INTEGRATED DISEASE SURVEILLANCE AND RESPONSE TRAINING COURSE

PARTICIPANT GUIDE

COURSE 3: INVESTIGATING, PREPARING AND RESPONDING TO OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

MARCH 2019

(adapted for online Training Courses March 2021)

This booklet comprises the following modules of the Integrated Disease Surveillance and Response Training Course:

Module 4: Investigate suspected outbreaks, and other public health events
Module 5: Prepare to respond to outbreaks and other public health events
Module 6: Respond to outbreaks and public health events
Module 7: Risk communication
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, Participants Guide: Modules 4, 5, 6 and 7. 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 Africa 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
ACKNOWLEDGEMENTS

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.

The revision of the IDSR Training Modules was supported through a cooperation grant from the United States Agency for International Development, Bureau for Africa (USAID/AFR), Washington, D.C.

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<th>Member States / Ministry of Health (MoH)</th>
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PARTICIPANT GUIDE

MODULE 1: INVESTIGATE AND CONFIRM SUSPECTED OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

MARCH 2019
MODULE 1: INVESTIGATE AND CONFIRM SUSPECTED OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

4.1 Introduction

This module describes what needs to be done when conducting an outbreak investigation. It also outlines the detailed steps in investigating a suspected outbreak due to an infectious disease. The described steps in this module can also be applied in the investigation of other public health problems in the district such as when an increase in chronic or non-communicable disease or unusual public health event is detected.

4.1.1 Purpose of the Module

The purpose of this module is to provide participants with skills in investigating public health events including outbreaks. It is also aimed at providing guidance in the early detection and confirmation of outbreaks.

4.1.2 Learning objectives

On completion of this module, participants will be able to:

(a) Verify and report an outbreak or public health event.
(b) Know when to decide to investigate an outbreak.
(c) Describe what might be happening.
(d) Prepare an outbreak report.

4.2 Participant’s Notes

4.2.1 Definitions: an outbreak/epidemic and cluster

(a) An outbreak is defined as 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.
(b) Epidemic is used interchangeably with outbreak.
(c) Cluster: aggregation of cases in a given area over a particular period regardless of whether the number of cases is more than expected.
4.2.2 The purpose of investigating an outbreak/event

(a) The results of an investigation of the causes of an outbreak or other public health event lead to identification and assessment of people exposed to the disease or affected by the unusual health event.

(b) The investigation provides relevant information for taking immediate action and improving longer-term prevention activities.

(c) The steps for conducting investigation of a suspected outbreak or other acute health event can also be used to investigate other public health problems in the district such as detection of an increase in a chronic or non-communicable disease.

The purpose of an investigation is to:

(a) Verify the outbreak or the public health event and determine the health risks.
(b) Identify and treat additional cases that have not been reported or recognized.
(c) Collect information and laboratory specimens for confirming the diagnosis.
(d) Identify the source of infection or cause of the outbreak or public health event.
(e) Describe how the disease is transmitted and the populations at risk.
(f) Describe the epidemiological situation in time, place and person.
(g) Select appropriate response activities to control the outbreak or the public health event.
(h) Mobilize resources to mount appropriate response.
(i) Strengthen prevention activities to avoid future reoccurrence of the outbreak.

Note these points:

(a) **Outbreaks are Public Health Emergencies so require immediate investigation.**
(b) **Districts should aim to investigate suspected outbreaks and events within 48 hours of notification from lower level.**
4.2.3 The steps in outbreak investigation

Know the steps of outbreak investigation:

Step 1: Establish Existence of an outbreak
Step 2: Prepare for Fieldwork
Step 3: Verify and Confirm the diagnosis
Step 4: Define a case and search for additional cases
Step 5: Analyse data and generate hypothesis
Step 6: Test and refine hypothesis with analytic study
Step 7: Implement Control Measures (Refer to section 6)
Step 8: Write Report and Dissemination of findings (Refer to section 7)
Step 9: Conduct Risk Assessments to determine if the outbreak is a potential PHEIC
Step 10: Maintain and intensify surveillance

NB: The sections being referred to are the 3rd edition IDSR Technical Guidelines Booklet Three

NB: As you complete this module, you may refer to the Summary guidelines for Specific Priority Diseases in Section 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six. Note that each disease specific guideline includes specific information about collecting and handling laboratory specimens for confirming suspected cases.

(a) Your facilitator will introduce the purpose for investigating a report of an outbreak or other public health event.
(b) Your facilitator will also explain and demonstrate the steps of outbreak investigation.
(c) This you can read in section 4 of the 3rd Edition IDSR Technical Guidelines Booklet Three.
4.2.4 Practice Exercises

Instructions: Your Facilitator will ask you to get into four (4) small groups of a minimum of three (3) people and each group assigned an exercise from exercises 1 to 4 below. Each group should select a leader and a rapporteur (The leader moderates the group discussions whilst the rapporteur documents the agreed answers by the group). Each group has about 20 minutes to read, discuss and answer all questions to the assigned exercise, after which the group leader presents during plenary discussions: there will be 5 minutes presentation and 5 minutes discussion per group. Your facilitator will moderate the plenary discussions and provide the correct answer to each question.

4.2.4.1 Exercise 1

Exercise 1

Instructions: In this exercise, you will read about an outbreak and the steps that were taken to investigate it. Answer the questions that follow each part of the case study. Your facilitator may suggest that participants do this exercise in pairs or small groups of 3 to 4 people. At the end of the case study, there will be a group discussion.

* * * *

An unknown disease outbreak in Matulu District.

On 4 September 2017, the District Medical Officer (DMO) of Matulu District received a report of an outbreak of an unknown disease that had affected Tanli and Mituri communities in the District. Patients were presenting with sudden onset of fever, headache, chills, weakness and swelling in the groin. Others were presenting with cough and blood-stained sputum. There were reports that two adults had already died from this cluster of symptoms.

1. The DMO suspected plague. What action should he now take?
2. What is plague?

3. Should this outbreak be reported to the MoH national level?

4. Should this outbreak be notified to the IHR focal point at the national level?

5. The DMO compared the information he had with the IHR decision instrument (see Annex 2 of the International Health Regulations (2005). How should he respond to the following questions?

5A: Is the public health impact of the event serious:

5B: Is the event unusual or unexpected?

5C: Is there a significant risk of international spread?

5D: Is there a significant risk of international travel or trade restriction?

5E: Should the District Medical Officer notify the IHR focal point?
6. How does the DMO verify the existence of an outbreak of plague?

7. What specimens should be collected for laboratory confirmation?

8. When should the specimen be collected?

9. In your health system, where should you send plague specimens for confirmation?

10. What information should accompany the specimens?

11. Does your district keep supplies for collecting, packaging and shipping plague specimens? For example, does your team have a reliable supply of Cary Blair transport media?
In this exercise, you will analyse data about the outbreak in Matulu District. The DMO developed a summary of information about cases and deaths that occurred during the outbreak. Review the table below and then answer the questions that follow.

Table 4.1: Plague outbreak in Matulu District, from 1 to 14 September 2017

<table>
<thead>
<tr>
<th>Date of onset</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 September 2017</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2 September 2017</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3 September 2017</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>4 September 2017</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5 September 2017</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>6 September 2017</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>7 September 2017</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8 September 2017</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9 September 2017</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>10 September 2017</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>11 September 2017</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>12 September 2017</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>13 September 2017</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>14 September 2017</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>2</td>
</tr>
</tbody>
</table>

12. Draw a line graph to show epidemic of plague in Matulu District using the data provided in Table 4.1. Use the space provided below to draw your graph. If graph paper or computers are available, you may choose to use those for creating your graph.

Line Graph: Plague outbreak in Matulu District, 1-14 Sept 2017
13. Review the graph you created in Question 12. Describe what the graph shows, beginning with the onset of the first case.

14. What was the **case fatality rate** in the first 2 days?

15. What was the **overall case fatality rate** for the outbreak? Describe the apparent difference between the first 2 days of the outbreak and the overall outbreak.

16. Why do you think there is a difference between the two period
The District rapid response team also summarized the cases of plague by locality and sex as seen in Table 4.2

Table 4.2: Distribution of cases by community and sex in Matulu District

<table>
<thead>
<tr>
<th>Community</th>
<th>Population at risk</th>
<th>Cases of plague</th>
<th>Total cases</th>
<th>*Attack rate per 100 000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Tanli</td>
<td>30 000</td>
<td>12</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Mituri</td>
<td>20 000</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Wangala</td>
<td>40 000</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Kaleli</td>
<td>10 000</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>100 000</td>
<td>28</td>
<td>20</td>
<td>48</td>
</tr>
</tbody>
</table>

* Attack rates = total number of cases/ Total population at risk of the disease* 100 000.

17. Calculate the Attack Rate (incidence rate) for each village in Matulu District. Record your answer in the blank column in Table 4.2.

* Attack rates = total number of cases ÷ Total population at risk of the disease X 100 000

18. Did the disease affect males and females equally? (Assume the male to female ratio in the general population is 1:1)?

19. Table 5.3 shows the distribution of cases by age group. It also gives the population at risk within those categories. The DMO was able to compare attack rates between the different age groups. Which age groups were most affected by Plague?

Table 5.3: Distribution of cases by age

<table>
<thead>
<tr>
<th>Age group (yrs)</th>
<th>Population at risk</th>
<th>Number of cases</th>
<th>Attack rate per 100 000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–4</td>
<td>20 000</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>5–9</td>
<td>15 000</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>10–14</td>
<td>15 000</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>15–19</td>
<td>10 000</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>20 and above</td>
<td>40 000</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
In this exercise, you will use the available information to characterize the outbreak and identify response actions.

* * * *

20. Based on your answers to previous questions, what do you think placed each of the particular groups at risk of getting disease in Matula District?

20A: What do you think are the different risks for males versus females?

20B: What about the different age groups?
Refer to Section 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six and decide on recommendations for controlling this outbreak in each of the following areas:

21A: Case Management:

21B: Case Reporting:

21C: Community Actions:

22. Do the actions taken by the DMO and team illustrate all the steps required in investigating an outbreak?

22A. If no, which step(s) is or are missing?
Exercise 2

In this exercise, you will have another opportunity to practice the steps for investigating an outbreak. Work with a partner or a small group of 3 to 4 participants to complete this second case study. When you have completed the exercise, your facilitator will provide feedback about your progress. As you do this exercise, refer to the disease specific guidelines for Rift Valley Fever in Section 11, page XX of the 3rd Edition IDSR Technical Guidelines Booklet Six.

* * * *

Case Study: Haemorrhagic Fever Disease Outbreak in Buran District

In early December 2017, the District Medical officer of Health Buran District in Eastern Province reported several unexplained deaths associated with fever and generalized bleeding to the Ministry of Health. By 20 December, several cases were admitted to the hospital presenting with high fever headache, vomiting blood, abdominal pain, jaundice and sudden death. Those mostly affected were young herdsmen in contact with sick goats, sheep and cattle. The local veterinary health officials also reported high rates of spontaneous abortion and death among domestic livestock.

The community lives in a dry area where herdsmen are gone from the village for long periods of time. When the area floods, the roads often become rivers or heavily rutted from rains and the village becomes difficult to reach. There have been previous outbreak of Rift Valley Fever (RVF) that occurred in December 1997 following the massive El Niño rains flooding. Presence of the Aedes mosquito has been documented in the village as well. to the district health facilities.

1. Is this an outbreak?

2. Define what is an outbreak?
The DMO suspected an outbreak of Rift Valley Fever (RVF) based on the previous outbreak that occurred in December 1997 following the massive El Niño rains flooding and the documented presence of the *Aedes* mosquito in the community.

3. What is a suspected case definition for RVF?

4. What is a confirmed case definition for RVF?

5. How is RVF transmitted?

6. What are the steps in outbreak investigation?
7. What preparations are needed prior to launching the investigation?

8. What action should the District Medical Officer take?

The Ministry of Health subsequently sent a Public Health Emergency Rapid Response Team to investigate the outbreak.

9. Which experts might be included on the initial investigation team?

10. What tools should the team take with them to the field?
The team collected samples for testing using Polymerase Chain Reaction (PCR). What type of laboratory samples should be collected to confirm the disease?

12. What is the type of sample?

13. How will they be transported?

14. Which laboratory in your health system will assist with safe handling, shipping, storing and processing of this specimen?
Figure 4.1: RVF reported cases by age and sex, Buran District, 6 February 2017

15. Based on your knowledge of RVF and information provided in Figure 1 above, why do you think particular categories of people were most affected?

During the investigation, you received more information on the outbreak. The most frequently reported RVF risk factors during the 2 weeks preceding illness onset were drinking un-boiled (raw) milk (72%); living within 100 meters of a flooded area (70%); having an ill animal (67%); drinking milk from an ill animal (59%); working as a herdsman (50%); having a dead animal in a herd (50%); and slaughtering an animal (42%). Approximately 9% of patients reported close contact with another household member who was sick with RVF.

16. What are the key messages to reduce the transmission of the disease in the community?
17. What would be the most appropriate way to communicate health information to this nomadic community?

18. The graph in Figure 4.2 is an epidemic curve of the RVF outbreak in Buran. An epidemic curve describes the distribution of cases over time. Describe what you see in this epidemic curve.

**Figure 4.2: Distribution of cases by time Buran District, November 2017 to January 2018**

The ban on animal slaughter was announced by the Ministry of Agriculture and Livestock on 27 December 2017. Vaccination of cattle and goats began on 7 January 2018. The Ministry also banned the movement of livestock from the infected areas.

19. Insert arrows on figure 2 indicating when the Ministry of Agriculture and Livestock was announced the ban on movement of livestock and when vaccination of the livestock started.
20. In your opinion, was the ban on slaughter of animals and starting vaccination of livestock effective in breaking the transmission of RVF? Explain your answer referring to figure 4.2.
4.2.4.3 Practice Exercise 3

Exercise 3

In this case study, you will practice evaluating an outbreak and obtaining information for use in a report.

Instructions: Read the case study about an outbreak of measles and then answer the questions about the results of the outbreak response.

* * * *

An outbreak of measles in Onori

Demography:

Onori is an archipelago consisting of 10 islands. It is about 500 km off the coast of Galen, a country in Africa. It has a population of 430,000 people, 65% of which inhabit the two biggest islands of the archipelago.

The majority of people from Onori migrate out of the country for economic reasons. In fact, the major revenue of the country is obtained from money sent home from Onorians living and working abroad.

Only 10% of the country's food requirement is produced locally and the adult literacy rate is estimated at 80%.

Health Services

Health Services are delivered through both government and private providers. There are 2 central hospitals, 3 regional hospitals, 18 health centres, 20 dispensaries and 87 PHC centres. The doctor-patient ratio is 1:2500; while the nurse-patient ratio is 1:1500. Onori has been measles free for several years. Measles elimination is the goal of Onori Health Services. The WHO target for measles elimination is 2020.
The Outbreak

Reporting

An outbreak of measles began on 16 August 2017 in Onori. A total of 44 cases were recorded over the outbreak period. The first cases were recorded in Victa, the capital of the biggest Island of the Onori archipelago. While doing an institutional outpatients and admissions register review at the Onori Central Hospital on 17 August 2017, a member of the polio STOP team was impressed about record keeping at the Hospital. He noticed in the admission register of the Paediatrics Isolation Unit that one case of "Suspected Measles" had been recorded, however, he did not find any records of acute flaccid paralysis cases. He faithfully submitted a zero case AFP surveillance report to the Epidemiologist of the Onori Health Services for the week ending 19 August 2017. He did not report the "Suspected Measles" because he was tasked with only STOP team activities.

Confirming Diagnosis

The suspected case was later confirmed to be due to measles in the laboratory by the detection of anti-measles IgM antibodies.

The EPI Program in Onori

Routine EPI coverage (<1Yr) in Onori declined from 79.4% in 2014 through 76.7% in 2015 to 69.6% in 2016. Factors responsible for this decline were not immediately known.

Disease Surveillance in Onori

Human resource capacity building for AFP Surveillance in Onori was carried out in 2012 and 2013 for national surveillance personnel. In August and September 2017 when the first cases of Measles outbreak were detected in the hospitals, the Onori Epidemiologist faxed a report to WHO indicating "No measles cases" and " No AFP cases" since did he not receive the measles case report from the STOP team member.

* * * *

Following a rumour of a suspected outbreak of measles, an epidemiologist was sent to investigate the outbreak and summarized the findings as shown in Table 4.4
Table 4.4: Line List—Measles outbreak in Onori Archipelago

<table>
<thead>
<tr>
<th>Reg No.</th>
<th>Name</th>
<th>Community</th>
<th>Sex</th>
<th>Age</th>
<th>Wk of Adm</th>
<th>Vaccination Status</th>
<th>Lab Test IgM+</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GK</td>
<td>Osinya</td>
<td>F</td>
<td>11 months</td>
<td>1</td>
<td>No</td>
<td>+Ve</td>
<td>Dead (D)</td>
</tr>
<tr>
<td>2</td>
<td>PG</td>
<td>Osinya</td>
<td>M</td>
<td>8yrs</td>
<td>1</td>
<td>No</td>
<td>+Ve</td>
<td>Alive (A)</td>
</tr>
<tr>
<td>3</td>
<td>JK</td>
<td>Osinya</td>
<td>M</td>
<td>3yrs</td>
<td>2</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>4</td>
<td>WL</td>
<td>Osinya</td>
<td>F</td>
<td>38yrs</td>
<td>2</td>
<td>Yes</td>
<td>+Ve</td>
<td>D</td>
</tr>
<tr>
<td>5</td>
<td>WW</td>
<td>Osinya</td>
<td>F</td>
<td>4yrs</td>
<td>3</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>OM</td>
<td>Osinya</td>
<td>M</td>
<td>2yrs</td>
<td>3</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>SO</td>
<td>Osinya</td>
<td>F</td>
<td>2.5yrs</td>
<td>4</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>OD</td>
<td>Osinya</td>
<td>F</td>
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<td>+Ve</td>
<td>A</td>
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<tr>
<td>9</td>
<td>ER</td>
<td>Osinya</td>
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<td>4yrs</td>
<td>5</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>10</td>
<td>DS</td>
<td>Osinya</td>
<td>M</td>
<td>1yr</td>
<td>6</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>11</td>
<td>LK</td>
<td>Osinya</td>
<td>M</td>
<td>4yrs</td>
<td>6</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>12</td>
<td>RE</td>
<td>Osinya</td>
<td>M</td>
<td>2yrs</td>
<td>6</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>13</td>
<td>LO</td>
<td>Osinya</td>
<td>M</td>
<td>6yrs</td>
<td>7</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>14</td>
<td>KO</td>
<td>Salama</td>
<td>F</td>
<td>15yrs</td>
<td>7</td>
<td>Yes</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td>15</td>
<td>PO</td>
<td>Osinya</td>
<td>M</td>
<td>4yrs</td>
<td>7</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>16</td>
<td>DE</td>
<td>Osinya</td>
<td>F</td>
<td>7yrs</td>
<td>7</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>17</td>
<td>GS</td>
<td>Osinya</td>
<td>F</td>
<td>8yrs</td>
<td>7</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>18</td>
<td>FK</td>
<td>Salama</td>
<td>F</td>
<td>2yrs</td>
<td>7</td>
<td>No</td>
<td>+Ve</td>
<td>D</td>
</tr>
<tr>
<td>19</td>
<td>NU</td>
<td>Salama</td>
<td>M</td>
<td>37yrs</td>
<td>8</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>20</td>
<td>PQ</td>
<td>Osinya</td>
<td>F</td>
<td>3.5yrs</td>
<td>8</td>
<td>Yes</td>
<td>+Ve</td>
<td>D</td>
</tr>
<tr>
<td>21</td>
<td>KS</td>
<td>Salama</td>
<td>M</td>
<td>7yrs</td>
<td>8</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>22</td>
<td>KA</td>
<td>Salama</td>
<td>F</td>
<td>5yrs</td>
<td>8</td>
<td>Yes</td>
<td>+Ve</td>
<td>D</td>
</tr>
<tr>
<td>23</td>
<td>NK</td>
<td>Salama</td>
<td>F</td>
<td>5yrs</td>
<td>8</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>24</td>
<td>HD</td>
<td>Salama</td>
<td>M</td>
<td>6yrs</td>
<td>8</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>25</td>
<td>XE</td>
<td>Vicente</td>
<td>M</td>
<td>1yr</td>
<td>8</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>26</td>
<td>MA</td>
<td>Salama</td>
<td>M</td>
<td>7yrs</td>
<td>8</td>
<td>No</td>
<td>+Ve</td>
<td>D</td>
</tr>
<tr>
<td>27</td>
<td>ER</td>
<td>Vicente</td>
<td>F</td>
<td>5yrs</td>
<td>8</td>
<td>Yes</td>
<td>+Ve</td>
<td>D</td>
</tr>
<tr>
<td>28</td>
<td>BN</td>
<td>Vicente</td>
<td>M</td>
<td>9yrs</td>
<td>8</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>29</td>
<td>MZ</td>
<td>Salama</td>
<td>F</td>
<td>8yrs</td>
<td>9</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>30</td>
<td>MX</td>
<td>Vicente</td>
<td>M</td>
<td>12yrs</td>
<td>9</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>31</td>
<td>BD</td>
<td>Vicente</td>
<td>F</td>
<td>11yrs</td>
<td>9</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>32</td>
<td>AW</td>
<td>Cruz</td>
<td>F</td>
<td>9.5yrs</td>
<td>9</td>
<td>Yes</td>
<td>+Ve</td>
<td>D</td>
</tr>
<tr>
<td>33</td>
<td>QA</td>
<td>Tarime</td>
<td>M</td>
<td>12.5yrs</td>
<td>9</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>34</td>
<td>WE</td>
<td>Cruz</td>
<td>M</td>
<td>10yrs</td>
<td>9</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>35</td>
<td>DC</td>
<td>Tarime</td>
<td>F</td>
<td>14yrs</td>
<td>9</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>36</td>
<td>BT</td>
<td>Cruz</td>
<td>M</td>
<td>3yrs</td>
<td>10</td>
<td>No</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td>37</td>
<td>NX</td>
<td>Tarime</td>
<td>M</td>
<td>19yrs</td>
<td>10</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>38</td>
<td>MZ</td>
<td>Cal</td>
<td>F</td>
<td>18yrs</td>
<td>10</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>39</td>
<td>NX</td>
<td>Cal</td>
<td>F</td>
<td>30yrs</td>
<td>11</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>40</td>
<td>POO</td>
<td>Cata</td>
<td>M</td>
<td>34yrs</td>
<td>11</td>
<td>No</td>
<td>+Ve</td>
<td>A</td>
</tr>
<tr>
<td>41</td>
<td>HDS</td>
<td>Cata</td>
<td>F</td>
<td>33yrs</td>
<td>11</td>
<td>No</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td>42</td>
<td>SER</td>
<td>Domingo</td>
<td>M</td>
<td>5yrs</td>
<td>12</td>
<td>No</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td>43</td>
<td>MJT</td>
<td>Kigumo</td>
<td>M</td>
<td>38yrs</td>
<td>12</td>
<td>Yes</td>
<td>+Ve</td>
<td>A</td>
</tr>
</tbody>
</table>
1. Using the information provided in the line list (Table 4.4) of measles outbreak in Onori, complete the number of cases, cumulative cases and proportion of cumulative cases in this table.

**Table 4.5: Number of measles cases reported in Onori by age, August 2017**

<table>
<thead>
<tr>
<th>Age Group (yrs.)</th>
<th>&lt;1</th>
<th>1–4</th>
<th>5–9</th>
<th>10–14</th>
<th>15–19</th>
<th>20–24</th>
<th>25–34</th>
<th>35 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Of cases</td>
<td>1</td>
<td>14</td>
<td>15</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative No. of cases</td>
<td>1</td>
<td>15</td>
<td>30</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of cumulative cases (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Using the data in the table below, draw a graph showing the number of cases of measles reported per week since the beginning of the outbreak (start of epidemic is taken as week 1). Use the space provided below to draw your graph.

**Table 5.6: Number of Cases by week of admission, August 2017**

<table>
<thead>
<tr>
<th>Week of epidemic</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of cases</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>10</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Line Graph: Number of Measles Cases in Onori by Week—August 2017**
3. Describe what you see in the graph.

4. Calculate measles incidence rate (attack) rate by community, by completing Table 4.7.

Table 4.7: Distribution of measles cases by community in Onori

<table>
<thead>
<tr>
<th>Community</th>
<th>Population</th>
<th>Number of cases</th>
<th>Incidence rate Per 100 000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osinya</td>
<td>121 212</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Salama</td>
<td>12 769</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Vicente</td>
<td>81 799</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Cruz</td>
<td>26 667</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Tarime</td>
<td>12 121</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Cata</td>
<td>45 866</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Domingo</td>
<td>9696</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Kigumo</td>
<td>3736</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mina</td>
<td>8767</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Baraka</td>
<td>18 181</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>340 814</td>
<td>44</td>
<td></td>
</tr>
</tbody>
</table>

* Calculate the incidence rate (attack rate) by dividing the number of cases by the population at risk and multiplying by a factor such as 100 000. In this case we assume that the whole population is at risk of getting measles.

5. Complete Table 4.8 by calculating and recording the Case Fatality Rate (CFR) for the remaining communities. The CFR is the proportion of fatal cases (i.e., the percentage of cases who died).

Table 4.8: Case-Fatality Rate for Onori Measles Outbreak

<table>
<thead>
<tr>
<th>Community</th>
<th>Island</th>
<th>Population</th>
<th>Number of cases</th>
<th>Mortality</th>
<th>Case-fatality rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osinya</td>
<td>A</td>
<td>121 212</td>
<td>17</td>
<td>2</td>
<td>11.8</td>
</tr>
<tr>
<td>Domingo</td>
<td>A</td>
<td>9696</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cruz</td>
<td>A</td>
<td>26 667</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tarime</td>
<td>A</td>
<td>12 121</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Baraka</td>
<td>A</td>
<td>18 181</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cata</td>
<td>A</td>
<td>45 866</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Salama</td>
<td>B</td>
<td>12 769</td>
<td>9</td>
<td>4</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Kigumo</td>
<td>C</td>
<td>3736</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Vicente</td>
<td>D</td>
<td>81 799</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mina</td>
<td>E</td>
<td>8767</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>340 814</td>
<td>44</td>
<td>9</td>
<td>20.5</td>
<td></td>
</tr>
</tbody>
</table>
6. What is the surveillance case definition for Measles and a Measles death?

7. Which of the islands have the highest case fatality rate (CFR)?

8. What could be the possible underlying factors responsible for a high CFR?

The cases from the measles epidemic were summarized by age group and vaccination status in order to further characterize the epidemic. The details are provided in Table 4.9. Calculate the proportion of cases by age category and by vaccination status as provided in the table.

**Table 4.9: Distribution of cases by age and vaccination status**

<table>
<thead>
<tr>
<th>Age category</th>
<th>Vaccinated</th>
<th>Unvaccinated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5 yrs.</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>5yrs and above</td>
<td>9</td>
<td>20</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>30</strong></td>
<td><strong>44</strong></td>
</tr>
</tbody>
</table>

9. What do you think are possible causes of this epidemic?
10. Considering your responses to the questions so far on this epidemic, what are your informed views on the following?

10A: Time interval between onset of Outbreak and Campaign.

10B: The selection of the islands targeted for the initial campaign.

10C: The age group targeted for the mass immunization.

11. What are some of the challenges facing Disease Surveillance in Onori?
Exercise 4

The purpose of this exercise is for you to practice completing a district outbreak report by calculating indicators and drawing conclusions about the response.

**Instructions:** First, read the following District Outbreak Report that describes an outbreak of Chikungunya. Read through the first four parts: Executive Summary, Introduction, Methods and Results. For a real report, you would have written these sections yourself. Then in Part IV, use information from the report to calculate the indicators about the timeliness and quality of the outbreak detection, investigation and response. Discuss parts V, VI and VII (the evaluation and recommendation sections) with a small group.

A blank District Outbreak Report form can be found in section 7, Annex 7B on page XX of the 3rd Edition IDSR Technical Guidelines Booklet Three.

**District Outbreak Report**

**Outbreak of Chikungunya**

Title/Description (include disease/condition investigated)

12 August–15 September 2007

12 August–15 September 2007

Touli Village, Faroush District

Touli Village, Faroush District

Place (Villages, Neighborhoods, District, Province)

Place (Villages, Neighborhoods, District, Province)

**Executive Summary:**

On 12 August 2016, a rumour of suspected Chikungunya reached the health facility near Touli village. On 13 August, 4 cases of suspected Chikungunya were admitted to the health facility. The disease was confirmed by laboratory on 16 August. Subsequently, the District Public Health Management Committee was alerted on 17 August and the Rapid Response Team dispatched to Touli on the 20 August. The team immediately started active case finding and case management.
The vector control activities were initiated on 25 August and there were no new suspected cases of Chikungunya reported after 15 September.

I. Introduction:

On 12 August, 2016, a rumour of suspected Chikungunya reached the health facility near Touli village. On 13 August, 4 cases of suspected Chikungunya cases were admitted to the health facility near Touli. The health facility immediately reported the suspected cases to the DMO by phone. Blood samples were taken and sent to the district laboratory. Confirmation results were returned within 72 hours showing the specimens positive for Chikungunya. Health facility staff were trained on how to manage suspected cases of Chikungunya and protocols were made available in the outpatient and inpatient departments. As cases arrived at the health facility, health staff were able to treat patients by alleviating their pain with appropriate medications that were in adequate supply. Each case was recorded in a line list form. On 16 August, the health facility reported the confirmation to the DMO who immediately reported the confirmation to the national level. He also alerted other neighbouring health facilities to initiate active surveillance for Chikungunya cases. The District Public Health Management Committee was alerted about the suspected cases during their weekly meeting on 17 August. The investigation team arrived in Touli on 20 August and started active case finding and case management. The team found that cases lived near an illegally constructed dam for irrigation water that was blocking the local river. The area had become a breeding ground for mosquitoes. The Rapid Response Team initiated vector control intervention on 25 August. On the same day, the community was informed on how Chikungunya was spread and how they could protect themselves from mosquitoes. Finally, the RRT contacted the health facility to update the staff on the current state of cases and risk factors in Touli. Over the period of the outbreak (12 August-15 September) 45 cases were confirmed with no deaths. The final outbreak report was completed on 20 September and sent to the national level.

II. Methods:

The investigation occurred from 20 to 25 August in the village of Touli in Faroush District. The investigation team performed contact tracing and mapped the location of the cases. The team found that cases lived near an illegal dam that was causing the river to stop flowing. The area had become a breeding ground for mosquitoes. The investigation team treated cases immediately. Blood samples were taken from each case and sent to the district laboratory. They started a mosquito control intervention on 25 August.

III. Results:

The first suspected case was reported from Touli village on 12 August. The first case seen in a health facility arrived from Touli on 13 August. Case tracing in the village identified 14 additional
cases of Chikungunya. Lab results confirmed that each case was Chikungunya. The cases were clustered around an illegal dam in the village of Touli and mostly affected children under 5. The mosquito control efforts initiated by the district epidemic management committee decreased the mosquito population and resulted in a decline in cases over a one week period.

IV. Self-evaluation of the timeliness and quality of preparedness, outbreak detection, investigation, and response

Epidemic Preparedness

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were adequate drugs and medical supplies available at the onset of the outbreak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were treatment protocols available to health workers?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the district epidemic management committee regularly meet as part of epidemic preparedness?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outbreak Detection

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Date 1</th>
<th>Date 2</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval between onset of index case (or occurrence of an unusual cluster at the community level) [date 1] to arrival of first outbreak case at the health facility [date 2] (Target: &lt;3 days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interval between initial outbreak case seen at the health facility (or date of outbreak threshold crossing at the health facility) [date 1] and reporting to the district health team [date 2] (Target: within 24 hours)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative interval between onset of index case (or occurrence of an unusual cluster at the community or health facility) [date 1] to notification to the district [date 2] (Target: &lt;7 days)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Outbreak investigation

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were case forms and line lists completed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were laboratory specimens taken (if required)?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Date 1</th>
<th>Date 2</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval between notification of district [date 1] and district field investigation conducted [date 2] (Target: within 48 hours)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interval between sending specimens to the lab [date 1] and receipt of results by the district [date 2] (Target: 3–7 days, depending on type of test)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Outbreak response:**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Date 1</th>
<th>Date 2</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval between notification of outbreak to district [date 1] and concrete response by the district [date 2] (Target: within 48 hours of notification)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evaluation and Feedback:**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Date 1</th>
<th>Date 2</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval between end of the outbreak [date 1] and finalization of outbreak report with case forms/line list sent to national level [date 2] (Target: 2 weeks)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the outbreak management committee meet to review investigation results?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was feedback given to health facilities and community?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

V. **Evaluation of other aspects of the response**

VI. **Interpretations, discussion, and conclusions**

What information is missing that could help you complete this form?
VII. Recommended public health actions:

(a) Community level:

(b) Health Facility:

(c) District:

(d) Regional/Provincial:
4.3 Summary

**Points to remember:**

(a) Understanding alert thresholds will help you know when to investigate an outbreak.

(b) Document all of the rumours, reports and verified information about an outbreak.

(c) Assemble an outbreak investigation team and consider all of the logistics that will need to be taken care of so that they can do their jobs, i.e., which vehicles can they use, what resources are available to them for fuel, food, etc. Who will they contact at the outbreak site?

(d) Analyse the investigation results to determine what caused the outbreak or event and decide if there is immediate action that can decrease the severity of the effect.

(e) Prepare an outbreak report to submit to the National Level.

4.4 References

(a) Technical Guidelines for Integrated Disease Surveillance and Response (IDSR) third Edition, WHO AFRO, 2019

PARTICIPANT GUIDE

MODULE 2: PREPARE TO RESPOND TO OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

MARCH 2019
MODULE 2: PREPARE TO RESPOND TO OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

5.1 Introduction

This module describes steps for organizing preparedness activities at the community, facility district, regional and national levels. It also describes how to set up public health emergency response structures such as Public Health Emergency Operation Centre (PHEOC), Public Health Emergency Management Committee, Public Health Emergency Rapid Response Teams (PHERRRT) and the Public Health Emergency Management Committee at national and subcommittees at the national, regional, and district levels. The module provides guidance on developing a multi-hazard emergency preparedness and response plan.

5.1.1 Purpose of the Module

The purpose of this module is to equip participants with knowledge, skills and tools and skills to adequately prepare at community, facility, district, regional and national levels to support outbreak response.

5.1.2 Learning objectives

On completion of this module, participants will be able to:

(a) Understand the steps in establishing a functional public health emergency operations centre (PHEOC).
(b) Establish public health emergency management committees at the relevant levels and identify their functions.
(c) Define the roles and responsibilities of rapid response teams at all levels.
(d) Understand and apply the steps involved in risk mapping for public health events.
(e) Prepare an emergency preparedness and response plan.
   (i) Prepare hazard specific contingency plans.
   (ii) Understand the importance of isolation capacity and the referral pathway in emergency preparedness.
   (iii) Establish database of trained healthcare workers for surge capacity.
   (iv) Ensure pillar specific training including IDSR.
   (v) Understand importance of preparedness budgetary allocation.
(f) Identify the steps in setting up contingency stocks.
5.2 Participant’s Notes

5.2.1 Importance of preparedness to public health emergencies

*Note these points:*

(a) Rapid and effective response to a public health emergency such as a suspected outbreak or other public health event not only calls for an immediate response but is also one of the core capacities required by International Health Regulations (2005).

(b) Being prepared to detect and respond to such an event is an essential role of the district, regional and national levels.

(c) Preparations for public health events include:
   (i) Develop public health emergency preparedness and response plan (ERP).
   (ii) EPR should include the coordinating structure, the mapping of risks and how to address and maintain the emergency response plan for relevant events including the capacity to support operations at primary response level during a public health emergency.
   (iii) Establish Public Health Emergency Management Committee (PHEMC).
   (iv) Develop functional Public Health Emergency Operating Centres (PHEOC) for coordination of public health emergencies or events/incidents at least at National level, and similar coordinating structures at subnational level.
   (vi) Conduct simulation exercises e.g. table top or drills to test systems.

(d) If these steps are carried out in advance of an event, the health system will be able to function promptly, effectively, and efficiently to reduce significantly attributable deaths or disabilities.

5.2.2 Establishment of Public Health Preparedness and Response structures

The Public Health Preparedness and Response structures are made up of the following:

(a) Permanent functional Public Health Emergency Operations Centre (PHEOC)—a command and control centre.

(b) Functional Public Health Emergency Management Committees (PHEMC).

(c) Public Health Emergency Management Subcommittees.

(d) Public Health Emergency Rapid Response Teams (PHERRT).

5.2.2.1 Public Health Emergency Operations Centre (PHEOC)

PHEOC is a hub for the coordination of information and resources to support incident or event management activities to respond to emergencies that involve health consequences and public health threats.
Importance of PHEOC

(a) For effective coordination of response to Public Health events.
(b) This will result in minimising the impact of the event in the community.
(c) Is a requirement of International Health Regulations (IHR 2005).
(d) Is a hub for preparedness activities.

Steps in establishing PHEOC

(a) Develop legislation or an executive directive i.e. a legal framework that provides legal mandate for the health ministry or public health agency to establish and manage a PHEOC.
(b) This mandate should outline roles and responsibilities, coordination mechanisms with national disaster management resources, and a funding mechanism for the operations of the PHEOC.
(c) It is highly recommended that the PHEOC is positioned at the highest level where there is already an organ mandating the coordination for public health emergencies.
   • Example; In some countries, the PHEOC is placed at the Chief Medical Officer, the Director for Health or National public health Institutes (NPHIs) and is answerable to the Minister for Health.
(d) PHEOC should be established at least at the national level to act as a command and control centre to enhance coordination.
(e) If resources allow, regions and districts should have PHEOCs, with basic facilities that support direct coordination of preparedness and response to public health emergencies and facilitate real time communication and information between various stakeholders at their levels, but also facilitate sharing with the national level PHEOC.

Functions of PHEOC

(a) Centre for decision-making, and coordination of information and resources for strategic management of public health events and emergencies.
(b) Monitor events using various sources of data.
(c) Facilitate and improve communication between public health and emergency management stakeholders through the call centres, social media, press.
(d) Facilitate coordination with multiple response partners.
(e) Maintaining plans and procedures.
(f) Conduct trainings and simulation exercises.
(g) Carry out routine and event-based surveillance activities.
(h) Maintain systematic database of resources available, important phone numbers, names and addresses of important government and non-government officials, international bodies and NGOs.
(i) Serve as a resource centre for preparedness and response activities.
(j) PHEOC should be operational 24 hours.
5.2.2.2 Establishment of Public Health Emergency Management Committees (PHEMC) at all levels

Public health emergency management committee (PHEMC) should be established at all levels; national, regional, and district.

The district-level public health emergency management committees (PHEMC) work closely with their counterparts at the regional and national levels to plan and monitor the implementation of public health emergency plans. PHEMC are coordinating committees composed of technical and non-technical members from health and other sectors. The role of the PHEMC is to develop and oversee the implementation of emergency preparedness strategies, action plans, and procedures.

Public Health Emergency Management Subcommittees

(a) Public Health Emergency Management Subcommittees are formed by the PHEMC to oversee the day to day management of public health emergencies. They will consist of technical and non-technical teams. Public Health Emergency Management Subcommittees should be established at all levels.

(b) Their Main Role is to oversee daily management of the event/incident and feed the PHEMC for decision making. In non-outbreak settings, regular meetings are also held to strengthen preparedness capacity (e.g. training of HCWs).

5.2.2.3 Public Health Emergency Rapid Response Team (PHERRT)

A PHERRT is a technical, multidisciplinary team that is readily available for quick mobilization and deployment in case of emergencies to effectively investigate and respond to emergencies and public health events that presents significant harm to humans, animals and environment, irrespective of origin or source.

Your facilitator will describe and demonstrate how to establish functioning Public Health Preparedness and Response structures including permanent functional public health emergency operations Centre (PHEOC).

You can also find this information in Section 5, pages XX to XX of the 3rd Edition IDSR Technical Guidelines Booklet Three.

5.2.3 Procedures for conducting risk mapping for outbreaks and other public health events

(a) Vulnerability risk assessment and mapping is used as an aid to preparedness to identify at-risk areas or populations, rank preparedness activities, and also to engage key policy and operational partners.
(b) This includes mapping and assessing risks (in the catchment area) with the potential to affect community health.
(c) This mapping must address all acute health risks, and not be restricted to communicable diseases.
(d) The exercise should consider the identification and mapping across all levels from national through regional to district.
(e) For example, include evaluation of drinking water sources or food storage methods and animal breeding areas and movements.
(f) This process should be ongoing and updated periodically.
(g) For example, once a year, assess those risks and record the information on a map. This is useful information when considering supplies, transport and other resource issues necessary for the response.

| Your Facilitator will introduce to you the WHO Strategic Tool for Prioritizing Risks (STAR)- A tool used to assess a wide range of hazards |

5.2.4 Preparing an epidemic preparedness and response plan

Key sections of an epidemic preparedness and response plan:

(a) Designated coordination structures, including committees.
(b) Matrix of key stakeholders and partners supporting health activities (human, animal, agriculture, etc.) and roles and responsibilities.
(c) Epidemiology and surveillance activities, including health information management.
(d) Steps for carrying out a risk communication strategy including social mobilization.
(e) Operational actions according to expected phases of the epidemic.
(f) Laboratory specimen collection, handling, transportation, processing and information management.
(g) Case management, including treatments (anti-viral, antimicrobial, decontamination, disinfection or others as indicated), infection control, isolation facilities, management of a mass casualty event.
(h) Pre- and post-exposure prophylaxis treatment.
(i) Immunization strategies.
(j) Rapid containment activities and additional methods if rapid containment fails.
(k) Psychosocial support for all affected, including community members and responders.
(l) Risk communication and social mobilization.
(m) Capacity building including required training, sensitization meetings and simulation.
(n) Logistics including supply lists.
(o) Environment, water and sanitation.
(p) Decontamination of patients and environment, including management of dead bodies
(q) Monitoring of the outbreak or event.
(r) Resource mobilization and procedures to relocate or mobilize resources to support response.

Your facilitator will present information on preparing an epidemic preparedness and response plan.
You can also find this information in Section 5, page XX of the 3rd Edition IDSR Technical Guidelines Booklet Three.

5.2.5 Procedures in setting up contingency stocks (essential emergency supplies) of medicines and medical products (vaccines, reagents and other supplies)

Note These Points:
(a) Outbreaks and other public health emergencies require the rapid mobilization of resources such as vaccines, medicines and lab supplies.
(b) It is prudent to establish and preposition stockpiles of materials before an emergency occurs.
(c) Maintain a reliable supply of supplies and materials for responding to an outbreak or public health event.
(d) Each level from districts to regions to national level should set up a contingency stock of medicines, vaccines, reagents and supplies to permit prompt management of the first cases without delay.
(e) For subnational level, this is critical before support arrives from higher levels.
(f) Ensure that, there are also quick mechanisms of sending supplies from central level.
(g) Also, regularly and carefully monitor the contingency stock in order to avoid shortages and expiry of medicines, vaccines, reagents and supplies.

Your facilitator will present on setting up contingency stocks of medicines, vaccines, reagents and supplies.
You can also find this information in Section 5, pages XX to XX of the 3rd Edition IDSR Technical Guidelines Booklet Three.

5.2.6 Practice Exercises

Instructions: Your Facilitator will ask you to get into four (4) small groups of a minimum of three (3) people and each group assigned an exercise from exercises 1 to 4 below. Each group should select a leader and a rapporteur (The leader moderates the group discussions whilst the rapporteur documents the agreed answers by the group). Each group has about 15 minutes to
read, discuss and answer all questions to the assigned exercise, after which the group leader presents during plenary discussions: there will be 5 minutes presentation and 5 minutes discussion per group. Moderate the plenary discussions and provide the correct answer to each question.

5.2.6.1 Exercise 1

Exercise 1

In this exercise, you will identify the roles and responsibilities of an outbreak investigation team.

Instructions: Read the case study and then answer the questions that follow at the end of the case study.

*** ***

Case study: An outbreak of Ebola Virus Disease (EVD)

Iboko is a district in one of the countries in central Africa. It has a population of 123,873 persons (2015 census). Because of insecurity in the area, 60% of the people in the district are internally displaced i.e. live in protected villages.

On 8 October 2017, an outbreak of an unusual illness in Iboko District was reported to the Ministry of Health. This was by both the medical superintendent of Binkutu hospital and the acting district director of health services, Iboko district. The focus of the outbreak was reported to be predominantly Boyeka a remote village north of Iboko district.

The illness was characterized by acute onset of fever, asthenia, muscular pain and diarrhoea.

At the time of reporting, more than 10 people including 2 students had died from EVD related symptoms.

Due to the urgency, of the matter the Ministry of Health advised the DMOH to immediately send a team to the field to investigate the outbreak and to liaise with the local administration in setting up a local coordinating committee.

* * * *
1. Constitute the PHERRT to be deployed to the field to investigate the outbreak.

2. What is expected of them based on the case study?
3. Who should be included as members of the Public Health Emergency Management Committee if outbreak is confirmed?

4. What will be their roles?
Exercise 2

Instructions: Your facility will ask you to read the following case study and then discuss the questions with two or three people. One member of each group will be asked to share an answer.

Case Study: Water contamination

The recent floods made the Andu district impossible to reach. All road communication with the capital city had been cut. On Saturday, following a heavy rain, a fuel tanker slipped and rolled into the Ndoza river spilling 10 tonnes of benzene. Benzene is a chemical known to cause cancer and other health concerns. The river is the only main source of water and fish for three towns in the district of Andu. After hearing reports on the local radio, the Director of Medical services requested the local DMO to send a team to assess the situation and report back to her promptly.

*   *   *   *

1. What should be the purpose of this investigation?

2. In addition to the DMO, who else should be a part of this team?
3. What are the main objectives of this team?

4. What are possible messages for the surrounding communities?
Exercise 3

The purpose of this exercise is to review the parts of an epidemic preparedness plan.

Instructions: Read this brief case study and answer the questions that follows.

* * * *

Case Study: Preparing District emergency preparedness and response plan

Over the last five years, your district experienced outbreaks of yellow fever, cholera, meningitis and measles. These diseases resulted in many deaths. Most of the health workers have been trained in integrated disease surveillance and response. They are currently using the revised data collection tools targeting priority diseases.

As the disease surveillance focal person and a member of the health management team, the District Medical Officer asked you to assist in the preparation of the District epidemic preparedness plans.

* * * *

1. What are major topics to include in an epidemic preparedness plan for this district?

2. Suggest an outline of information that should be included in the background to the plan.
3. Using knowledge about your own district, fill in summary Table 5.1 with possible health officers or health units that would be responsible for carrying out a meningococcal meningitis preparedness checklist for your District.

**Table 5.1: Checklist for bacterial meningitis epidemic preparedness**

<table>
<thead>
<tr>
<th>Preparedness Strategy &amp; activities</th>
<th>Responsible Officer/Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Public health emergency preparedness and response committee</td>
<td></td>
</tr>
<tr>
<td>2. Emergency preparedness and response plan</td>
<td></td>
</tr>
<tr>
<td>3. Training of personnel on Integrated disease surveillance and response</td>
<td></td>
</tr>
<tr>
<td>4. Guidelines on epidemic meningococcal disease</td>
<td></td>
</tr>
<tr>
<td>5. Contingency stocks of drugs and supplies</td>
<td></td>
</tr>
<tr>
<td>6. Laboratory equipment and transport media</td>
<td></td>
</tr>
<tr>
<td>7. Budget line for epidemic control</td>
<td></td>
</tr>
</tbody>
</table>
5.2.6.4 Exercise 4

Exercise 4

Setting up contingency stocks

Ensuring a reliable availability of medicines and supplies is important for conducting an effective response.

Instructions: Review the example for cholera in Table 5.2, and then complete the columns with appropriate medicines and supplies for treatment of the diseases listed. Refer to Section 5, Annex 5A on page XX of the 3rd Edition IDSR Technical Guidelines Booklet Three to complete each row.

Table 5.2: Essential medicines and supplies for treatment of epidemic-prone diseases

<table>
<thead>
<tr>
<th>Disease</th>
<th>Medicines</th>
<th>Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholera</td>
<td>ORS, IV fluids (Ringer’s lactate)</td>
<td>2% Chlorine, IV Cannula, giving sets, disinfectants, Cary Blair medium</td>
</tr>
<tr>
<td>Dysentery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacterial meningitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.3 Summary

<table>
<thead>
<tr>
<th>Points to remember:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Being prepared can reduce the number of cases and deaths in your district when an outbreak happens.</td>
</tr>
<tr>
<td>(b) Establish public health emergency preparedness and response structures: PHEOC, PHEMC, Public Health Emergency Management Subcommittees and PHRRT at District, Region/Province and National levels before and during an emergency.</td>
</tr>
<tr>
<td>(c) Develop and regularly test an emergency preparedness and response plan that will strengthen your ability to respond to an outbreak.</td>
</tr>
<tr>
<td>(d) Maintain proper essential emergency stocks of medicines, vaccines, reagents and supplies. This will reduce the turn-around time and eventually save lives.</td>
</tr>
<tr>
<td>(e) Knowledgeable and skilled frontline health workers are key to the success of the response.</td>
</tr>
</tbody>
</table>

5.4 References

(b) WHO Framework for a Public Health Emergency Operations Centre November 2015
(d) Emergency response frame work (ERF) 2nd edition, 2017
(e) Frame work for public health operation centre, WHO 2015
MODULE 3: RESPOND TO OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

6.1 Introduction

The goal of an integrated disease surveillance and response is to use data for public health response or action. This module describes steps for declaring an outbreak and activating the response structures, conducting a public health response and provide general directions for immediate response actions for leading causes of illness, death and disability. The module also provides guidance on responding to some common emergencies in the region.

6.1.1 Purpose of this module

The purpose of this module is to equip participants with knowledge, skills and tools to adequately respond to public health emergencies at health facility, district, regional and national levels.

6.1.2 Learning objectives

On completion of this module, participants will be able to:

(a) Understand the steps for conducting a public health response.
(b) Select and implement appropriate public health response activities.
(c) Provide regular situation reports on the outbreak and events.
(d) Document the response.

6.2 Participants Notes

6.2.1 Steps in responding to outbreaks or public health events

Note the steps for responding to outbreaks or public health events

Step 1: Declaring an outbreak and activating the response structures

(a) Notify Higher levels (Facility → District → Region/province → National → WHO).
(b) Once an epidemic threshold is reached at district level, the Head of the District Health Management Team should notify the region and subsequently the National level (responsible National Public Health Authority (NPHA)).
(c) Depending on the event, at the national level, the NPHA, and the International Health Regulations (IHR) National Focal Person (NFP), will assess whether the event is a potential Public Health Event of International Concern (PHEIC) IHR decision instrument.
(d) The NFP who will liaise with the Chief Medical Officer /Director General within the Ministry of Health to notify the WHO IHR AFRO Office.
They will then alert the nearby districts (and provinces or regions where applicable) about the outbreak, so that there are coordinated response efforts.

While waiting for confirmation of laboratory diagnosis there may be a declaration of an outbreak by the Minister of Health or respective sector ministry.

**Step 2: Mobilize Public Health Emergency Rapid Response Teams for immediate action**

(a) The Public Health Emergency Rapid Response Teams (PHERRRT) would have already been identified during preparedness activities.

(b) Mobilize the teams and make sure that the membership of the team reflects the technical needs of the response (Refer to Section 5 of the 3rd Edition IDSR Technical Guidelines Booklet Three for recommendations on the composition of the rapid response team and the team’s roles and responsibilities).

(c) The PHERRRT should be deployed to the field within 24 to 48 hours of notification of the outbreak to conduct investigation and initiate response measures.

(d) The PHERRRT should prepare and submit a preliminary report within 24 to 48 hours upon arrival at the field.

**Step 3: Convene the District Public Health Emergency Management Committee (PHEMC)**

(a) Once an outbreak or event is confirmed, the District Health Management Team (DHMT) works with the District Appointed Government Administrator to convene the PHEMC committee to assess and implement the response.

(b) They will activate the IMS- refer to section 5 of the 3rd edition IDSR Technical Guidelines Booklet Three.

(c) At the national and the respective Regional/Provincial levels, there should be PHEMC meetings

(i) During outbreaks the committee is expected to meet daily or least once a week to monitor the evolution and response to the outbreak.

(d) Request outbreak or event response funds to be released.

(e) Alert nearby districts/regions about the outbreak/event.

(f) Assign clear responsibilities to individuals or teams for specific response activities.

(g) Provide orientation or training along with adequate supplies of relevant supplies for the response teams and affected health facility staff.

(h) Review existing resources as defined in the preparedness plan. Determine what additional resources are required. For example, consider:

(i) Human resources that could be mobilized to manage the epidemic/event.

(ii) Funds to support response activities.

(iii) Other logistic support e.g. vehicles and fuel, phones.

(i) Request emergency stocks or Personal Protective Equipment (PPE), disinfection, and required medicines and other medical supplies such as specimen transport kits.
(j) Provide laboratory or diagnostic support for confirmation of pathogens responsible for the epidemics.
(i) If the district does not have the capacity to safely collect, package and ship the specimen, contact the reference laboratory for assistance.
(ii) For laboratories where referral of specimen is a challenge, consider using Rapid Diagnostic kits or any other Point of Care (PoC) Diagnostics if available.
(k) Mobilize logistics support (travel of rapid response team, accommodation arrangement, communication, other essential equipment) to district and community level.
(l) If supplies are not available locally:
(i) Contact the provincial or central levels to request alternate suppliers.
(ii) Collaborate with other services, activities, or non-governmental organizations or private pharmacies/laboratories in your area.
(iii) Identify standard practical low-cost substitutes.
(m) Ensure clear lines of communication and appoint a spokesperson.

Step 4: Select and implement appropriate public health response activities

(a) Review investigation results and data analysis interpretation provided by Public Health Emergency Rapid Response Team (PHERRT) to select appropriate response activities to contain the confirmed outbreak or public health event.
(b) Regardless of the specific causes of the outbreak or event, the success of the response relies on the activation of the IMS and at the same time implementing intervention strategies such as:
(i) Overall coordination
(ii) Case management and Infection, Prevention and Control (IPC)
(iii) Logistics and supply chain management
(iv) Laboratory or diagnostic, surveillance and epidemiology
(v) Social mobilization and risk communication
(vi) Reactive vaccination
(vii) Water, Sanitation and Hygiene (WASH)
(viii) Vector control

Refer to Section 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six and national disease specific guidelines to select response activities as per the respective confirmed outbreak

Your facilitator will present information on steps for conducting a public health response to public health emergencies. You may also read this information in Section 6, on pages XX to XX of the 3rd Edition IDSR Technical Guidelines Booklet Three. Specific response measures for selected priority diseases and conditions can be read from section 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six.
6.2.1 Implementation of selected activities for responding to outbreaks or public health events

*Note these points:*

The selected activities for responding to outbreaks or public health events include the following:

(a) Strengthen case management and infection prevention and control measures.
(b) Build the capacity for response staff.
(c) Enhance surveillance during the response.
(d) Enhance surveillance in neighbouring border district.
(e) Engage Community during response.
(f) Inform and educate the community.
(g) Conduct a mass vaccination campaign.
(h) Improve access to clean and safe water.
(i) Ensure safe disposal of infectious waste.
(j) Improve food handling practices.
(k) Reduce exposures to infectious or environmental hazards.
(l) Ensure safe and dignified burial and handling of dead bodies.
(m) Ensure appropriate and adequate logistics and supplies.

6.2.3 Case management of selected diseases

*You will turn to Section 6, Annex 6A of the 3rd Edition IDSR Technical Guidelines Booklet Three and read pages XX to XX one after the other as your facilitator explains the section on treat cases during outbreak focusing on clinical management of four common diseases:*

(a) *Cholera*
(b) *Dysentery*
(c) *Measles*
(d) *Bacterial meningitis*
6.2.4 Practice Exercise 1

Exercise 1

Participant’s Instruction: Your Facilitator will ask you to read the following case study, after which you will then discuss and answer the questions in four (4) groups of minimum of 3 people. You have 30 minutes to complete the exercise. One member of each group will be asked to share an answer one after the other till all the questions of the case study are answered.

You should refer to Section 6, Annex 6A and Section 11 of the 3rd Edition IDSR Technical Guidelines Booklets Three and Six whilst answering the questions to the case study.

Case study: Cholera outbreak in Okama district:

On 24 October, 2016 the Disease Surveillance Unit of the National Public Health Authority, received a report from the Central Province, indicating five cholera cases in Okama district.

As of 26 October, 2016 a total of 36 cases with no death was reported in the Okama district. Thirty-one (31) of the cases tested positive for cholera RDT and 13 were culture confirmed at the Local hospital laboratory.

Questions:

1. Is there an outbreak of Cholera?

2. Constitute the PHERRT to be deployed to the field to investigate the outbreak
3. What is expected of them based on the case study?

4. Who should be included as members of the coordinating committee if outbreak is confirmed?

5. What will be their roles?
The District PHERRT investigated the cholera outbreak in the district and presented the following findings. Figure 6.1 shows the epidemic curve.

**Figure 6.1: Epidemic Curve: Cholera Outbreak in Okama District, Central Province; 17-26 October 2016**

6. Describe the trend of cholera outbreak in the district

7. In your informed opinion, what could have led to the rapid increase of cases
8. What are the response measures you will put in place to control the Cholera Outbreak?

9. What is the best period to have started any of the public health interventions?

10. How would you manage patients seen in the cholera outbreak at District?

11. How do you prevent cholera from spreading in a household and in the district?
12. List some intervention measures that are either ineffective or unnecessary or not recommended in control of cholera outbreaks?

13. How will the District determine the outbreak of Cholera is over?
6.3 Summary

**Points to remember:**

(a) Early detection of outbreaks or events leads to effective response.
(b) Effective response can reduce the number of excess deaths in your district when an outbreak happens.
(c) A Functioning public health emergency management committee increases better coordination and effective response to public health emergencies.
(d) A Functioning public health emergency rapid response team ensures early investigation and response to emergencies.
(e) Availability of adequate and appropriate stocks of medicines, vaccines, reagents and supplies ensures effective response to outbreaks.

6.4 References

MODULE 4: RISK COMMUNICATION

7.1 Introduction

Risk communication is a critical element of disaster and emergency preparedness and response. It is the real-time exchange of information, advice and opinions between experts, community leaders, or officials and the people who are at risk.

This module describes how to conduct risk communication before, during and after the outbreak. It also provides step by step guidance on how to conduct effective risk communication and community participation in preparedness and response to public health emergencies.

7.1.1 Purpose of this module

The purpose of this module is to equip participants with relevant knowledge and skills in effective risk communication and community engagement at all levels of the health system including the communities at risk and also provide regular feedbacks using appropriate communication channels.

7.1.2 Learning objectives

On completion of this module, participants will be able to:

(g) Define risk communication and its importance in emergency preparedness and response
(h) Define community engagement and its importance in preparedness and response
(i) Understand the steps in establishing effective communication system
(j) Prepare Risk Communication Plan
(k) Develop and disseminate key messages to effect behavioural change
7.2 Participant’s Notes

7.2.1 What is risk communication and its importance in public health emergency preparedness and response

You can find this information in Section 7, page XX of the 3rd Edition IDSR Technical Guidelines Booklet Three

What is risk communication?

(a) Risk communication is a two-way exchange of information, perceptions and advice among risk assessors, risk managers, and various groups of people in the society about the likelihood and consequences of harm from the event.

(b) It is the real-time exchange of information, advice and opinions between experts, community leaders, or officials and the people who are at risk.

(c) Risk communication is a multi-disciplinary approach and uses a mix of communication and engagement tactics including but not limited to media communication, social media, mass awareness, health promotion, stakeholders engagement, and community engagement.

(d) Risk communication is a complex task that is a core public health intervention in any response to disease outbreaks/epidemics, pandemics and other health emergencies.

Importance of effective risk communication:

(a) Promotes rapid outbreak containment, preventing diseases and avoidable deaths and reduces the possible disruption to economies and society.

(b) Allows people most at risk to understand and adopt protective behaviours during epidemics, pandemics, humanitarian crises and natural disasters.

(c) It allows authorities and experts to listen to and address people’s concerns and needs so that the advice they provide is relevant, trusted and acceptable.

(d) When the public is at risk of a real or potential health threat, direct interventions may take time to organize and resources may be few. Communicating advice and guidance, therefore, often stands as the first and most important public health tool in managing a risk.

(e) Pro-active risk communication encourages the public and service providers to adopt protective behaviours when these are linked to functioning systems and services.

(f) It facilitates heightened disease surveillance, reduces confusion, and minimizes miscommunication and falsehoods (and rumours) in relation to the cause, transmission of a disease and proven effective protective actions.

(g) It allows for a better use of resources — all of which are necessary for an effective response.
7.2.2 Risk Communication in the context of IDSR

Note these points:

(a) IDSR is a strategy with the objective of ensuring a reliable supply of information to the national level in order to fulfil IHR requirements.
(b) Therefore, risk communication should be integrated into all the IDSR core functions and activities particularly:
   (i) Detection, sample collection.
   (ii) Reporting.
   (iii) Analysis and interpretation.
   (iv) Providing feedback.
   (v) Preparedness.
   (vi) Response.
(c) Risk communication should be integrated into all emergency management activities and operations to support all the relevant core IDSR functions and related activities at community, district, region/province and national levels.
(d) Integration of Risk communication into IDSR can:
   (i) improve decision making and adoption of recommended behaviours by communities and contribute to the prevention, control and response to priority diseases and other public health events.

7.2.3 Target audiences for risk communication

(a) Community: All people at risk of acquiring disease or in need of health services within the context of the public health event
(b) Health-care providers and first responders
(c) Primary care givers
(d) Traditional/religious Leaders
(e) Private hospitals and clinic staff
(f) Surveillance Officers
(g) Laboratory staff
(h) Points of Entry
(i) Airlines staff
(j) Immigration officers
(k) Travellers
(l) Stakeholders (policy-makers, ministries of health, maternal and child health organizations,
partners, community organizations, etc.)

(m) Media as a channel to reach these audiences
(n) Schools and workplaces

7.2.4 Approaches for Risk Communication

The components of risk communication needed for effective Emergency Risk Communication include:

(a) Health education
(b) Social mobilization
(c) Community engagement
(d) Media and social media
(e) Outbreak communication
(f) Crisis communication
(g) Information, Education and Communication (IE&C)
(h) Behaviour Change Communication (BCC)
(i) Rumour monitoring and managing
(j) Advocacy

Your Facilitator will use a diagram to demonstrate an integrated model for emergency risk communication as adapted from the new IHR external assessment by WHO

7.2.5 What is community engagement and its importance in public health emergency preparedness and response

What is Community engagement?

Community engagement is the process of working collaboratively with and through people affiliated by geographic proximity, special interest, or similar situations to address issues affecting their wellbeing. This is used as an active method of implementing change. The emphasis is on building relationship and trust.

The steps for community engagement involves:

(a) Determine the goals of the plan
(b) Plan out who to engage
(c) Develop engagement strategies
(d) Prioritize those activities
(e) Create an implementation plan
(f) Monitor your progress

**Effective community engagement helps you to:**

(a) Know the community (problem and needs)
(b) Understand the existing health beliefs, attitudes and practices
(c) Listen to the community carefully
(d) Analyses community dynamics
(a) Involve the community in all aspects of the response beginning from planning stages

7.2.5.1 Processes deployed in effective community entry

**Community entry** is the process of entering community space with the intention of meeting the community members where they are most comfortable or where they can speak out their ideas, needs and aspirations. Community spaces are created according to culture, value and processes. Community entry is a prerequisite of any meaningful participatory process.

Some of the principles that guide community entry are:

(a) Respectful dialogue- be always ready to learn
(b) Sensitivity to needs
(c) Historical perspectives

The goals of community entry include:

(a) Contextual grounding Having a better understanding of the community
(b) Build trust and confidence
(c) Generate support
(d) Obtain genuine information

Critical actions in community entry:

(a) identify the community by gathering information through formal and informal means
(b) identify the leadership
(c) talk to knowledgeable people
(d) read available literature
7.2.6 Principles of effective risk communication

Note these points:
Building and maintaining trust is the most important function of effective communication during an outbreak or a public health event and should include timely, transparent information dissemination.

The five principles of Risk communication include:
(a) Timely announcements and transparency
(b) Creating and Maintaining Trust
(c) Listening to, understanding and respecting public concerns
(d) Advance Planning
(e) Ensuring Equity

These principles should be applied to communicate to the community:
1. the nature of health risk they face
2. what is being done as the response and
3. what they can do to protect themselves and those important to them
7.2.6.1 Create an enabling environment for effective communication to the population at risk

For an effective communication there are key planning elements to be considered when building a communicating framework/system.

Your facilitator will present information about how to create enabling environment for effective communication to the population at risk. You may also read this information in the 3rd Edition IDSR Technical Guidelines Booklet Three in section 7, pages XX to XX. A sample communication plan will also be demonstrated.

7.2.7 Communicating risk pre-outbreak/Routine communication

Your Facilitator will explain the details of Risk Communication during the pre-outbreak period or what is normally called “Routine Communication”. You can find also read this information in Section 7, pages XX to XX of the 3rd Edition IDSR Technical Guidelines Booklet Three.

Note these key actions to be taken:

(a) The Public Health Emergency Management Sub-Committee for Risk Communication should meet at least once monthly or quarterly to:
   (i) review the risk communication plan and required risk communication materials/logistics.
   (ii) develop, pre-test, print and disseminate appropriate IE&C materials based on the common public health risk.
   (iii) organize training of risk communication resource teams.
   (iv) Build capacity for outbreak communication and identify/train spokesperson to be ready when an outbreak occurs.

(b) Ensure communication coordination mechanism, is in place with clear terms clear defined roles and responsibilities of each entity.

(c) Organize periodic interactions with stakeholders who will be involved in risk communication for prevention and preparedness or in response should an event or emergency occur.
   (i) This includes district, regional/provincial or national media, community radios, civil society and stakeholders from other sectors for example, involve the animal health sector in countries where zoonotic influenza is a priority threat.

(d) Organize regular monitoring and supervision at all levels on implementation of risk communication plan.
Note that effective community engagement relies on having trusted relationships between those in authority and communities, so use every opportunity to strengthen these relationships in “peacetimes”.

7.2.8 Communicating risk during outbreak response

During an outbreak response, the public is at risk of a real or potential health threat, treatment options may be limited, direct interventions may take time to organize and resources may be few. Early and regular communicating of advice and guidance is the most important public health tool in managing a risk. Adopt the strategy of pro-active communication. This encourages the public to adopt protective behaviours, facilitates heightened disease surveillance, reduces confusion and fear and allows for a better use of resources.

Note the key actions to be taken:

(a) Public Health Emergency Management Committee (PHEMC) through the Public Health Emergency Operation Centre (PHEOC) at national and PHEMC at region/province and district should ensure communications are consistent and reflect the data that has been analysed. Prepare and disseminate targeted messages to health workers, media, civil society, general population and affected community and stakeholders.

(b) Communicate with partners and stakeholders.

(c) Communicate with the affected community and their respective stakeholders.

(d) Communicate with media.

(e) Communicate with health workers.

Your facilitator will explain how to communicate risk during outbreak periods and demonstrate a sample fact sheet used in risk communication during outbreaks.

You may also read this information in Section 7, pages XX to XX of the 3rd Edition IDSR Technical Guidelines Booklet Three and review the points in Annex 7A on how to develop Fact Sheets.
7.2.9 Describe how to communicate risk after/post outbreak response

*Note these activities that need to be done after outbreak is declared over:*

(a) Prepare an outbreak or event response report.
   (i) District staff who led the investigation should prepare an outbreak report.

(b) Conduct outbreak evaluation.
   (i) Gather lessons learnt in order to strengthen appropriate public responses to similar emergencies in the future.

(c) Assess the effectiveness of the communications team in each phase and area of work.
   (i) Assess the effectiveness of meetings.
   (ii) Assess the effectiveness of the internal flow of communications.
   (iii) Assess the monitoring of communications and of the media.
   (iv) Assess the response of the communications media.

(d) Assess the outputs and outcomes of risk communication and community engagement.

(e) Conduct Periodic testing of the Risk Communication Plan.
   (i) Carry out simulations to test risk communication plan in order to detect possible weaknesses or gaps that need to be corrected before an emergency.
   (ii) Revise the plan based on lessons learnt from the simulation exercise, AAR or other assessment done.
7.2.10 Practice Exercise 1

Instructions:

You will read through the scenario for Exercise 1. You will have about 10 minutes to read the scenario and act a role play. Your Facilitator will guide you to act a role play.

Scenario

On 1 August 2018, the District Disease Control Officer of Manbala District in Country X in Central Africa, notified by telephone the District Director of Health Services of a new outbreak of Ebola virus disease (EVD) in North Tonla Sub-district, in the eastern part of the district where 43 cases including 34 deaths have occurred.

The event was initially reported by North Kelu Sub-District Health authority on 28 July 2018 when a cluster of 26 cases of acute haemorrhagic fever, including 20 deaths (mostly in the community), occurred in Manjala community during mid-late July 2018. Local health officials additionally identified sporadic, antecedent deaths in the community since May 2018.

The Manbala District is among the most populated districts, with seventy-two thousand inhabitants. It shares borders with four other districts which are bordering with two countries A and B. The sub-region has been experiencing intense insecurity and worsening humanitarian crisis, with over one million internally displaced people and a continuous efflux of refugees to the neighbouring countries.

Potential risk factors for transmission of EVD at national and regional levels include the transport links between the affected areas, the rest of the country, and neighbouring countries; the internal displacement of populations; and displacement of Country X refugees to neighbouring countries. The country is concurrently experiencing several other epidemics and a long-term humanitarian crisis. Additionally, the security situation in North Tonla Sub-district may hinder the implementation of response activities. Based on this context, the public health risk is considered high at the national and regional levels and low globally.
Questions: Some journalist from local and international media have been informed. They raise the issue of the possibility of several more cases not being identified and that health authorities are not doing much to contain the situation. They are also of the view that the Ebola will spread to other countries. Following this a community radio ZIA has asked to interview the District Director of Health Services.

Participants Instructions: After the you have read the scenario, follow the role play instructions as below.

Role Play Instructions
(a) You will identify one person who will play the role of the interviewer from Community Radio ZIA and another one who will act as the District Director of Health Services or the Ministry of Health spoke-person.
(b) The selected interviewer prepares the interview questions/guide.
(c) The selected person for the District Director of Health Services’ (DDHS) role develops guidance/content items for communication to respond to the questions (refer to section 11 of the 3rd Edition IDSR Technical Guidelines Booklet Six for disease specific information).
(i) Table 7.1 gives some suggested interview questions and guidance to the DDHS.
(d) The interview takes place; the rest of the group watches and evaluates the performance of the 2 players.
(e) After the interview, Your Facilitator will moderate a plenary discussion session where two volunteers from the observer group will present their observations for the interviewer and the DDHS.

Table 7.1: Suggested interview questions and guidance to the DDHS Exercise 1

<table>
<thead>
<tr>
<th>Question for the interviewer</th>
<th>Guidance for the District Director of Health Services: Prepare content items for communication about the disease. Concentrate on following questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How do you think this happened?</td>
<td>1. Who?</td>
</tr>
<tr>
<td>2. What is the current situation: how many people have been affected?</td>
<td>2. What?</td>
</tr>
<tr>
<td>3. Can the disease spread to other countries?</td>
<td>3. When?</td>
</tr>
<tr>
<td>4. What will happen if it spreads to other countries?</td>
<td>4. Where?</td>
</tr>
<tr>
<td>5. What are you doing to stop the outbreak and prevent spread?</td>
<td>5. How?</td>
</tr>
<tr>
<td></td>
<td>6. Why?</td>
</tr>
<tr>
<td></td>
<td>7. What are your three (3) key messages?</td>
</tr>
</tbody>
</table>
7.3 Summary

### Points to remember:

(a) Building and maintaining trust is the most important function of effective communication.

(b) Risk communication in health emergencies should include participation of the population.

(c) Risk communication activities should also include the participation of the population.

(d) Early and regular communication of advice and guidance is the most important public health tool in managing a risk.

(e) Develop a Risk Communication Plan and budget for Public Health Emergencies at the district, region/province and national level.

(f) Orientate all key stakeholders on the procedures for Risk Communication.

(g) The media is a major influence and should be seen as a partner in risk communication.

(h) Release information to the media only through the spokesperson to make sure that the community receives clear and consistent information.

7.4 References


(b) Standard Operating Procedures for the prevention and control of cholera in Ghana, Second Edition, April 2017

(c) A WHO guideline for emergency risk communication and policy and practice

(d) Communicating risk in public health emergencies, WHO 2018

(e) WHO outbreak communication planning guide, 2018

(f) WHO outbreak communication guidelines, WHO 2005