This booklet introduces all the eleven modules of the Integrated Disease Surveillance and Response Training Course
The modules comprising the Integrated Disease Surveillance and Response Training Course were prepared by the WHO Health Emergencies (WHE) Programme with active participation and involvement of programmes dealing with disease surveillance at the WHO Regional Office for Africa (AFRO), Brazzaville, Congo with technical reviews provided by the U.S Centers for Disease Control and Prevention (CDC) and the U.S. Agency for International Development (USAID). While the contents of this course are in the public domain and may be used and reproduced without permission, please refer to the suggested citation: WHO-AFRO & CDC (2019). Integrated Disease Surveillance and Response Training Course, Participant Guide: Introduction Module. Brazzaville, Republic of Congo and Atlanta, USA.
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FOREWORD

In 1998, the World Health Organization (WHO) Regional Office for Africa (AFRO) together with technical partners adopted a strategy for developing and implementing comprehensive public health surveillance and response systems in African countries, initially called integrated disease surveillance (IDS). However, to highlight the linkage between surveillance and response, the strategy was later re-named 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 was variable, almost every country in the region, invested human and material resources to strengthen capacities for public health surveillance systems in order to prevent, timely detect, and respond appropriately to public health threats.

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 non-communicable diseases. Further, there was a need to strengthen community-based surveillance for early detection, rapid confirmation and response to public health threats. Moreover, alignment with broader system strengthening objectives was required. Hence, in 2010, the second edition of the IDSR guidelines was developed.

Despite the availability of the IDSR technical guidelines, the region continues to face challenges in public health surveillance systems, with respect to the capacity to prevent, detect and respond to public health threats. The unprecedented Ebola Virus Disease (EVD) outbreak of 2014 in West Africa and other recent health emergencies has shown that the IHR (2005) have not been fully implemented in many Member States. Consequently, addressing health emergencies remains a major challenge, hence in 2019 the third edition of the IDSR technical guidelines was developed.

In order to effectively build the capacity of member countries in the use of the third edition IDSR technical guidelines, the IDSR training modules have also been revised to the 3rd Edition IDSR Training Modules (TMs).

Following my election, in January 2015, as Regional Director, after internal and external consultations in May 2015, 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 training modules that has been prepared by the WHO Health Emergency (WHE) programme in the WHO African region with active participation and involvement of all clusters. In addition, there was active involvement of the WHO Headquarters, the Inter Country Support teams, and the hubs, the WHO country offices, Member states, as well as, the U.S. Centers for Disease Control and Prevention (CDC) and other relevant stakeholders.
Many public health events (PHEs) 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 should implement the 3rd edition IDSR technical guidelines by training all health staff using these IDSR training course modules.

Therefore, I urge all Member States to fully implement this third edition of the IDSR training modules everywhere in the WHO Africa 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 illness, death and disability in local communities.

The cost of good public health surveillance as a public health good is relatively very low compared to many other strategies. I appeal to all Member States, national, regional and international partners and funders that, we should begin the hard work now. Let us all embrace these IDSR training modules to strengthen capacities for preparedness, alert and response for health security in every place in the WHO African Region.

The training modules should be used by:
- health workers at all levels (including surveillance officers, clinicians, laboratory personnel and public health workers)
- regional/provincial and district health teams
- data managers
- IHR National Focal Point and other sectors implementing IHR
- competent authorities at points of entry
- veterinary and wildlife health officers
- environmental health officers
- health training institutions
- supply chain officers
- other public health experts, including NGOs

Finally, I appeal to you all to ensure that the third edition of the IDSR training modules are implemented within a broader context of health system strengthening; better coordination between human and animal health surveillance and other sectors involved in 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) Training Modules was prepared by the WHO Health Emergencies (WHE) Programme with active participation and involvement of programmes dealing with disease surveillance at the WHO Regional Office for Africa (AFRO), Brazzaville, Congo with technical reviews provided by the U.S. Centers for Disease Control and Prevention (CDC) and the U.S. Agency for International Development (USAID).

In planning to update these training modules, 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 during in-country pilot IDSR trainings in five (5) countries namely; Ghana, Liberia, Sierra Leone, Uganda and Zambia in October 2018.

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1. INTRODUCTION

In 1998, the World Health Organization (WHO) Regional Office for Africa (AFRO) together with technical partners adopted the Integrated Disease Surveillance and Response (IDSR) strategy for developing and implementing comprehensive public health surveillance and response systems in African countries. In 2002, the first edition of the IDSR technical guidelines was widely adopted by Member States. However, 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 revision of the first edition of the IDSR guidelines to 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, with respect to capacity to prevent, detect and respond to public health threats. The unprecedented Ebola Virus Disease (EVD) outbreak of 2014 in West Africa and other recent health emergencies has shown that the IHR (2005) have not been fully implemented, in many Member States. Consequently, addressing health emergencies remains a major challenge, hence in 2019 the third edition of the IDSR technical guidelines.

In order to effectively build the capacity of member countries in the use of the third edition IDSR technical guidelines the IDSR training modules have also been revised to the 3rd Edition IDSR Training Modules (TMs). The revised TMs consist of the Introduction modules and modules 1 to 10. We would present the introduction module in this booklet, and the other modules will be presented in 10 other separate booklets.

To facilitate Participants’ learning, online Course 1 is divided into four modules namely:

1.1 Module 1: Introduction to IDSR Training Course
1.2 Module 2 and Module 3: Overview of IDSR Part 1 and Part 2
1.3 Module 4: Community-Based Surveillance

1.1 MODULE 1: INTRODUCTION TO IDSR ONLINE TRAINING COURSES

Module 1 introduces the 3rd Edition IDSR online training course for all levels of health service delivery and also provides guidance on how to get maximum benefit from the IDSR training course and gives highlights of all the modules.

1.2 MODULE 2 and MODULE 3: OVERVIEW OF IDSR Part 1 and Part 2

Module 2 and Module 3 introduce the concepts of the 3rd Edition of the IDSR technical guidelines, which incorporates indicator-based and event-based surveillance. It also provides guidance on the objectives of IDSR, how IDSR works, the core surveillance functions and how
IDSR can help to build and sustain the International Health Regulation (IHR) implementation. Furthermore, this sub-module emphasizes on concepts such as: the “One Health Approach”; introduces the linkage between Disaster Risk Management (DRM) and IDSR.

1.3 MODULE 4: COMMUNITY-BASED SURVEILLANCE (CBS)

The African Region has had to deal with outbreaks of cholera, meningitis and influenza among other diseases in the last decade, and lately the Ebola Virus Disease (EVD). It is known that countries with weak surveillance systems or without CBS systems are not able to promptly detect and respond timely to public health threats or events. There is therefore the need to strengthen public health surveillance at all levels and especially at the community level. This sub-module introduces key steps of conducting public health surveillance and response at the community level. It also gives guidance in implementing an effective CBS system for preparedness and response to public health emergencies and events including disease outbreaks occurring at the community level.

1.4 PURPOSE OF COURSE 1

The purpose of Course 1 is to introduce the participants to the general objectives, structure and content of the IDSR training course and how they should participate in the course. It further introduces participants to the general concepts of IDSR strategy implementation in their respective areas of work and also equip participants with knowledge and skills in establishing and implementing CBS system.

1.5 LEARNING OBJECTIVES

By the end of Course 1, the participant will be able to:

(a) Understand how the IDSR online Training Courses are organized
(b) Understand the basic concepts, principles and types of public health surveillance
(c) Describe the concepts, objectives and core functions of IDSR
(d) Understand the Roles and Responsibilities of various actors in IDSR
(e) Understand IHR and its relationship with IDSR
(f) Apply the One Health Approach to IDSR
(g) Understand the other IDSR Linkages
   (i) One Health Approach
   (ii) Disaster risk management (DRM)
   (iii) Points of entry and IDSR
   (iv) IDSR in emergencies and fragile health contexts
(h) Define and understand the concepts of community-based surveillance (CBS) system
2. GENERAL NOTES TO PARTICIPANTS  (for direct training only)

2.1 THE ROLE OF YOUR FACILITATOR

The role of the facilitator to this course includes:

(a) Guiding the group through the modules by giving presentation/facilitation, assigning readings and reviewing exercises.
(b) Answering questions when they arise or finding the answers if you don’t know them.
(c) Clarifying information that is confusing.
(d) Providing individual feedback on exercises.
(e) Leading group discussions.
(f) Encouraging participants to consider ways that this knowledge can be applied to their daily work.
(g) Ensuring a participatory approach is used throughout the training.

2.2 WHAT IS EXPECTED FROM PARTICIPANTS DURING THE TRAINING

(a) Your full attention and participation
(b) Solve exercises
(c) Do the take home assignments
(d) Conduct role play
(e) Share your experiences
(f) Observe ground rules agreed

3. NOTES TO PARTICIPANTS MODULE 1: INTRODUCTION TO IDSR TRAINING COURSE

3.1 PURPOSE OF IDSR TRAINING COURSE

The purpose of this training course is to improve the skills and knowledge of health staff to carry out activities that contribute to the national disease surveillance, laboratory and response system. These are skills which should result in more timely detection and response to epidemic prone disease outbreaks and other public health events subsequently reducing morbidity, mortality and disability in communities.
Previous IDSR and IHR (2005) assessments of national surveillance and response systems have shown that:

(a) Written standard case definitions for national priority diseases are not always readily available especially at the health facility or at district level. Health care workers’ level of knowledge on standard case definition is sub-optimal.

(b) Health workers were expected to complete multiple reporting forms from different health programmes and then forward them to the central level. There was little or no analysis at the lower level.

(c) The quality of IDSR data in various levels is seldom monitored.

(d) No standard disease outbreak investigation forms and suspected outbreak/rumours logbook were used.

(e) In many cases, the local public health laboratories were not used effectively during the investigations.

(f) The District public health management committees or inter-sectoral emergency committees did not exist in many countries.

(g) Supervisory visits were not always carried out regularly or consistently. Feedback to the lower levels was scarce, and, where feedback occurred, it was mainly verbal.

Disease surveillance and response systems in many countries face serious challenges in achieving reliable surveillance and response outcomes. Most countries do not have the minimum IHR core capacities requirements for surveillance, reporting, notification, verification, and response in place including appropriate activities at the ports of entry. In order to address these shortcomings, the IDSR TGs and this set of training modules on IDSR have been developed for use by health workers to enhance the implementation of IDSR skills and activities.

3.2 LEARNING OBJECTIVES OF IDSR TRAINING COURSE

The general objective:

The general objective of this training is for health workers to have the opportunity to practice skills and activities involved in surveillance and disease control. They will gain appropriate knowledge and skills for using data to detect and respond to priority diseases, conditions and events and thereby reduce the burden of illness, death and disability in communities.
The specific objectives

The specific objectives of this training are to enable participants to:

(a) Identify cases, conditions and events of public Health importance.
(b) Report suspected cases or conditions or events of public Health importance.
(c) Analyse and interpret data on priority diseases, conditions and events.
(d) Understand the use of electronic platform (eIDSR) in enhancing IDSR implementation.
(e) Investigate and confirm suspected cases, outbreaks or events.
(f) Be prepared for outbreaks or events of public health concern.
(g) Respond to outbreaks or events of public health concern.
(h) Communicate risk and provide feedback.
(i) Implement IDSR in complex emergency situations or fragile health system context.
(j) Monitor, supervise and evaluate IDSR/IHR Implementation.

3.3 TARGET AUDIENCE/PRE-REQUISITE FOR IDSR COURSE TRAINING

(a) Health workers at all levels performing surveillance functions.
(b) Clinical practitioners (doctors, nurses, clinical officers, and medical assistants).
(c) Epidemiologists/Disease Surveillance officers.
(d) Public health officers.
(e) Environmental health workers.
(f) Laboratory workers.
(g) Data/record managers.
(h) Veterinary and wildlife officers.
(i) National, regional/provincial and district health teams.
(j) Health training and research institutions.
(k) Students (clinical, public health, environmental health and laboratory).
(l) IHR focal points, WHO contact point, competent authority at Point of Entry (PoE).
(m) Other Relevant personnel: IHR Food, chemical, radio nuclear, legal/lawyer and communication officers.
(n) Other public health experts.
(o) Non-State health stakeholders e.g. NGOs.
3.4 PURPOSE FOR REVISING 2ND EDITION IDSR TECHNICAL GUIDELINES TO 3RD EDITION

The purpose for 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 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-based surveillance 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.

Overall, the revised guidelines 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 (EBS).
(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) Improved data sharing between sectors.
(h) Improve IDSR implementation in Emergency situations.

3.5 LAYOUT OF THE IDSR TRAINING COURSE (for direct training only)

This course is designed to take participants through the 3rd edition IDSR TGs chapter by chapter to ensure that they have a good understanding of the content and the application of the material.
3.5.1 Organization of the Online IDSR training course:

(a) It is organized into 5 courses and each course is divided into modules as described below.
(b) Each module corresponds to a section in the 3rd Edition IDSR TGs and you will be guiding them through each module in chronological order.
(c) The modules contain all of the information that participants will need to complete the exercises.
(d) They will keep these modules and completed exercises as future reference guides.
(e) Examples of completed forms and appropriate responses to situations will be provided.
(f) The modules conclude with blank or partially completed forms providing practice for the participants.
(g) Your facilitator will review all the answers after completing a module to be sure that everyone has the correct answers and encourage questions for clarification.

3.5.2 A brief description of each online course

1. Course 1: An introduction to the IDSR online training courses and IDSR Technical Guidelines 3rd Edition

   (a) Introduces the IDSR course structure and gives an overview of the IDSR strategy and its linkages with IHR, DRM, Cross-Border Surveillance etc.
   (b) This course also provides guidance for establishing CBS to increase the sensitivity of surveillance system therefore enhancing early detection and response.
   (c) The module further emphasizes on the integration of EBS into CBS which contributes to early warning and alert.
   (d) It also introduces all the modules.

   (Source: Introduction Section of the 3rd Edition IDSR TGs)

2. Course 2: Identifying, recording, reporting and analysing priority diseases, conditions and events

   Module 1: Identify and record cases of priority diseases, conditions or events

   (a) This module describes how to identify priority diseases, conditions and events using standard case definitions.
   (b) It also gives a description of procedures for planning surveillance and response activities in your catchment area.
   (c) It further emphasizes the role of laboratory in surveillance and response.

   (Source: Section 1 of 3rd Edition IDSR TGs)
Module 2: Report priority diseases, conditions and events

This module describes how to report priority diseases, conditions and events within the required timelines.

(Source: Section 2 of 3rd Edition IDSR TGs)

Module 3: Analyse and interpret data

This module describes how to receive surveillance data and analyse it by time, place and person. It also provides guidance on how to interpret the analysed data.

(Source: Section 3 of 3rd Edition IDSR TGs)

3. Course 3: Investigating, preparing and responding to outbreaks and other public health events

Module 1: Investigate and confirm suspected outbreaks and other public health events

(a) This module describes the steps in outbreak investigation.
(b) It enables participants to gain knowledge and skills in early outbreak detection and response.

(Source: Section 4 of 3rd Edition IDSR TGs)

Module 2: Prepare to respond to outbreaks and other public health events

(a) This module provides guidance in establishing public health emergency response structures such as Public Health Emergency Operation Centre (PHEOC), Public Health Emergency Management Committees (PHEMC), and Public Health Emergency Rapid Response Teams (PHERRT).
(b) It also guides on how to prepare and activate an effective EPR plans.

(Source: Section 5 of 3rd Edition IDSR TGs)

Module 3: Respond to outbreaks and other public health events

(a) This module provides guidance on how to respond to public health emergencies using the response structures.
(b) It also gives specific response to selected common epidemic prone diseases in the African Region.

(Source: Section 6 of 3rd Edition IDSR TGs)

Module 4: Risk Communication

This module describes how to conduct risk communication before, during and after the outbreak.

(Source: Section 7 of 3rd Edition IDSR TGs)
4. **Course 4: Monitoring, supervising and evaluating the implementation of the IDSR Strategy**

**Module 1: Monitor, supervise, evaluate and provide feedback to improve surveillance and response**
(a) This module describes how to routinely monitor, supervise and evaluate the performance of the surveillance system and specific disease or public health events control and prevention programs.
(b) It also explains how to develop and disseminate information products such as weekly and monthly epidemiological bulletins.
(Source: Section 8 of 3rd Edition IDSR TGs)

**Module 2: Electronic Integrated Disease Surveillance and Response (eIDSR)**
This module provides guidance in the use of electronic platforms to facilitate implementation of IDSR activities (Electronic IDSR (eIDSR)).
(Source: Section 9 of 3rd Edition IDSR TGs)

5. **Course 5: Applying IDSR in emergency or fragile health systems contexts**

**Module 1: Tailoring IDSR to emergency or fragile health system contexts**
This module introduces key principles of implementing IDSR in complex humanitarian emergencies.
(Source: Section 10 of 3rd Edition IDSR TGs)

### 3.5.3 Teaching Methods to be used (for direct training only)

**Reading:** Participants will read sections of the 3rd Edition IDSR TGs and also be given take home reading assignments. During lectures, participants will be asked to read selected sections of the training slides.

**Presentation/facilitation with training slides:** Presentations will be delivered using power point training slides with demonstrations per module. The content of the training slides are summaries from the 3rd Edition IDSR TGs.

**Individual work:** Participants will be given exercises to solve individually during lessons and also as take home assignments

**Small group work:** Participants will be put into small groups of 5-10 to solve exercises/case studies and this will be followed by plenary discussions led by the facilitator.
**Plenary discussions:** Exercises/case studies will be discussed with entire group by the facilitator.

### 3.5.4 IDSR Course Monitoring and Evaluation Methods

**Pre and Post-test:** A set of 20 short questions covering the IDSR TGs will be administered to participants prior to the start of the course and upon its conclusion (for direct training only)

**Daily short quizzes (non-written):** Five (5) short questions on the previous lessons taught will be administered every morning to the participants before the start of the day’s lesson. The daily quizzes will be used as a recap and delivered in a game-like manner followed by rewards for the best performing participants. The participants answer the quizzes verbally and the facilitator leads the discussions to provide the correct answers. (for direct training only)

**End of IDSR training course evaluation:** At the end of each module, participants will be made to complete respective questions for that module in the evaluation tool to reduce recall bias

**Post IDSR training monitoring and supervision:** The participants will be followed up to their respective work sites to assess their knowledge and performance in IDSR activities. This should be done on the third and sixth month after the IDSR training course. A Post IDSR training monitoring and supervisory checklist will be administered to the trainee by the supervisor.

### 3.5.5 How these modules are different from previous modules

This updated version of the IDSR training modules emphasized on concepts such as:

(a) Event based surveillance
(b) Community-based surveillance
(c) IDSR in One health concept; and has seen the introduction of new concepts as follows:
   (i) IDSR in DRM
   (ii) The eIDSR concept
   (iii) Tailoring IDSR to Emergency or Fragile Health System Contexts
   (iv) Cross-border surveillance and IDSR
   (v) Risk Communication

### 3.5.6 IDSR course materials

(c) Training modules for integrated disease surveillance and response, 3rd Edition.
(a) The various modules of the 3rd Edition IDSR Training Course have been put into six (6) separate booklets in the following order:
   • Booklet one: Course 1
   • Booklet two: Course 2
   • Booklet three: Course 3
   • Booklet four: Course 4
   • Booklet five: Course 5
   • Course Facilitator’s Instructions Booklet
(d) Each module has:

(i) A Facilitator’s guide
(ii) A Participant’s guide
(iii) Training slides

- The Facilitator’s Guide is outlined as following:
  - Introduction (Description of the module)
  - Purpose of the module
  - Learning objectives
  - Teaching guide (Modality of teaching)
  - Suggested time to complete module
  - Preparatory materials/logistics/Equipment needed to teach the module
  - Facilitator’s Instructions
  - Exercises and proposed answers
  - Summary
  - References

- The Participant’s Guide is outlined as following:
  - Introduction (Description of the module)
  - Purpose of module
  - Learning Objectives
  - Participant’s notes
  - Exercises
  - Summary
  - References

- The Training Slides are outlined as following:
  - The purpose of the module
  - Learning Objectives
  - Sub-topics as per the 3rd Edition IDSR TGs
  - Instructions to exercises
  - Summary
4. NOTES TO PARTICIPANTS: MODULES 2 and 3: OVERVIEW OF IDSR

NB: The overview of IDSR online training session has been subdivided into Modules 2 and 3

You can find details of all this information in the Introduction Section of the 3rd Edition IDSR Technical Guidelines Booklet One:

4.1 WHAT IS PUBLIC HEALTH SURVEILLANCE

Public Health Surveillance is the ongoing systematic identification, collection, collation, analysis, and interpretation of disease occurrence and public health event data to take timely and robust action. It includes the timely dissemination of the resulting information to those who need to know for effective and appropriate action. Surveillance is also essential for planning, implementation, and evaluation of public health practice.

The approaches to public health surveillance used in disease control programs include:

(a) **Passive surveillance:** a system by which, a health institution receives routine reports submitted from health facilities (hospitals, clinics, public health units, or community or other sources. There is no active search for cases. This is the most common, and it includes the surveillance of diseases using routine indicator based surveillance; routine health management and information system (HMIS).

(b) **Active surveillance:** It involves an ongoing search for cases in the community or the health facilities. This may involve regular contacts with key reporting sources, such as telephone calls to health care workers at a facility or laboratory or physically moving to the source. Examples include active search of cases of measles and polio, as well as during outbreaks where one must institute mechanisms 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, namely: (1) Indicator-Based Surveillance (IBS) and (2) Event-Based Surveillance (EBS).

**Indicator-based surveillance and the common types used**

**Indicator-based surveillance:** is the systematic (regular) identification, collection, monitoring, analysis and interpretation of structured data, such as indicators produced by a number of well-identified, mostly health-based, from formal sources.
The common types of indicator-based surveillance are:

(a) **Facility-based surveillance:** All reporting units (e.g., 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 immediately, any epidemic prone disease to the next level.

(b) **Sentinel surveillance:** A given number of health facilities or reporting sites designated as sentinel sites for early warning and reporting of priority events such as pandemic or epidemic events and other events of public health importance. 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.

(c) **Disease-specific (vertical) surveillance:** Surveillance that involves activities aimed at targeted health data for a specific disease for vertical surveillance. Examples include Tuberculosis, and HIV surveillance systems.

(d) **Case-based surveillance:** For diseases that are targeted for elimination or eradication or during confirmed outbreaks, every individual case identified is reported immediately, using a case-based form to the next level.

(e) **Syndromic surveillance:** An active or passive system that uses Standard Case Definitions based entirely on clinical features without any laboratory diagnosis.

(f) **Community-Based Surveillance (CBS):** Is defined as the surveillance system that collects community-based health information; and the entire community population is under surveillance, and not simply a segment of the community. CBS incorporates both Indicator-based and Event-based surveillance methods. In CBS, there are identified focal person(s) who report cases or events to the designated focal point at the nearby local health facilities. Community-based surveillance strategies focus on one or more specific disease(s) or patterns of illness of interest in a given community. 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 standardized reporting to the next level. Often CBS focal points transport the patient and can help identify contacts.

Event-based surveillance and the common types used:

(a) **Event-based surveillance (EBS):** Is defined as the organized collection, monitoring, assessment and interpretation of mainly unstructured ad hoc information regarding health events or risk, which may represent an acute risk to health.

(b) **EBS** is the capture of information about events that are of potential risk to public health. This information can be alerts and other ad-hoc reports transmitted through formal channels (i.e. established routine reporting systems) and informal channels (i.e. media, schools, pharmacies, social media and non-governmental organizations reports), including:
(i) Events related to the occurrence of disease in humans, such as clustered cases of a disease or syndromes, unusual disease patterns or unexpected deaths as recognized by health workers and other key informants in the country; and

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

(iii) Event based surveillance also involve media monitoring to look for events of public health concern and this involve the regular scanning of newspapers, internet sites and media alert systems e.g. Promed, blogs, social media, radios, and television

(iv) A key feature of EBS is an emphasis on immediate detection and rapid reporting of alerts.

Take note of the difference between indicator-based surveillance and event-based surveillance:

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, unusual or clustering of cases, events/conditions in the community.

Note that; Regardless of the type of surveillance, remember that surveillance is data that is used for action!

4.2 THE EVENT-BASED SURVEILLANCE (EBS) AND INDICATOR-BASED SURVEILLANCE (IBS) AS BACK-BONE TO IDSR STRATEGY

The Event-based Surveillance (EBS) and Indicator-Based Surveillance (IBS) are components of Early Warning and Response (EWAR) and epidemic intelligence incorporated in the IDSR strategy. Both EBS and IBS are complimentary with each having a different role to play and purpose. EBS is most likely to pick up alerts to detect small outbreaks early, while IBS is better in 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 alerts 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 i.e. 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 namely community, health facility, district, regional/provincial and national levels (demonstrated in figure 1).
### Figure 1: Levels of Applications and Reporting of EBS and IBS in the context of IDSR

<table>
<thead>
<tr>
<th>Level</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National level:</strong></td>
<td>- EBS implementation using hotlines and media scanning at PHEOC</td>
</tr>
<tr>
<td></td>
<td>- Oversees implementation of EBS and IBS at all levels</td>
</tr>
<tr>
<td><strong>Regional/Provincial level:</strong></td>
<td>- EBS implementation using hotlines and media scanning</td>
</tr>
<tr>
<td></td>
<td>- Supervises implementation of EBS and IBS at district level</td>
</tr>
<tr>
<td><strong>District level:</strong></td>
<td>- DHMT ensures EBS implementation using hotlines and media scanning</td>
</tr>
<tr>
<td></td>
<td>- Supervises implementation of EBS and IBS at health facility and community levels</td>
</tr>
<tr>
<td><strong>Sub-district/Health Facility level:</strong></td>
<td>- Health facility managers ensures IBS and EBS implementation at health facilities</td>
</tr>
<tr>
<td></td>
<td>- Supervision of EBS and IBS at community level</td>
</tr>
<tr>
<td><strong>Community level:</strong></td>
<td>- CBS Focal persons implement EBS and IBS at community level</td>
</tr>
<tr>
<td></td>
<td>- Detects and notify alerts to nearest health facilities</td>
</tr>
</tbody>
</table>

Your Facilitator will use the diagram below to explain the algorithm of the Indicator-based and event-based surveillance as incorporated in IDSR strategy.
Figure 2: Indicator-based and event-based surveillance for Early Warning Alert and Response for IDSR Strategy

NB: 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 health care system.
4.3 WHAT IS THE INTEGRATED DISEASE SURVEILLANCE AND RESPONSE (IDSR) STRATEGY?

(a) Integrated Disease Surveillance and Response (IDSR) 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 level.

(b) IDSR is a strategy for coordinating and integrating surveillance activities by focusing on preparedness and response functions of the disease surveillance system at all levels.

(c) Scarce resources are combined to collect information from a single focal point at each level.

(d) IDSR promotes rational and efficient use of resources by integrating and streamlining common surveillance activities and functions.

(e) The IDSR strategy makes surveillance and laboratory data more usable, help public health managers and decision-makers improve detection and response to the leading causes of illness, death and disability in African countries.

(f) Surveillance activities for different diseases involve similar functions (detection, sample collection, reporting, analysis and interpretation, feedback, action) and often use the same structures, processes and personnel. As such, the principles of surveillance are the same whether applied to a single or multiple disease, condition or event. 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 does integration and coordination mean in IDSR?

**Integration** refers to 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:

(a) Where possible, countries use a common reporting form, a single data entry system for multiple diseases, and common communication channels.

(b) Training and supervision are integrated.

(c) A common feedback bulletin is used, and other resources such as computers and vehicles are shared.

(d) IDSR involves full time coordination of surveillance activities and joint action (planning, implementation, monitoring, evaluation) whenever it is 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 (HMIS) and various disease programs:
(a) Coordination involves information sharing, joint planning, monitoring and evaluation in order to provide accurate, consistent and relevant data and information to policy-makers and stakeholders at regional, inter-country and national levels.

The specific objectives of IDSR are to:

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

(c) 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 to facilitate evidence-based response to public health events; health policy design; planning; and management.

(d) Improve the flow of surveillance information between and within levels of the health system and other health systems such as the veterinary health system using electronic tools.

(e) Build strong laboratory systems and networks at national, regional and sub-regional levels to confirm pathogens, monitor drug sensitivity and increase efficacy of point-of-care tests (PoC tests).

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

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

(h) Increase involvement of clinicians in the surveillance activities.

(i) Emphasize community participation in detection, reporting and response to all public health problems (human and animal) including case- and event-based surveillance and response and risk communication in line with IHR.

4.4 DESCRIBE THE IDSR CORE FUNCTIONS PRESENTED IN THIS COURSE

The 3rd Edition IDSR Technical Guidelines presents a comprehensive vision of a disease surveillance and response system. In IDSR, all levels of the health system (community, health facility, district, region or province and national levels including international level- WHO country Offices and Regional Office)) are involved in surveillance activities for responding to priority diseases, conditions and events. These activities include the following core functions:

(a) Identify and record cases, conditions and events.

(b) Report suspected cases, conditions or events to the next level for action.

(c) Analyse and interpret findings.
(d) Investigate and confirm suspected cases, outbreaks or events.
(e) Prepare to respond to public health events.
(f) Respond to public health events.
(g) Communicate risk and provide feedback to health workers and the community.
(h) Monitor, Supervise, Evaluate and improve the system.

4.4.1 Levels where IDSR activities are performed

The levels are defined as follows:

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

(b) **Health facility:** Defined by each country. For surveillance purposes, all institutions (public, private, NGOs or others faith-based organization) with outpatient and/or in-patient facilities are defined as a “health facility.”

(c) **District, region, or province:** The intermediate administrative unit generally serves a population of between 100,000 and 300,000 people. Countries may have two intermediate levels, for example, the district and the region or province.

(d) **National level:** In many countries, this is the central level where policies are set and resources are allocated. In relation to surveillance, this level reports on priority diseases and uses the IHR decision instrument (Annex 2) to report public health events of international concern to WHO. This level also reports routine IDSR data weekly and monthly to WHO.

4.4.2 The IDSR Matrix

(a) The matrix describes the roles and responsibilities of those involved in IDSR implementation.

(b) Practical uses of the surveillance matrix include:

(i) Ensuring that all necessary functions and capacities have been identified
(ii) Establishing accountability to provide a basis for assigning functions to appropriate levels and determining what capacities should be present
(iii) Organizing activities and training for human resource development
(iv) Managing and monitoring programs
(v) Strengthening district laboratory capacity, including laboratory information system
(vi) Planning for resources (human, material/supplies and financial).

(c) The IDSR matrix in the Introduction Section, Annex 1 A, pages XX to XX of the 3rd Edition IDSR Technical Guidelines Booklet One 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

4.4.3 Roles and Responsibilities of various actors in IDSR

Refer to Annex G of the 3rd Edition IDSR Technical Guidelines Booklet One for description of the specific roles and responsibilities of all the different actors in IDSR. Your facilitator will ask you to read this section and explain the role of each health worker:

(a) Community health worker
(b) Health Facility staff and Point of Entry
(c) Surveillance Officer at district level
(d) District Health Management Team
(e) Political Leaders at district level
(f) Regional or Provincial Health Management Team
(g) Ministry of health
(h) WHO and other partners

4.5 THE INTERNATIONAL HEALTH REGULATIONS AND RELATIONSHIP WITH IDSR

Note the main points of IHR:

(a) The purpose of the International Health Regulations (IHR) 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. IHR (2005) is a binding and legal instrument.

(b) Among the several requirements in the IHR (2005) is a call for strengthening of national capacity for surveillance and control of public health events of national and international concern.

(c) Member States in the African Region recommended that IHR (2005) should be implemented in the context of IDSR. This means that IDSR and IHR share common functions such as detection, reporting, confirmation, verification, notification, reporting and timely response.

(d) IHR (2005) is therefore not a separate surveillance system but rather requires countries to put in place a “sensitive, reliable and flexible surveillance system that meets international standards.

(e) 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.
The following chart demonstrates the overlap of IDSR and IHR (2005)

In determining whether an event constitutes a public health emergency of international concern (PHEIC), the decision instrument contained in Annex 2 of the IHR 2005 is used.

*Your facilitator will introduce and explain the Decision Instrument for the assessment and notification of events that may constitute a Public Health Emergency of International Concern. See ANNEX C in Introduction section of the 3rd Edition IDSR Technical Guidelines Booklet One.*

**Monitoring and evaluation of the functional core capacity for implementation of IHR 2005**

The four components of IHR Monitoring and Evaluation process include:

(a) Mandatory annual reporting to the World Health Assembly (WHA);
(b) Joint external evaluation (JEE);
(c) After Action Review (AAR); and
(d) Simulation Exercises (SIMEX).

*This is demonstrated in the diagram on the next page. Your Facilitator will explain the diagram to you.*
4.6 ONE HEALTH APPROACH IN THE CONTEXT OF IDSR

What is the one health concept?

The One Health approach addresses public health events arising at the intersection of human, animal (domestic and wildlife), and environmental interface. Humans and animals share the same eco-system and the opportunities for spill-over 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.

Note the main points of One Health Approach:

(a) The One Health approach is intrinsic to and strongly reinforced by WHO’s International Health Regulations (IHR 2005) and the Integrated Disease Surveillance and Response (IDSR) strategy.
(b) One Health approach aims at improving indicator and events based surveillance, which are cornerstone for the early warning function of the IDSR.
(c) Animal and human health workers should be engaged at various levels so as to be information sources for IDSR to further facilitate information sharing and joint rapid response activities.
(d) The One Health approach offers a comprehensive framework for IHR (2005) implementation, helping to address public health emergency of international concern (PHEIC) of all sources.
4.7 IDSR AND DISASTER RISK MANAGEMENT (DRM)

**What is DRM?**

Disaster risk management (DRM) is defined as the systematic process of using administrative and organizational directives, operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impact of hazards and the possibility of disaster.

**Points to note:**

(a) Disaster risk management is driven by understanding the major hazards (Hazard Analysis); followed by the assessment on the level of vulnerability and available coping capacity;

(b) The ultimate objective of disaster risk management is reducing risk by reducing vulnerability or improving the capacity to mitigate impact of a hazard;

(c) IDSR is an important tool in the DRM, as it provides early warning information, which is crucial for risk assessment and ultimately, risk reduction;

(d) IDSR assists in identification of hazards, assessment and monitoring of disaster risks, and hence enhance early warning component.

4.8 IMPLEMENTING CROSS BORDER ACTIVITIES IN THE CONTEXT OF IDSR

**Note these points:**

(a) National in collaboration with WHO should establish 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 reporting tools of IDSR. 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 3rd Edition IDSR Technical Guidelines Booklet Three;

(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 done if needed;

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

(f) Organize regular cross border meetings;

(g) Political Leaders to assist districts to facilitate cross border district surveillance and response initiatives.
4.9 THE RELATION BETWEEN POINTS OF ENTRY AND IDSR

Note these points:

(a) The International Health Regulations (IHR 2005) calls for strengthening of national capacity for surveillance and control, including sites such as points of entry (PoE) (i.e., ports, airports and ground crossings).

(b) In addition to the IHR, it is essential that border health activities be sustainable and aligned with other surveillance activities under IDSR.

(c) All designated PoE must have Routine capacities established at PoE for surveillance and response as well as for Effective Public Health Response at Points of Entry in line with the existing IDSR in the respective regions/province and districts with PoEs.

4.10 AN INTRODUCTION TO ELECTRONIC IDSR (E-IDSR)

What is Electronic IDSR?

Electronic IDSR (eIDSR) is the application of electronic tools to the principles of IDSR to facilitate prevention, prediction, detection, reporting and response. It is based on:

(a) Standardised 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.

The importance of eIDSR

(a) While paper-based tools can also provide timely information, countries should aim to have electronic tools to facilitate timely transmission of data to enable timely response to public health threats

(b) Fulfils the regional committee recommendations on use of information technology, which is core in the achievement of IHR (2005) requirements by countries

(c) Standardization of data

(d) Improved timeliness and completeness of reporting

(e) Early detection, investigation, and response to outbreak or public health events

(f) Reduce manual data entry that is prone to errors

(g) Systematic information sharing across levels and sectors

(i) Interoperability, and sharing of data

(h) Combining data streams

(i) Better data transmission, management including data storage and easy access

(j) Enhance virtual, near real-time disease monitoring capability

(k) Improved data quality
Reduced system costs and easily generated automated alerts

**How e-IDSR works**

In e-IDSR all the IDSR reporting paper-based forms are converted into electronic forms using designated software and computers/tablets and are used to capture all the IDSR data and transmitted to next level by internet. Data are analysed electronically. Also, electronic platforms could be created to capture field work (supervision, outbreak investigations) for prompt transfer of reports and collation.

This Information on e-IDSR can be obtained from Section 9 of the 3rd Edition IDSR Technical Guidelines Booklet Four

**4.11 IMPLEMENTATION OF IDSR IN EMERGENCIES AND FRAGILE HEALTH CONTEXT**

*Note these points:*

(a) Humanitarian emergencies result in population displacement to congested settings where access to basic needs like water, food, shelter, health care and other social services are constrained.

(b) This leads to:
   (i) Deaths from common epidemic and endemic diseases
   (ii) Disruption of health services and the routine national public health IDSR systems
   (iii) Increased risk of outbreaks
   (iv) Delayed outbreak detection and sub-optimal response

Action to take during Humanitarian Emergencies is to Enhance IDSR to improve early warning and response

Details of this information can be obtained from Section 10 of the 3rd Edition IDSR Technical Guidelines Booklet Five

**4.12 WHAT ARE THE PRIORITY DISEASES, CONDITIONS AND EVENTS FOR IDSR**

*Note these points:*

(a) 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 (Table 2).

(b) The diseases or conditions are recommended because they are:
   (i) Required internationally under IHR (for example, smallpox, poliomyelitis due to wild-type poliovirus, human influenza caused by a new subtype, SARS);
(ii) 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);

(iii) 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, hepatitis, maternal deaths and injuries);

(iv) Priority Non-communicable diseases or conditions in the region (high blood pressure, diabetes mellitus, mental health and malnutrition);

(v) Effective control and prevention interventions are available for addressing the public health problems they pose (for example onchocerciasis, trypanosomiasis);

(vi) Intervention programs supported by WHO for prevention and control, eradication or elimination of the diseases exists. For example, the Expanded Program on Immunizations (EPI), the Integrated Management of Neonatal and Childhood Illness (IMNCI).
### Table 2: Priority diseases, conditions and events for Integrated Disease Surveillance and Response – 2018

<table>
<thead>
<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>
</thead>
<tbody>
<tr>
<td>1. Acute haemorrhagic fever syndrome*</td>
<td>1. Buruli ulcer</td>
<td>1. Acute and Chronic viral hepatitis</td>
</tr>
<tr>
<td>2. Anthrax</td>
<td>2. Bacterial Meningitis</td>
<td>2. Adverse events following immunization (AEFI)</td>
</tr>
<tr>
<td>3. Bacterial Meningitis</td>
<td>3. Dracunculiasis (Guinea Worm Disease)</td>
<td>3. Diabetes mellitus (new cases)</td>
</tr>
<tr>
<td>4. Chikungunya</td>
<td>4. Leprosy</td>
<td>4. Diarrhoea with dehydration less than 5 years of age</td>
</tr>
<tr>
<td>5. Cholera</td>
<td>5. Lymphatic filariasis</td>
<td>5. Epilepsy</td>
</tr>
<tr>
<td>10. Middle East respiratory syndrome (MERS)</td>
<td>10. Poliomyelitis***</td>
<td>10. Malaria</td>
</tr>
<tr>
<td>15. Yellow fever</td>
<td></td>
<td>15. Severe pneumonia less than 5 years of age</td>
</tr>
<tr>
<td>16. Zika virus disease</td>
<td></td>
<td>16. STIs</td>
</tr>
</tbody>
</table>

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

### Diseases or events of international concern

| 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

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**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 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six.

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1 Some diseases appear more than once in the table e.g. malaria, trachoma, bacterial meningitis. Countries should retain the disease in the most appropriate column according to their epidemiological context.
4.13 PRACTICE EXERCISE 1

Figure 3 is an incomplete flow diagram of an epidemic cycle.

* * * *

Instructions: Use information in the Introduction Section of the 3rd Edition IDSR Technical Guidelines Booklet One to fill in the blank boxes with appropriate terms from the following list:

(a) Prepare
(b) Respond
(c) Report
(d) Investigate and Confirm
(e) Communicate risk and provide feedback

Figure 2
5. NOTES TO PARTICIPANTS: MODULE 4: COMMUNITY-BASED SURVEILLANCE

5.1 DEFINITION OF SOME KEY TERMINOLOGIES USED IN COMMUNITY-BASED SURVEILLANCE (CBS)

Define Community

A community is in the context of disease surveillance can be defined as a place, or small geographical area, where a group of people live and share common interests and have a social network of relationships at a local level.

Define Community-based Surveillance (CBS)

A CBS is the systematic detection, reporting and responding to events of public health importance within a community by community members.

Define community case definition

A community case definition is a set of criteria consisting of simple signs/symptoms used at community level to determine if a person has the disease/condition under surveillance.

Define an Event

An event as define by International Health Regulations (IHR) is “a manifestation of disease or an occurrence that creates a potential for disease”. It can include events that are infectious, zoonotic, food safety, chemical, radiological or nuclear in origin and whether transmitted by persons, vectors, animals, goods/food, or through the environment

Define Alert

(a) An indirect early warning signs of a potential public health event occurring in a community under surveillance.

(b) Alerts are patterns of disease or other information representing potential acute risk to human health, such as an outbreak.

(c) All alerts may not become events and as such needs to be triaged and verified before response is initiated.

(d) Alerts may consist of reports of cases or deaths (individual or aggregated), potential exposure of human beings to biological, chemical or radiological and nuclear hazards, or occurrence of natural or man-made disasters.
5.2 HOW TO ESTABLISH A COMMUNITY-BASED SURVEILLANCE AND RESPONSE SYSTEM

Note these points:

(a) A catchment health facility or sub-district head/manager with support from the district, region/province and national is responsible for establishing, monitoring and supervising the community-based surveillance and response system in its catchment area.

This includes:

(b) Developing the community-based surveillance structure
(c) Defining the selection criteria for community-based surveillance focal persons
(d) Drawing up the terms of reference or defining the roles and responsibilities of the community-based surveillance focal persons
(e) Coordinating and supervising all community-based surveillance activities implemented by the focal person

Your Facilitator will explain the details of how to establish a community-based surveillance and response system.
You can also read this information in the Introduction Section, Annex D of the 3rd Edition IDSR Technical Guidelines Booklet One

5.2.1 Criteria for CBS Focal person selection, their roles and responsibilities

(a) District and sub-district should work with community leaders to identify members of the community to receive relevant training as CBS Focal persons.

(b) Any community member acceptable by the community can be a CBS focal point.

(c) Representation could be from basic community-level services such as:
   (i) Trained birth attendants
   (ii) Community health agents, or similar care providers
   (iii) Community health workers or volunteers
   (iv) Community leaders (religious, traditional or political)
   (v) School teachers
   (vi) Veterinarians/veterinary technicians
   (vii) Health extension workers
   (viii) Pharmacists/medicine sellers
   (ix) Traditional healers

(d) Selection criteria
   (i) Hard working and committed to reporting
   (ii) Resident in the community
   (iii) Well known, trusted and respected member of the community
(iv) Have the community’s welfare at heart and willing to be a champion of their community
(v) Accepted by the community so as to be able to communicate with inhabitants.
(vi) Be literate enough to record events/data on the register provided
(vii) Selected irrespective of Gender
(viii) Be recognized by all identified groups where ethnic and religious differences exist
(ix) Able to communicate in local language(s)
(e) Once selected, the CBS focal person should receive training and carry out supportive supervision of how to recognize certain diseases or health conditions for the purpose of reporting suspect cases.

The Roles and Responsibilities of a community-based surveillance focal person

(a) Using community case definitions and pre-determine events/alerts to identify priority diseases, events, conditions or other hazards in the community.
(b) Record priority diseases, conditions, or unusual health events/alerts in the reporting forms and tools (tally sheets) and report to nearest health facility/sub-district immediately within 24 hours.
(c) Conduct household visits on a regular basis.
(d) Meet with key informants on a regular basis.
(e) Attend local ceremonies and events and follow up on anything unusual e.g. someone you were expecting to be there doesn’t show up.
(f) Participating in verbal autopsies by administering interview questions prepared by the supervisor at the health facility.
(g) Involving local leaders in describing diseases, events and trends in the community.
(h) Sensitization of the community to report and seek care for priority diseases, conditions, and unusual events.
(i) Supporting health workers during case or outbreak investigation and contact tracing.
(j) Mobilize local authorities and community members to support response activities.
(k) Participating in risk mapping of potential hazards and in training including simulation exercises.
(l) Participating in containment and response activities in collaboration with the different levels of the health system:
   (i) Participation in response activities could include, home-based care, social or behaviour change of traditional practices, logistics for distribution of medicines, vaccines or other supplies.
   (ii) Providing trusted health education in a crisis is a useful contribution.
(m) Give feedback to community members about reported cases, events/alerts and prevention activities.

(n) Verifying if public health interventions took place as planned with the involvement of the community.

(o) Participate in meetings organized by sub-district, district, and higher-level authorities.

**Example**

CBS focal person hears of several cases of acute watery diarrhoea with vomiting in the community. The CBS focal person suspects cholera and reports the rumour to the local health facility and to the district level health officer by text messaging. Members of the rapid response team (RRT) travelled to the community to verify and investigate the possible outbreak, and, based on the investigation results, implemented control and prevention measures. The outbreak is quickly contained thanks to the early warning from the community-based surveillance focal person.

5.2.2 IDSR community case definitions for use at the community level

**Your Facilitator will explain the community case definitions and the signal detection**

**You can read this information in Section 1, Annex 1B of the 3rd Edition IDSR Technical Guidelines Booklet Two**

5.2.3 Explain how to report diseases, conditions and events from the community level

**The sources of information for CBS include**

(a) A functioning CBS should establish relationships with key sources of information.

(b) This includes the following sources of information:

(i) All community-based health workers, community volunteers, including traditional birth attendants, school teachers, pharmacists/medicine sellers, Staff at private clinics, Community animal health workers, Community-based Organizations (CBOs), Veterinary health workers who have trusted relationships with the local community.

(ii) Community leaders, traditional, youth or religious leaders and civil society.

(iii) Media: local, national and international media:

   - 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

(iv) Traditional medicine practitioners e.g. traditional healers/herbalist 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. Families with sick members often seek spiritual guidance at shrines known for healing.

**What and whom to report**

**What to Report (This should be captured in a pictorial form in the CBS register)**

(a) A suspected case or public health event/alert that should be reported immediately (within 24 hours) are:

   (i) Anyone with onset of an illness meeting any of the IDSR community case definitions in the catchment area, **OR**

   (ii) Any sudden death if the catchment area is undergoing a known public health event of the IDSR priority conditions, **OR**

   (iii) Any unusual public health event/alert

   Examples:
   - Unexplained cluster of similar severe illnesses within one week.
   - High absenteeism at school.
   - Two or more cases of people presenting with similar severe signs/symptoms from the same community, school, or workplace within one week (NB: severe can be elaborated at the community level as needing to seek medical care).
   - A cluster of unexplained animal deaths within one week.
   - An illness with novel or rare symptoms (NB: Novel or rare can be explained as signs/symptoms that the community has not seen before).

**Whom to Report**

If a suspected case (living or dead) or public health event/alert is identified: Report it to the community-based surveillance supervisor or surveillance officer or health facility manager in the catchment area within 24 hours.
Methods and Timelines for reporting a suspected diseases/conditions/public health event

(a) If a disease, condition or public health event that requires to be reported immediately (within 24 hours) is suspected:

(i) It should be reported by the fastest means possible such as calls by telephone (mobile phones), text messages or hand delivery in person.

(ii) Initial information on the suspected disease/condition/public health event/alert should be gathered using the community alert forms.

Your Facilitator will explain the reporting structure for community alert and verification shown in the diagram below:
Verification and Investigation of CBS Events

Your Facilitator will demonstrate how to complete the CBS reporting forms A and B, after which you practice how to complete the forms in exercise 2.

- **WHO**
  - National Level: National PHRRT support investigation in Community
  - Provincial/Regional Level: Provincial/Regional PHRRT support investigation in community
  - District Level: District PHRRT deployed to initiate investigation of the alert in community

- **CBS Focal Point** may report to the National Level as well.

- **If an alert is a TRUE EVENT,** notifies District Health Team within 24 hours

- **Health Facility/Subdistrict Team** verifies the alert in the community

- **Community-based Surveillance Focal Person** (for example, CBS Volunteer, CHW) detects an alert (unusual event) in community and notifies his/her supervisor (Health Facility/Subdistrict Team)

- **If an alert is NOT a TRUE EVENT,** informs the community: No investigation required

- **REASSURANCE to CBS and maintain SURVEILLANCE**
**A: COMMUNITY ALERT REPORTING FORM [SEND THIS FORM IMMEDIATELY TO YOUR SUPERVISOR OR NEARBY HEALTH FACILITY]**

**Instructions:** This form is completed by the CBS focal person and submitted immediately to nearest health facility/sub-district surveillance focal person when he or she identifies disease (s) or public health event as per the community case definition. It is also completed for unusual health events/alerts that is not captured by the given case definition.

<table>
<thead>
<tr>
<th>Community alert reporting form</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[Send this form immediately to your supervisor or nearby health facility]</td>
<td></td>
</tr>
<tr>
<td>1. Name of CBS focal person reporting: ______________________________</td>
<td></td>
</tr>
<tr>
<td>2. Telephone number: __________________________ Community __________ District __________</td>
<td></td>
</tr>
<tr>
<td>3. Date reporting (day, month, year) __ __/ __ __/ __ __ __ __ __ __</td>
<td></td>
</tr>
<tr>
<td>4. Type of illness/Condition/Event/Signal (please describe): ______________________________</td>
<td></td>
</tr>
<tr>
<td>5. When did this happen (Date: Day/Month/Year); Time: __ __/ __ __/ __ __ __ __</td>
<td></td>
</tr>
<tr>
<td>6. Date/time this was detected (Date: Day/Month/Year); Time:</td>
<td></td>
</tr>
<tr>
<td>7. Where did this happen? (Location: community, ward/sub-district, district)</td>
<td></td>
</tr>
<tr>
<td>8. How many people have been affected?</td>
<td></td>
</tr>
<tr>
<td>9. Has anyone died? If yes, how many</td>
<td></td>
</tr>
<tr>
<td>10. Are there sick or dead animals involved?</td>
<td></td>
</tr>
<tr>
<td>11. Is the event ongoing as at the time of this report?</td>
<td></td>
</tr>
<tr>
<td>12. What action has been taken?</td>
<td></td>
</tr>
</tbody>
</table>

**NB:** Countries should adopt this form such that it is used to capture and notify/report the country’s priority diseases (Indicator-based surveillance) and events/alerts (event-based surveillance) occurring at the community level. This can be carbonated in the form of a CBS Register or note book with a copy sent to the nearest health facility and copy kept at community with the CBS focal person. Sections of the register should include pictures or images of the community case definitions and the predetermined events/alerts to assist in detection at the community level.
B: COMMUNITY-BASED SURVEILLANCE (CBS) SUSPECTED DISEASES AND PUBLIC HEALTH EVENTS MONTHLY LOG SHEET

Instructions: This form is a line listing of all the diseases/events/alerts identified during the month. It is completed by the CBS focal person and submitted monthly to nearest health facility/sub-district surveillance focal person every month.

<p>| Community-Based Surveillance Suspected Diseases and Public Health Events Monthly Log Sheet |
|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| District________________________________________ |Ward/Subdistrict________________________________________ |
| Community:________________________________________ |Month__________________ Year__________ |</p>
<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Type of Illness/Condition/Event/Signal</th>
<th>When did this happen (DD/MM/YYYY)</th>
<th>Where did this happen (Community, District)</th>
<th>How many have been affected</th>
<th>How many died</th>
<th>what action was taken</th>
</tr>
</thead>
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</tbody>
</table>

**NB:** Countries should adopt this form such that it is used to capture and notify/report the country’s priority diseases (Indicator-based surveillance) and events/alerts (event-based surveillance) occurring at the community level. This can be carbonated in the form of a note book with a copy sent to the nearest health facility and copy kept at community with the CBS focal person.
Sample pictorial CBS register/note book

<table>
<thead>
<tr>
<th>Code</th>
<th>Cases/Conditions/Events/Alert to be reported</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Any person with headache and stiff neck</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Any person with fever and rash</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Two or more persons presenting with similar signs/symptoms from the same community, school, or workplace within one week</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>A cluster of unexplained deaths of animals within one week</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Any person presenting with new or rare signs/symptoms</td>
<td></td>
</tr>
</tbody>
</table>

Your facilitator will demonstrate sample of a verification tool for unusual health event/signals

When an unusual event/alert is notified by a CBS Focal Person, the health facility/sub-district team will use this tool to verify whether the event/signal is TRUE or FALSE before notifying the district team.

The process of alert verification should answer three main questions:

(a) Is the report accurate (i.e. True).
(b) Has the information been reported by a reliable source or sources?
(c) Does the report meet the criteria for the respective community case definition or the criteria for one or more alerts?
The following are examples.

**Community-based Surveillance: Verification Tool for Unusual Health Events**

Two or more persons presenting with similar severe illnesses in the same community within one week

<table>
<thead>
<tr>
<th>False if...</th>
<th>True if...</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There is only one person presenting with illness</td>
<td>• There are two or more persons presenting with similar signs and symptoms who live or work in the same community</td>
</tr>
<tr>
<td>• The persons present with dissimilar signs and symptoms</td>
<td>• The ill persons had an opportunity for exposure or close contact with one another</td>
</tr>
<tr>
<td>• There is no temporal association, and &gt;1 week separates the patients’ illness</td>
<td>• The persons’ illness requires hospitalization</td>
</tr>
<tr>
<td>• The persons presenting with similar symptoms reside in different communities that are physically well-separated</td>
<td>• One or more persons has died</td>
</tr>
<tr>
<td></td>
<td>• There is a common source of exposure</td>
</tr>
</tbody>
</table>

**How Community-Based Surveillance (CBS) data is linked with IDSR Data captured at Health Facilities i.e. Linkage between facility-based surveillance and CBS**

(a) All reported cases/unusual events/alerts received from the CBS Focal Persons are captured in the Sub-district or District Rumours/Outbreaks Log Book (Refer to Section 4, Annex 4A of the 3rd Edition IDSR TGs)

(b) Health facility/sub-district health team should verify all reports by using verification tools with support from the district health team

(c) If it is confirmed as **TRUE** by sub-district/health facility and district team this is then further investigated using the respective IDSR Case Investigation form and captured on the IDSR Weekly/monthly summary reporting form by the health facility surveillance focal person of the respective health facilities catchment area
(d) This is then reported to district and subsequently to region and national authorities weekly and monthly

*Your Facilitator will describe the steps involved in investigating and confirming a suspected public health event/alert reported by CBS Focal Person.*

5.3 CONDUCTING AN INVESTIGATION, CONFIRMATION AND RESPONSE TO A SUSPECTED CASE/PUBLIC HEALTH EVENT AT THE COMMUNITY LEVEL

(a) An investigation will provide important and relevant information for determining how to respond to the suspected case/Public Health Event.

(b) When an event/disease is notified by CBS Focal Person or any community member this immediately investigated by the health facility/sub-district team.

5.4 PROVIDING FEEDBACK TO THE COMMUNITY FOLLOWING INVESTIGATION AND CONFIRMATION OF SUSPECTED CASES OF A PUBLIC HEALTH EVENT

(a) **Effective feedback is an essential function of community-based surveillance:**

   (i) It provides the community with summary information about the investigation and confirmation of the public health event.

   (ii) It demonstrates transparency in the management of the event.

   (iii) It addresses community concerns.

(b) **Following verification and confirmation of a public health event, the rapid response team should:**

   (i) Liaise with the regional/provincial and national level authorities

   (ii) Seek guidance on giving feedback to the community

   (iii) After confirmation of the public health event, feedback to the community should follow the directions and key messages provided by national authority

**NOTE:** Community-based surveillance focal persons are not community spokespersons and should not address the community unless they are delegated to do so.

(a) Community-based surveillance focal persons will work within the field response team to:

   (i) Organize community briefings for providing regular information following the directions from national level.

   (ii) Identify local powerful channels for delivery of the information to the community.
(iii) Meet regularly with local stakeholders to disseminate correct messages to the community on public health event prevention and surveillance.

(iv) Organize door-to-door campaigns to reach every household within the catchment area to promote the prevention of the spread of the public health event and to encourage self-reporting, treatment and health-seeking behaviour among people who have had contact with the public health event or are suspected to be public health event cases.

5.5 MONITORING, SUPERVISION AND EVALUATION OF CBS IMPLEMENTATION

CBS Supervision

(a) The health facility/sub-district team conducts supervisory visits to the CBS Focal Persons at least once in month.

(b) Supervisory visits are undertaken to determine whether:
   (i) The appropriate community-based surveillance supplies such as forms and tally sheets are available and are used properly.
   (ii) The required standard case definitions and guidelines are available.
   (iii) The community-based surveillance focal points know how to use the community case definitions to report suspected public health events in their catchment area.
   (iv) The goal of supervision is to improve timeliness of reporting, fine-tune understanding of case definitions, improve Interpersonal communication skills (IPC skills).

(c) During supervisory visit:
   (i) Feedback is given to community-based surveillance focal points.
   (ii) On-the-job training is provided as needed if a problem is identified.
   (iii) Follow-up on requests for assistance is provided.
   (iv) Supervisory plans for improvement of surveillance and response are updated.
   (v) Successful activities are recorded and encouragement for their continuation provided.
   (vi) Feasible solutions are provided for identified problems.

Your Facilitator will explain in details of what happens during monitoring and supervision of community-based surveillance

5.6 PRACTICE EXERCISES

After the presentations and discussions, your Facilitator will now introduce you to the exercises. You will now practice the exercises 2, 3, and 4 as below.
5.5.1 Exercise 2

Exercise: Reporting a public health event and maintaining community register at the community level.

In this exercise you will practice how to complete CBS reporting forms.

Instructions

Use the copies of the community case definitions for cholera, meningitis, viral haemorrhagic fever, avian influenza, malaria and acute flaccid paralysis, to complete and submit the following:

1. Community alert reporting form
2. Community-Based Surveillance Suspected Diseases and Public Health Events Monthly Log Sheet

5.6.2 Exercise 3

Instructions:

Read through the case study for Exercise 3 and then answer all the questions that follows in a group of 4 to 5. Refer to Section 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six for information to answer the questions.

After answering the questions your Facilitator will ask you to select a group leader to present the answers during plenary discussions.
Case Study: A suspected cholera outbreak

On 1 April 2017, Josephine, a 25-year-old fishmonger from the Kotoku neighbourhood in Manshi town, Dambo district, complained that she had severe watery diarrhoea for a day. She also vomited twice that morning. She lives in the same household with her three children, husband and stepmother. There have been episodes of cholera in the neighbouring Ganata district over the last three months. Josephine travelled there three days previously for her auntie’s wedding.

Questions

1. What outbreaks are you familiar with in your catchment area and from the adjacent area (across the border)?

2. What is cholera?

3. How does cholera spread within a community?

4. Can cholera spread to or from a neighbouring area (across the border)?
5. Using the community case definition for cholera, discuss within your group if Josephine should be suspected of having cholera

6. Since Josephine has not visited a health clinic, what should the community do?

7. What action do you think that the community-based surveillance focal person should take?

8. Discuss if a community-based surveillance focal person should be part of the investigation and community feedback team
5.6.3 Exercise 4

**Exercise 4**

**Participants Instructions**

Read through the case study for Exercise 4. Then answer all the questions that follow in a group of 4 to 5. Refer to Sections 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six whilst answering the questions.

After answering the questions your Facilitator will let you select a group leader to present the answers during plenary discussions.

**Case study: A suspected viral haemorrhagic fever (VHF) outbreak**

Three brothers from the Dogbera Family residing in Torkorsu community, went to trap wild animals for meat in Budunu forest reserve in early December 2017. They managed to catch one limping monkey and some bats, which they killed, roasted and ate as they looked for more game to take home and sell. Two days later, the younger brother fell sick with a high fever, a headache, muscle pain, abdominal pain, diarrhoea and vomiting of blood. He could hardly walk, so his siblings carried him but he died on the way home. Soon after, the elder brother also fell ill but refused to go to hospital fearing arrest by government authorities.

**Questions**

1. Have you heard about viral haemorrhagic fever? If yes, how?

2. What is viral haemorrhagic fever?
3. Is viral haemorrhagic fever dangerous? If Yes, Why?

4. How is viral haemorrhagic fever spread?

5. Can viral haemorrhagic fever spread to or from an adjacent area, i.e. across a border?

6. Using the community case definition for viral haemorrhagic fever, discuss within your group if the Dogbera brothers should be suspected of having viral haemorrhagic fever.

7. Since the Dogbera brothers are known to not have yet visited the clinic, what should the community do?
8. What action should the community-based surveillance focal point take?

9. Discuss if a community-based surveillance focal person should be part of the investigation and community feedback team.
6. SUMMARY OF COURSE 1:

### POINTS TO REMEMBER

(a) IDSR is a strategy for coordinating and integrating surveillance activities at all levels

(b) Event-based surveillance is based on screening of all available information to detect any event happening in the community

(c) Animal and human health workers should be engaged at all levels to generate information for IDSR to facilitate information sharing and joint rapid response activities

(d) IDSR is an important tool in the DRM, as it provides early warning information, which is crucial for risk assessment and risk reduction

(e) Reportable diseases and PHEICs are a global problem with enormous personal, social and economic costs. IDSR provides TGs for performing systematic surveillance, reporting and disease response

(f) An effective Community-based surveillance (CBS) system is key to early detection and response to public events and emergencies

(g) In CBS, there are identified Community focal person(s) who report alerts and rumours of diseases, conditions or events to the designated focal point at the nearby local health facilities/sub-districts

(h) It is important that all community members are oriented in surveillance so that they actively participate in detecting, reporting, responding to and monitoring health events related to human or animal in their catchment area

(i) If an immediate reportable disease, condition or public health event is detected Community focal person(s) should report within 24 hours to the nearby local health facilities/sub-districts

(j) Health facility/sub-district health team should verify all reports by using verification tools with support from the district health team

7. REFERENCES


(b) International Health Regulations (2005), Third edition, WHO 2016

(c) [https://www.cdc.gov/globalhealth/security/pdf/ghsa_ap_factsheet.pdf](https://www.cdc.gov/globalhealth/security/pdf/ghsa_ap_factsheet.pdf)


(f) Guidelines for Community-Based Surveillance System in Ghana, GHS. March 2017