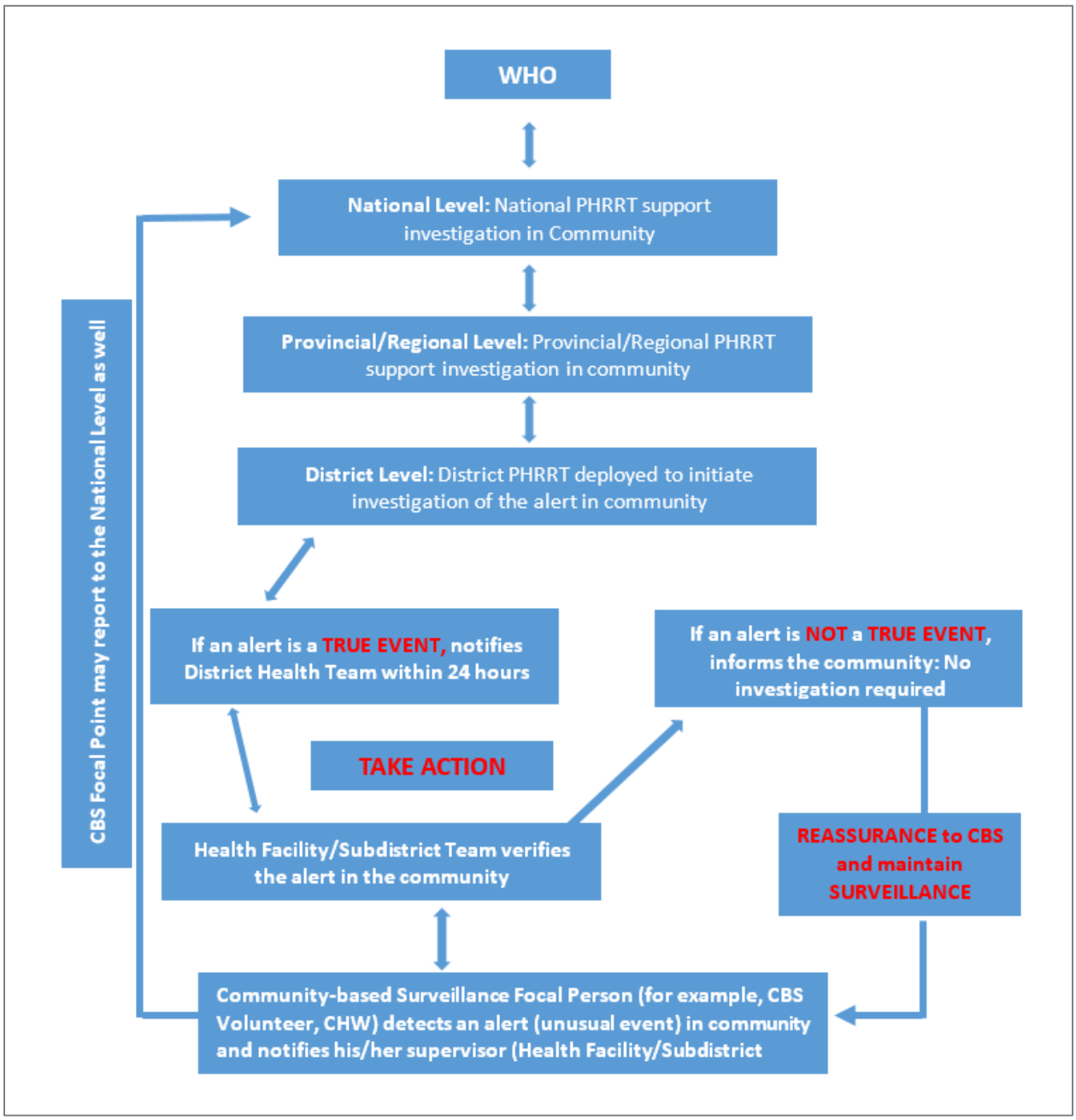
(b) Community, traditional, youth or religious leaders and civil society: these individuals and groups may provide informal reports of unusual health events or health risks that they witness in their communities.

(c) Local, national and international media are important sources of information for CBS. Events such as clusters of human cases, outbreaks or unexpected and unusual deaths may be covered by local newspapers (printed or available through the Internet) or radio reports before they are detected and reported by local health services.

(d) Traditional medicine, traditional health practitioners and healers and shrine keepers. In some African countries, a large number of the population depends on traditional medicine for primary health care. Traditional medicine has been used for thousands of years, and these practitioners may constitute a valuable information source. Families with sick members often seek spiritual guidance at shrines known for healing.

(e) Alternative medicine (herbalists, for example), complementary medicine and non-conventional medicine, including health care practices that are not integrated into the dominant health care system.

Reporting Structure for community alert and verification



NB: Additional reference materials for community-based surveillance can be found in the Integrated Disease Surveillance and Response in the African Region: WHO Guide for establishing the Community-Based Surveillance and Response Programme (August 2014) and International Federation of the Red Cross and Red Crescent Societies (IFRC): Community-Based Surveillance: guiding principles March 2017

Annex F: Required surveillance and response core capacities as described in the IHR

According to IHR, member States shall use existing national structures and resources to meet their core capacity requirements. These requirements include capacity for surveillance, reporting, notification, verification, response and collaboration activities. Each part is expected to assess the ability of existing national structures and resources to meet the minimum requirements. Based on the results of the assessment, each Member State should develop and implement an action plan to ensure that these core capacities are present and functioning throughout the country.

Annex 1 Part A of the IHR (2005) defines the core capacity requirements for surveillance and response. The regulations recognise the following three levels of the health care system:

(a) Community or primary public health response level

(b) Intermediate public health response levels

(c) National level

Local community or primary public health level response

At the local community level and/or primary public health response level, the capacities are to:

(a) detect events involving disease or death above expected levels for the particular time and place in all areas within the country;

(b) report all available essential information immediately to the appropriate level of healthcare response (within 24 hours). At the community level, CBS focal persons shall report to the appropriate health facility in their respective catchment areas. At the primary public health response level, reporting shall be to the intermediate or national response level, depending on organizational structures.

For the purposes of these guidelines, essential information includes the following:

(a) Clinical descriptions of cases.

(b) Laboratory results.

(c) Sources and types of risk.

(d) Numbers of human cases and deaths.

(e) Conditions affecting the spread of the disease, which may include environmental issues such as water and sanitation; personal travel history and that of neighbours; behaviour issues, such as burial practices; distance to health facility/care; efforts to seek care before detection; weather and accessibility; floods; insecurity; and migrant/internally displaced persons/refugee population. Public health measures employed, including any bylaws instituted; and implementation of hygiene measures.

Intermediate public health response levels

The intermediate public health level response core capacities requirement will need to be adapted to the context of each county. Many countries have more than one intermediate level (sub district; district/county and province/region/State) while other smaller countries may have only one level (district or country level).

The core capacity requirements and functions of the health system may differ from country to country. For example, while in countries with large federal States, the functions of intermediate levels may be close to the core capacity requirements described under "National level", in smaller States with only one level, the functions of the intermediate level may be close to the community level and/or primary public health response level.

The core capacity requirements at the intermediate level are:

(a) Confirming the status of reported events and supporting or implementing additional control measures;

(b) Assessing reported events immediately and, if urgent, reporting all essential information to the national level within 24-48 hours. For the purposes of this Annex, the criteria for urgent events include serious public health impact and/or unusual or unexpected nature with high potential for spread.

National level: Assessment and notification

The response at national level consists of two functions - assessment and notification:

(a) Coordinate with World Organization for Animal Health focal person and the International Food Safety Authorities Network focal person and other sectors to ensure coordination in assessment and notification of events.

(b) Assess all reports of urgent events within 48 hours.

(c) Notify WHO immediately through the National IHR focal point when the assessment indicates that the event is notifiable under paragraph 1 of Article 6 of the IHR, and the decision instrument assessing and notifying events that may constitute a PHEIC in Annex 2 of the IHR, and inform WHO as required, pursuant to Article 7 and paragraph 2 of Article 9 of these Regulations.

At the national level, the public health response requires the capacity to:

(a) coordinate by establishing a coordination mechanism which may include setting up a public health emergency operation centre or a similar coordination structure, and activating the Incident Management System (See Sections 5 and 6 for more details);

(b) determine rapidly the control measures required to prevent domestic and international spread;

(c) provide support through specialized staff, laboratory analysis of samples (domestically or through collaborating centres) and logistical assistance (equipment, supplies and transport);

(d) provide on-site assistance, as required, to supplement local investigations;

(e) provide a direct operational link with senior health and other officials for rapid approval;

(f) implement containment and control measures;

(g) provide direct liaison with other relevant government ministries;

(h) provide, by the most efficient means of communication available, links with hospitals, clinics, airports, ports, ground crossings, laboratories and other key operational areas for the dissemination of information and recommendations received from WHO regarding events in the State party's own territory and in the territories of other States parties;

(i) establish, operate and maintain a national public health emergency response plan, including the creation of a One Health team to respond to events that may constitute a public health emergency of international concern;

(j) provide the foregoing on a 24-hour basis.

During several consultations at the global level, the core capacities were summarized into eight components: legislation; policy and coordination; surveillance; preparedness; response; risk communications; laboratory; and human resources. These eight components are all important for IDSR as well.

Annex G: Roles and responsibilities of various actors in IDSR

Roles and responsibilities of a community-based surveillance focal person (community health worker)

Using lay, simplified case definitions to identify priority diseases, events, conditions or other hazards in the community, the focal person:

(a) conducts household visits on a regular basis;

(b) meets with key informants on a regular basis;

(c) attends local ceremonies and events and follows up on any unusual occurrence, such as someone expected to show up but did not;

(d) records priority diseases, conditions, or unusual health events in the reporting forms and tools (tally sheets) and reports immediately within 24 hours;

(e) participates in verbal autopsies by performing interview questions prepared by the supervisor at the health facility;

(f) sends rapid notification, to the nearest health facility and other relevant sectors, of the occurrence of unexpected or unusual cases of disease or death in humans and animals for immediate verification and investigation according to the International Health Regulations and in line with the IDSR strategy (within 24 hours);

(g) involves local leaders in describing disease events and trends in the community;

(h) raises the community's awareness about reporting and seeking care for priority diseases, conditions and unusual events;

(i) supports health workers during case or outbreak investigation and contact tracing;

(j) mobilizes local authorities and community members to support response activities;

(k) participates in risk mapping of potential hazards and in training, including simulation exercises;

(l) participates in containment and response activities in coordination with the district level;

(m) participates in response activities, which could include, home-based care, social or behaviour change of traditional practices, logistics for distribution of drugs, vaccines or other supplies. Providing trusted health education in a crisis is a useful contribution.

(n) gives feedback to community members about reported cases, events and prevention activities;

(o) verifies if public health interventions took place as planned, with the involvement of the community. Participates in meetings organized by sub-district, district, and higher-level authorities.

Roles and responsibilities of health facility staff at point of entry

The health facility staff:

(a) Identify cases of priority diseases using the standard case definitions;

(b) Record case-based information and report for immediately notifiable diseases, conditions and events to the next level;

(c) Liaise with the district on how to conduct immediate laboratory investigation of suspected cases;

(d) Deal with case treatment/referral;

(e) Prepare for and participate in outbreak investigation and response and case treatment;

(f) Report summary and case based (weekly report) data on time to the next level;

(g) Conduct simple data analysis (graphs, table, charts) at point of collection;

(h) Communicate diagnosis for outbreak-prone diseases to district/community;

(i) Convene district rapid response team

(j) Identify resources (human, financial, commodities, phone cards) and timeline for deployment.

Roles and responsibilities of surveillance officer at district level

The role of the surveillance officer is to:

(a) Investigate and verify possible outbreaks, collect diagnostic samples, advise on treatment/prevention protocols;

(b) Prepare and analyse weekly surveillance reports and submits promptly to higher authorities;

(c) Ensure that surveillance sites maintain surveillance reports and ledgers/logbooks properly;

(d) Maintain a list of all reporting sites;

(e) Establish and maintain database of all trained and registered health care workers, who can serve as surveillance focal persons at the reporting sites as well as other CBS FPs;

(f) Ensure adequate supply of data collection and reporting tools at the surveillance reporting sites;

(g) Ensure that the IDSR standard case definitions for all the priority diseases are understood and used by health care workers at the site. Provide on-the-spot training if needed;

(h) Monitor the performance indicators (such as timeliness and completeness) of the IDSR, as stipulated in the IDSR guidelines;

(i) Periodically update graphs, tables and charts, and compare current data with previous ones, in months and quarters or even weeks or years (important for seasonal events) and makes recommendations for response;

(j) Personally provide weekly or monthly feedback to surveillance reporting sites, on implementation of the IDSR;

(k) Call the reporting sites to ensure that they report data on time;

(l) Conduct regular supportive supervision visits to surveillance sites, including health facilities, border entries and communities, and build their capacity to analyse and interpret their data, to guide decisions. Sign and date the inpatient and outpatient record books, registries or phone entries, to document your visit and also write your recommendations for improvement;

(m) Support HCF to verify alerts from the community;

(n) Arrange and lead investigation of verified cases or outbreaks;

(o) Maintain an updated line list of suspected cases;

(p) Assist health care facility in safe collection, packaging, storage and transport of laboratory specimens for confirmatory testing;

(q) Receive laboratory results from province/region and give to HCF;

(r) Conduct/coordinate on-the-job trainings for surveillance sites with new staff;

(s) Review the quality of surveillance data from time to time by conducting data quality audits and come up with appropriate measures to improve data quality in the district;

(t) Maintain a rumour logbook to record events for the surveillance site;

(u) Ensure cross-border (district-district) coordination and collaboration on surveillance issues and provide notification of any outbreaks in the neighbouring district. International or cross-border notification should also be done if needed;

(v) Document the value added of IDSR and advocate to health management team to support IDSR activities;

(w) Participate in outbreak investigations and ensure that there is an updated register/line list.

Roles and responsibilities of the District Health Management Team

The role of the District Health Management Team is to:

(a) Liaise, through the District Medical Officer, with the District Executive Director/District Commissioner/Regional Medical Officer on overall surveillance activities and plans;

(b) Support the Surveillance Officer at the district level to implement planned activities;

(c) Ensure that surveillance activities are included in the District Health Planning of overall activities;

(d) Liaise with the district officials to mobilize funds (at district level) for surveillance activities;

(e) Ensure timely release of funds for surveillance activities;

(f) Monitor IDSR performance and outputs of data analysis and monitoring tool;

(g) Participate in risk mapping of the district and also in development of plan of action, based on the findings;

(h) During outbreaks, assist the Public Health Emergency Management committee in organizing the rapid response teams and ensure functionality (see Section 5 for details)

(i) Report finding of initial investigation to province/region;

(j) Participate in risk mapping and community assessment;

(k) Participate in establishment and ensure functionality of the emergency preparedness and response committees;

(l) Design, train, and set up implementation of community health education programmes;

(m) Participate in and support response training for health care facility and community;

(n) Together with province/region, select and implement appropriate public health response;

(o) Plan timely community information and education activities;

(p) Document response activities;

(q) In case of outbreaks, send daily district situation report.

Roles and responsibilities for other political leaders at district level

Political leaders such as village, ward or district officers are very important people, who assist in fostering behavioural change on disease surveillance. They can play the following roles:

(a) Support any declarations of a public health emergency;
(b) Develop an inventory and identify local human/financial/logistics support. A quick response will often prevent spread;
(c) Ensure that principles of hygiene and sanitation are followed (environmental cleanliness, availability of latrines and their utilization, advocacy for drinking of clean and safe water, personal hygiene and sanitation measures, including hand washing);
(d) Report clusters of illness/death to a nearby health facility;
(e) Implement the bylaws to enhance principles of hygiene and sanitation;
(f) Take an active role in sensitizing community members on how to promote, maintain and sustain good health;
(g) Facilitate community-based planning, implementation and evaluation of health programmes within the ward (IDSR is among the programmes);
(h) Follow up on outbreaks, in collaboration with health care providers and other extension workers at ward level;
(i) Provide administrative back up to health care providers at ward and village level;
(j) Support enforcement of relevant legislations so as to prevent/control outbreak of infectious diseases;
(k) Supervise subordinates in ensuring that principles of hygiene and sanitation are followed;
(l) Ensure regular convening of public health care committee meetings (or set up one) when an outbreak occurs;
(m) Discuss disease patterns and their implications for action, as part of regular meetings with District Medical Officer;
(n) Ensure that various committees are established and resourced to perform activities;
(o) Solicit resources from various sources to respond to disasters, including epidemics;
(p) Conduct advocacy on health matters in different campaigns carried out in the district.

Roles and responsibilities of the regional or provisional health management team

(a) Through the regional medical officer, liaise with regional/provisional commissioner as well as the chief medical officer/director general, health at national level, on overall surveillance activities and plans for the region and districts;

(b) Support the regional surveillance officer and district surveillance officers to implement planned activities in their respective districts;

(c) Ensure that surveillance activities are included in the region/provincial health planning of overall activities, as well as in respective districts in their plans;

(d) Liaise with regional officers to mobilize funds for surveillance activities and ensure timely release of funds for surveillance and response activities for the entire region;

(e) Monitor district IDSR performance and outputs of data analysis and monitoring tool;

(f) Participate in risk mapping of the districts and assist districts in developing plan of action, based on the findings;

(g) During outbreaks, assist the Public Health Emergency Management Committee in organizing the public health emergency regional rapid response teams and ensure functionality for both regional and districts levels (see Section 5 for details);

(h) Report findings of initial investigation to national level;

(i) Participate in establishment and ensure functionality of the region and respective districts emergency preparedness and response committees;

(j) Assist districts in risk mapping and community assessment;

(k) Assist districts in design and implementation of community health education programmes;

(l) Participate in and support response training for districts;

(m) Assist districts in implementing appropriate public health response and also facilitate cross-border district surveillance and response initiatives

Role of Ministry of Health (MOH)/national level

(a) Set up a public health emergency operation centre or similar coordination mechanism for coordination of preparedness and response activities of a public health event, including an incident management system, plans and procedures. Refer to Section 5 for details;

(b) Identify spokesperson and outline risk communication plan, including engagement of media, for sharing information before, during and after a public health emergency;

(c) Set standards, policies and guidelines for IDSR and update the emergency preparedness and response (EPR) plans based on simulations and After Action reviews

(d) Assess available capacity at national level and rectify accordingly, while ensuring inclusion of surge capacity in the EPR plan;

(e) Identify domestic resources and mobilize and coordinate external support for implementation of IDSR;

(f) Conduct overall supervision, monitoring and evaluation of IDSR activities;

(g) Produce and disseminate epidemiological bulletins;

(h) Monitor implementation of inter country, regional and international agreements/protocols;

(i) Support investigation of suspected epidemics detected through surveillance;

(j) Provide national level data management and analytic support.

Role of WHO and other partners (United Nations agencies, CDC, USAID, PATH *Médecins Sans Frontières*, Red Cross)

(a) Contribute to setting standards and developing guidelines

(b) Provide technical assistance, expertise, and other material support to strengthen country's disease surveillance, and laboratory and health information systems

(c) Support Ministry of Health in mobilizing resources for surveillance and response activities

(d) Support supervision, monitoring and evaluation of IDSR

(e) Provide management support (writing funding proposals, for instance)

(f) Support capacity-building, training, equipment etc.

(g) During public health emergencies, support by sending technical experts, surge staff (if needed during response) and provide portable laboratories and other equipment and vaccines

NB WHO role is to facilitate coordination with other partners and other United Nations agencies.

Annex H: Guide for establishing surveillance and response systems at PoE

(a) Purpose

The purpose of the International Health Regulations (IHR 2005) is to prevent, protect against, control and provide public health response to the international spread of diseases in ways that are relevant and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade. It calls for strengthening national capacity for surveillance and control, including sites such as points of entry, namely ports, airports and ground crossings; prevention, alert and response to international public health emergencies; global partnerships and international collaboration. In addition to the IHR, it is essential for border health activities to be sustainable and align with other surveillance activities under IDSR.

A system to detect, report, and appropriately respond to ill travellers is appropriate. The long-term strategy is to work towards full compliance with IHR at official PoEs, while ensuring that the PoEs also have contingency plans. All designated PoEs must have routine capacities for surveillance and response.

(b) Key partners

Ministry of Health, local government, airline and maritime authorities, port authorities, ministries responsible for communication or infrastructure, ministry of home affairs, WHO, International Organization for Migration, CDC and other key partners.

(c) Key areas for surveillance and response at points of entry

1. Routine measures should be in place at points of entry for the detection of ill travellers; reporting to health authorities; rapid public health assessment; and access to healthcare for severely ill travellers or those whose symptoms suggest a risk to public health, including safe transportation from the point of entry to a healthcare facility.
2. Detection of ill travellers should include, at least, the following:
    (i) Reporting of ill travellers or deaths on board international aircraft, ships or ground crossing points, who arrive at PoE stipulated by various guidelines;
    (ii) Port health officers and/or immigration officers who are present at select points of entry should be trained to recognize ill travellers they encounter during their routine assessments as well as to conduct an initial assessment of whether or not the illness poses a potential public health risk.

3. Arrangements for the initial response to an ill traveller, if detected at a point of entry, should include, at least, the following:

   (i) The ability to rapidly isolate the ill traveller from others, to avoid potential spread of disease.

   (ii) Standby health teams should be available, either in person or remotely by telephone, to conduct a rapid assessment of ill travellers detected at points of entry to determine if a communicable disease of public health concern is suspected.

   (iii) A healthcare facility located close to the point of entry should be designated to provide medical care as needed to severely ill travellers or those with a suspected communicable disease of public health concern. The designated facility should have adequate infection prevention and control capacity to prevent spread of disease to staff or other patients, and diagnostic capacity, including access to laboratory diagnostics.

   (iv) Ambulance service or other safe transportation should be available to facilitate transport of ill travellers from the point of entry to the designated healthcare facility.

4. As needed, during a declared public health emergency affecting international travellers or with the potential for international spread of disease, there should also be capacity to implement at short notice, traveller screening or other border health measures, as recommended by the WHO.

Role of competent authorities

(a) Report all events and diseases with epidemic potential detected at points of entry to the next higher level immediately. Notification should also be done at the same time at the national level, with a copy of the report for the National IHR focal point, to assess use of the decision algorithm. If yellow fever is being suspected, include yellow fever vaccination for those cases originating from endemic or risk areas.

(b) If a traveller is a suspect case, immediately fill the passenger locator form/alert notification form. Ensure that the traveller/suspect case is kept separate from others, including family members, and transferred to the nearest holding room.

(c) If a suspected traveller is recognized and may not be symptomatic at the time of travel, be sure to take appropriate details and transfer that information to a nearby health facility for close monitoring. The health facility will liaise with the community focal point for close follow-up.

(d) Be responsible for monitoring baggage, cargo, containers, conveyances, goods, postal parcels and human remains departing and arriving from affected areas, so that they are maintained in such a condition that they are free of sources of infection or contamination, including vectors and reservoirs.

(e) Ensure, as far as practicable, that facilities used by travellers at points of entry are maintained in a sanitary condition and kept free of sources of infection or contamination, including vectors and reservoirs.

(f) Be responsible for the supervision of any de-ratting, disinfection, or decontamination of baggage, cargo, containers, conveyances, goods, postal parcels and human remains or sanitary measures for persons, as appropriate, under these regulations.

(g) Advise conveyance operators, as far in advance as possible, of their intent to apply control measures to a conveyance, and provide, where available, written information concerning the methods to be employed.

(h) Report suspected cases to the HCF as soon as possible, so that transport may be arranged.

(i) Ensure that all completed forms are stored securely. Create a database for events, if a computer is available. Keep a record or register of all events.

During an emergency or outbreak response, cross-border coordination should include:

(a) Partners' meeting as soon as the epidemic or event is recognized

(b) Assessing the need for, and request support from, the regional or national emergency preparedness and response committee or rapid response teams when necessary

(c) Meeting regularly to assess the status of the outbreak or epidemic as indicated

(d) Regularly sharing surveillance data, addressing case counts (including zero cases if applicable) and status of contact tracing (if indicated)

(e) Sharing information on travel history of cases and identified contacts to facilitate coordinated response on both sides of the border

(f) Regularly reviewing the epidemic response and taking action to improve epidemic control actions as indicated

(g) Documenting and communicating epidemic response actions escalating notifications as needed.

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