

Outbreak Investigation and Response Module

Preventing, Detecting and Responding to Epidemics and Antimicrobial Resistance



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WORKFORCE




UNIVERSITY OF MINNESOTA

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This is a product of the One Health Central and Eastern Africa (OHCEA) for health professionals' training with support from the United States Agency for International Development (USAID).

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OHCEA

8 Countries

16 Universities

24 Institutions



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Preface

This module is One of the 16 One Health Training Modules developed by the One Health Central and Eastern Africa Network (OHCEA). OHCEA is an international network, currently of 24 institutions of higher education in public health, veterinary sciences, pathobiology, global health and environmental sciences. These are located in 16 universities in eight countries in Eastern, Central and Western African regions. The universities currently forming OHCEA are: Université des Montagnes and University of Buea (Cameroon), University of Lubumbashi and University of Kinshasa (DRC), Jimma University, Addis Ababa University and Mekelle University (Ethiopia), Moi University and University of Nairobi (Kenya), Université Cheikh Anta Diop (Senegal), Muhimbili University of Health and Allied Sciences and Sokoine University of Agriculture (Tanzania), University of Rwanda and University of Global Health Equity (Rwanda), Makerere University and Mbarara University of Science and Technology (Uganda).

The OHCEA network's vision is to be a global leader in One Health, promoting sustainable health for prosperous communities, productive animals and balanced ecosystems. OHCEA seeks to build capacity and expand the human resource base needed to prevent, detect and respond to potential pandemic disease outbreaks, and increase integration of animal, wildlife and human disease surveillance and outbreak response systems. The overall goal of this collaboration is to enhance One Health policy formation and implementation in order to contribute to improved capacity of public health in the region. OHCEA is identifying opportunities for faculty and student development as well as in-service public health workforce that meet the network's goals of strengthening One Health capacity in OHCEA countries.

The 16 modules were developed based on One Health core competencies that were identified by OHCEA as key elements in building a skilled One Health workforce. This network is supported by two United States University partners: Tufts University and the University of Minnesota through the USAID funded One Health Workforce Project.

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OHCEA extends her gratitude to those who participated in earlier works that informed the development of this module as well as reviewers and editors of the module.

Sections/parts of the materials for this course were adopted from RESPOND SEA OHUN One Health Course Modules: <https://seaohunonehealth.wordpress.com/ecosystem-health/>

Introduction to the One Health Central and Eastern Africa (OHCEA) One Health Course Modules

Training the Current and Future Public Health Workforce Using a One Health Approach

There is abundant evidence that no single sector or department can sufficiently manage the challenges of public health in any country, region or continent. Experiences from the fight against Ebola and the highly pathogenic avian influenza in the past few years demonstrated the effectiveness of multi-sectoral, multi-agency approaches and the need for specific training targeting multi-sectoral and multi-disciplinary public health professionals not limited by national or regional borders in dealing with public health threats. In response to this challenge, the One Health approach has been advocated as the global framework for strengthening collaboration and capacities of the sectors and actors involved in health service delivery.

One Health Central and Eastern Africa (OHCEA) is a network of universities in Central and Eastern Africa which are collaborating to build One Health capacity and academic partnerships between the member institutions in the region and with governments. The overall goal of this collaboration is to enhance One Health policy formation and implementation, to contribute to improved capacity of countries to respond to any emerging pandemics in the region. OHCEA seeks to expand the human resource base needed to prevent, detect and respond to potential pandemic disease outbreaks, and increase integration of domestic animal, wildlife and human disease surveillance and outbreak response systems.

OHCEA has identified One Health core competencies and developed modules based on the identified competencies that are key to delivering knowledge and skills to a multidisciplinary workforce and building a framework on which One Health curricula can be designed and implemented. They combine human health, animal health, infectious disease management with principles of ecology, social and environmental sciences. A total of 16 modules have been developed including One Health soft skills such as communication, culture, leadership, gender and core technical skills such as ecosystem health, infectious disease epidemiology, One Health concepts and outbreak response.



One Health is defined as the collaborative effort of multiple disciplines working together locally, nationally, and globally to attain optimal health for people, animals and the environment

www.AVMA.org



The One Health paradigm emerged from the recognition that the well-being of humans, animals and the ecosystem are interrelated and interdependent and there is a need for more systematic and cross sectoral approaches to identifying and responding to global public health emergencies and other public health threats arising at the human animal ecosystem interface.

The modules are intended to:

- create a framework for One Health curriculum.
- improve workforce capacity to prevent, detect and respond to threats posed by infectious diseases and zoonosis.
- generate a shift in countries' workforce culture and training structure.
- enable working across sectors and disciplines for a stronger and more effective public health sector.
- allow universities to be key drivers of the future workforce as they forge partnerships and drive change.
- combine human health, animal health, infectious disease with principles of ecology and environmental sciences.

The modules can be used at both pre-service and in-service levels as full courses, workshops or integrated into course materials for professionals who impact disease detection, prevention and response, allowing them to successfully function as an integral part of a larger, multi-disciplinary, team of professionals. This is key to creating a stronger sustainable Public Health workforce.

Each module contains a Facilitator Guide, Student/Participant Guide, PowerPoint slides and a folder of resources/references for users. These modules are iterative and are continuously being revised. For any inquiries, please email: OneHealthModules@ohcea.org or wbikaako@ohcea.org

These 16 modules were developed by collaborative efforts of multiple disciplines and teams of people from seven different OHCEA partner countries with the support of two US university partners namely Tufts University and University of Minnesota. A team of sixty people were engaged in the development of these modules. All the materials represent contribution by the faculty and leadership of the OHCEA network institutions and the technical and managerial support of the OHCEA Secretariat. The modules were built off previous One Health modules developed by SEAOHUN- network: <https://seahunonehealth.wordpress.com/ecosystem-health/> with addition of more Africa-specific materials, examples and case studies relevant and applicable to the region.

Each module was reviewed by OHCEA network faculty including US university partners with technical expertise as well as partners with field experience that allows for One Health application and appreciation of the local African context.

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Module Overview

Since the beginning of this century, the world has been confronted with numerous threats posed by epidemic and epizootic outbreaks of emerging and re-emerging diseases that, in most cases, result from interaction between humans/animals and the environment. Emerging diseases such as the Highly Pathogenic Avian Influenza, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), Ebola hemorrhagic fever and Nipah virus infection, as well as other endemic diseases such as rabies, human and animal tuberculosis, Rift Valley Fever, brucellosis and cysticercosis, represent serious threats to human and animal life and sound environmental management.

Several initiatives are being launched in the face of these threats, including the One Health strategy, which encourages cross-sector and multidisciplinary collaboration, adherence to the International Health Regulations (IHR, 2005) and the Global Health Security Agenda (GHSa).

One Health is defined as the collaborative effort of multiple disciplines working locally, nationally and globally to attain optimal health for people, animals and our environment. The One Health paradigm emerged from the recognition that the wellbeing of humans, animals and ecosystems are interrelated and interdependent, and there is need for more systematic and cross-sectoral approaches to identifying and responding to global public health emergencies and other health threats arising at the human-animal ecosystem interface. The One Health concept is, therefore, a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment. The synergism achieved will advance health care for the 21st Century and beyond by accelerating biomedical research discoveries, enhancing public health efficacy, expeditiously expanding the scientific knowledge base, and improving medical education and clinical care. When properly implemented, it will help protect and save untold millions of human and animal lives in the present and future generations.

One Health Central and Eastern Africa (OHCEA) is a network of universities in Central and Eastern Africa which are collaborating to build One Health capacity and academic partnerships between the member institutions in the region and with governments. The overall goal of this collaboration is to enhance One Health policy formation and implementation in order to contribute to improved capacity of countries to respond to any emerging pandemics in the region.

The OHCEA network's vision is to be a global leader in One Health, promoting sustainable health for the prosperity of communities, productive animals and balanced ecosystems. OHCEA seeks to expand the human resource base needed to detect and respond to potential pandemic disease outbreaks, and increase integration of animal, wildlife and human disease surveillance and outbreak response systems.

The academic institutions in the OHCEA that are responsible for training personnel in the health care and related sectors must continue to train and re-train both future officials and current service providers to ensure they comply more effectively with the principles of prevention, early detection and control of the potentially epidemic diseases and the resistance to antimicrobials and pesticides that are gripping the country. In these circumstances, a disciplined, capable, prudently trained and re-trained staff will strive to apply the principles for preventing and controlling emerging and re-emerging diseases.

This Facilitator Guide addresses several shortcomings of service providers regarding the prevention, early detection and response to epidemics and epizootics. It can also serve as the resource for a number of health sciences courses taught at the secondary and university levels, and for on-the-job training of health care professionals, by adapting it as necessary to identified instructional needs.

This Guide consists of six sections subdivided into units. The sections address the One Health approach to prevention, early detection and response to emerging infectious diseases and antimicrobial resistance phenomena. The Gender Analysis section recognizes the need for gender sensitive disease surveillance, control and response processes. It is a practical method to incorporate a gender perspective into emerging disease programs through gender analysis tools that recognize and reveal how sex and gender affect infectious disease transmission, prevention and outcomes.

The Guide also includes a practical module for use in the field, which places the participants in actual professional environments.

The module is designed to provide both future and currently active health care professionals with the necessary skills to work as part of a multidisciplinary team in preventing epidemics caused by emerging diseases and in implementing strategies for monitoring and responding to outbreaks as well as participants and faculty.

By the end of this training, participants should be able to make an effective contribution in preventing, detecting and responding to nosocomial infections, emerging and re-emerging diseases (Ebola and other zoonotic diseases) and resistance to antimicrobials and pesticides, using the One Health approach.

Target Audience

The module can be used by undergraduate and post-graduate learners, middle cadre trainees and in-service personnel from multiple disciplines and sectors (private, public, NGOs, civil society). This module can also be adopted for continuous professional development by health professional organizations such as medical associations, pharmacy associations and veterinary associations as well as nursing, public health, environmental scientists and biotechnologists. It is intended for use in training participants in the beginners and advanced stage in medicine and health sciences as well as officials in the health care system and related sectors.

Goals of the Training

The training is designed to:

- i) equip participants with knowledge and skills required for outbreak investigations and response while utilizing the One Health approach.
- ii) help participants acquire the skills they will need to collaborate more closely with colleagues in other disciplines and sectors in order to prevent, detect and respond effectively to epidemics, epizootics and antimicrobial and pesticide resistance.
- iii) help participants become transformative agents by promoting gender equality and equity in all aspects of their work and sharing this information with others.

One Health Approach

The goal of this module is to help participants acquire the skills they will need to collaborate more closely with colleagues in other disciplines and sectors in order to prevent, detect and respond effectively to epidemics, epizootics and antimicrobial and pesticide resistance. Several instructional methods are used in this module, including presentations, case studies, role-plays, active information seeking, group discussions and plenary sessions. In addition, the presence of participants from multiple disciplines will help them learn more about each other and acknowledge and respect the contributions made by fellow professionals who are working to improve, maintain and promote health care.

Module Competencies

- i) Initiating a shared vision: creating, inspiring and motivating personnel from multiple sectors; managing service activities as part of the One Health Approach.
- ii) Acquiring, synthesizing and exchanging information across sectors and disciplines and among various stakeholders, in order to promote and reinforce an enhanced, mutual understanding of the actions taken as part of the One Health Approach.
- iii) A comprehensive approach that acknowledges and assesses how the dynamics and interdependence of various systems and entities can affect a complex process (e.g. epidemic, resistance to antimicrobials and pesticides).
- iv) Demonstrating integrity, transparency, fairness, honesty, responsibility, trust and adaptability

Learning Objectives of the Course

By the end of this module, the learner should be able to:

- i) illustrate the One Health concept as it relates to outbreak investigation and response:
 - Describe One Health concept.
 - Apply One Health core competencies in multiple disciplines.
- ii) evaluate disease outbreak investigation and response principles and approaches.
 - Describe disease outbreak patterns and approaches to investigations utilizing One Health concept.
- iii) explain a multi-sectoral approach to disease investigation and response:
 - Demonstrate leadership roles in disease investigations and response.
 - Apply communication principles in designing disease outbreak investigation and response.
- iv) illustrate the role of socio-cultural beliefs and gender in disease investigation and response:
 - Identify gender and socio-cultural gaps in disease investigation and response.
 - Explain specific gender analysis tools used for outbreak investigation and response.
 - Create and implement a gender sensitive emergency response plan

Program/Agenda

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Discovering Basic One Health Concepts and Principles	One Health Prevention	One Health Detection	One Health Practices	One Health Response	Gender Analysis in Infectious Disease Investigation

Course Overview

Time	Topic	Materials
120 minutes	One Health Approach <ul style="list-style-type: none"> One Health concept One Health skills 	<ul style="list-style-type: none"> Sticky notes, computer, projector, screen, easel pad, markers, pointer Sound system Test on social styles Case study on rabies List of One Health skillsets Slides on techniques for negotiation and conflict resolution
480 minutes	Prevention <ul style="list-style-type: none"> Laws and regulations Biosecurity and biosafety Rational use of antimicrobials, pesticides and resistance phenomena Biological mechanisms for the emergence and spread of resistance to antimicrobials and pesticides Conservation, storage and transport of medicines, chemical products and pesticides 	<ul style="list-style-type: none"> Projector, screen Easel and easel pad, markers, sticky notes Internet computers (laptop for each workgroup), connection Media containing the text of laws and regulations Pointer Case study on avian flu, malaria Slides on key laws and regulations Slides on preserving, storing and transporting medicines and chemical products and the supply chain Video on preserving, storing and transporting medicines and chemical products Equipment for the WHIDAM scenario (virtual pharmacy: table, cabinet, medicines, 2 chairs, jackets, decorative items) Videos and images on hand washing, the use of personal protective equipment (PPE), surface cleaning techniques

240 minutes	Detection <ul style="list-style-type: none"> • Surveillance of infectious diseases and epidemiological investigation. • Epidemiological investigation and the role of the laboratory. • Monitoring of medicines, chemical products and pesticides. 	<ul style="list-style-type: none"> • Computer, projector, screen, easel pad, markers, sticky notes • Internet connection/modem • Slides on epidemic and epizootic surveillance • Short scene on the epidemiological investigation • Slides or video on collecting, preserving, packing and shipping the specimens • Notification forms • Video on drug surveillance • Credit for telephone use • Notification form for the DRC's National Pharmacovigilance Center (CNPV) • Phone with appropriate software
480 minutes	Practices <ul style="list-style-type: none"> • Field visits 	<ul style="list-style-type: none"> • Computer, pointer, projector, screen, notepads, pen, camera • PPE • Text of presentations by speakers during the visits (slaughterhouse, farm, health office, hospital, laboratory), if available in advance.
480 minutes	Response <ul style="list-style-type: none"> • Tabletop simulation 	<ul style="list-style-type: none"> • Case study on avian flu • Computer • Projector • Screen • Pointer • Camera
240 minutes	Gender in Infectious Disease Investigation <ul style="list-style-type: none"> • Gender analysis tools • Gender analysis matrix • Vulnerability and exposure matrix • Gender tree • Gender continuum tool 	<ul style="list-style-type: none"> • Computer • Projector • Screen • Pointer • Camera

Session 1: Discovering Basic One Health Concepts and Principles

The opening session provides an overview of the goals and agenda of the course. It also introduces the element of multi-disciplinarity which gives the participants an opportunity to learn more about each other's background, disciplines, and skills, and how these complement each other and build better global health leaders. The session also introduces the key One Health terms and concepts to participants.




Learning Objectives and Activities

Participants will be able to identify:

- i) the basic principles of One Health and related concepts including the role of interdisciplinary teams and a focus on the human, animal and ecosystem inter-dependence.
- ii) One Health core competencies domains and their applications.

Detailed Facilitator Notes

Opening Session

Time	Activity/Topic	Facilitator Instructions (Detailed facilitator notes are included at the end of the session)
 15 min	Registration	<ol style="list-style-type: none">i) Have participants sign the OHCEA attendance register.ii) Explain logistics (e.g. breaks, meals, etc.).iii) Issue per diem.iv) If the short course is residential, ensure participants have accommodation.
 30 min	Welcome 	<p>Facilitator welcoming remarks and introductions of participants</p> <ol style="list-style-type: none">i) In pairs, have participants tell each other:<ul style="list-style-type: none">• their name.• where they are from.• type of work and position.• a story about an experience they had that made them aware of the difference between men and women.

- ii) Let them prepare a 1-minute introduction of their partner to the class.
- iii) Go around the room and have each pair present their partner to the class.





Expectations and concerns



Set-up:

- i) Have two flip charts in the front of the room: one titled “Expectations” and the other “Concerns.”
- ii) Give each participant two different coloured sticky notes.
- iii) Ask participants to write down their expectations for the short course on one of the sticky notes (specify colour) and their concerns about the course on the second sticky notes (specify colour).
- iv) Have participants place their expectation sticky notes on a flip chart titled “Expectations” and their concerns sticky notes on another flip chart titled “Concerns”.
- v) Organise the sticky notes according to common themes.

Explain the agenda for the week and the goals of the short course, highlighting the expectations that will be met over the week and the expectations that will not be met. Comment on and address concerns.

Unit 1.1		Introduction to One Health Concepts
Time	Activity/Topic	Detailed Facilitator Notes
 20 min	Pre- training Reading Assignment 	<p>Required prior reading: Prior to coming to this training, provide participants with the following article and ask them to read it and come prepared to discuss it.</p> <p>One Health: Interdependence of people, other species and the planet by Meredith A. Barret and Steven. A. Osofsky</p>
	Introduction to One Health	<ol style="list-style-type: none"> Divide participants into groups. (Utmost 5 people per group). Give each group a blank piece of paper. Have participants brainstorm and draw on the paper a picture that they think represents One Health (that in their opinion can be understood by a community member). Have participants tape the drawing against the wall. All participants should then review the drawings and grade them. The grades are 1-5 with 5 being the highest or what is considered best. Select the best pictures and discuss with the class why they think it is the best. (As extra incentive, give a prize to the group with the best picture).
 20 min	Discovery Activity: 	<p>What is One Health?</p> <ol style="list-style-type: none"> Have each participant take 5-7 minutes to think about and legibly write down on separate sticky notes the answers to the following questions: <ol style="list-style-type: none"> Define One Health Approach. Identify two examples of One Health in practice. Identify two to three advantages of multiple disciplines working together to promote One Health. Have them display the sticky notes on the wall in three separate sections. Then in a plenary, review the following: <ol style="list-style-type: none"> What are the common things identified? What are the differences? Is there anything that surprised anyone?

- iv) Come up with a group description of what One Health is.

There are many different definitions of One Health by different health organizations, but for the purpose of the course, we will adopt the American Veterinary Medical Association (AVMA) definition (www.avma.org). AVMA defines One Health as the integrative (collaborative) effort of multiple disciplines working together locally, nationally, and globally to attain optimal health for people, animals, and the environment. Together, the three make up the One Health triad, and the health of each is inextricably connected to the others in the triad.

The common theme of One Health is multiple disciplines working together to solve problems at the human, animal and environmental interface. Collaborating across sectors that have a direct or indirect impact on health involves thinking and working across silos and enhancing resources and efforts while valuing the role each different sector plays.

To improve the effectiveness of the One Health Approach, there is a need to create a balanced and a greater relationship among existing groups and networks, especially between veterinarians and physicians, and to amplify the role that environmental and wildlife health practitioners, as well as social scientists and other disciplines play to reduce public health threats.



45 min

**Discovery
Activity: Video:
Fatal Infestations**



Show the video “Killer Outbreaks Series: Fatal Infestations”

The Centre for Diseases Control (CDC), US army and a Bronx Zoo veterinarian join forces to identify the disease that is rapidly filling the city’s emergency rooms and curiously killing 17,000 crows and zoo birds in NYC. This video focuses on how West Nile virus was first detected and the way multiple agencies came to respond to it.

- i) After viewing the video, divide the participants into four groups of mixed disciplines.
- ii) Give each group flip chart paper and markers.
- iii) Give each group a chart/paper which has one of the following:
 - Infectious disease epidemiology and transmission
 - Stakeholders
 - Human-animal-environmental interactions
 - Socio-political interactions

- iv) Let each group then discuss their topic and highlight the role played in the video. Each group will have 15 minutes to prepare their assignments and present it to the plenary. Encourage groups to present their assignments in the most innovative ways, such as using role-plays, mimes, timelines, news interview, etc.



60 min



Introducing One Health Concepts

Group Discussion

Identifying the Importance of the One Health Approach.

- i) Using questions and answers, elucidate the various benefits and challenges as well as the factors that foster or prevent collaboration within the community as a whole.
- ii) Initiate a discussion with the participants to help them understand the importance of frank, sincere and effective collaboration within the community as a whole and identify the factors that can promote or hinder that collaboration.
- iii) Ensure that all participants actively participate in the discussion. For that purpose, ask each one to write a response to each question on a sticky note prior to the plenary session. On an easel pad, record the items in each response that encourage collaboration. Then record the factors that hinder collaboration. Display the easel pad sheets on the wall for use during the group discussion.
- iv) Start the discussion by posing the following question:

Based on your personal experience, what values and behavior promote or hinder collaboration among two or more people?

- v) After the discussion, ask selected participants for their response to the following question:

Is it possible for an adult, such as yourself, to change behavior or adopt new values?

- vi) Explain the importance of the Knowledge-Attitude-Skill-Habit (KASH) model for achieving a change in behavior. After collecting a few responses to the question above, group the participants by discipline and ask them to consider the question in more detail.



60 min

Group Discussion on Collaboration



Discussion on Collaboration

- i) Group participants by discipline.
- ii) This activity should bring out the various factors that hinder or promote collaboration among experts from different disciplines. It will give participants a better understanding of how other disciplines help to prevent, detect and respond to infectious diseases and resistance to antimicrobials and pesticides.
- iii) If the number of participants for certain disciplines is limited, regroup them into at least two groups (e.g., human health and animal health). Give them the following instructions:
 - Appoint a moderator who will lead the group discussion. The moderator's primary task will be to give the various participants a chance to speak in turn so that the discussion proceeds smoothly.
 - Appoint a spokesperson who will report the group's work during the plenary session. This person will record comments and presentations from each group member for reporting purposes.
 - Record responses on an easel pad to be presented during the plenary discussion.

Exercise



Exercise

Answer the following questions

1. What are the factors that hinder collaboration among different health care professionals?
2. Explain the role of health care professions other than your own with regard to preventing, detecting and responding to the avian flu epidemic and resistance to antimicrobials and pesticides.
 - i) Verify that participants have understood the instructions. Each group will prepare a report for the plenary session. Participants will have an opportunity to ask questions or comment on the reports by the other groups. To save time, you may ask one group to report during the plenary session and have the other groups add any new items.
 - ii) After the group presentation, give a summary presentation on the One Health approach.






20 min

Brief PowerPoint Presentation on One Health Concepts



PowerPoint Presentation

- i) Give a brief PowerPoint presentation (**PPP No. 1**) on the One Health approach. This presentation will be used to:
 - define the One Health approach..
 - describe the major achievements of the One Health approach at the international, regional and country level and the steps for implementing it.
 - convey the importance of the One Health skills in combating the threat of emerging and re-emerging diseases, including resistance to antimicrobials and pesticides.
- ii) Summarize the history of One Health and define the One Health concept and skills.
- iii) Expand on the issues raised by participants during the group discussions and the plenary session.
- iv) Summarize the responses from the participants during the previous two discussions.
- v) Verify if participants have understood the simple definition by emphasizing the “collaboration” at the heart of the One Health approach.
- vi) Present a text entitled “A L'Ecole du Caméléon” [Learning from the Chameleon] to illustrate the value of getting along with others.

	Unit 1.2	One Health Skills
Time	Activity/Topic	Detailed Facilitator Notes
 200 min	Learning Objective	<p>By the end of this unit, participants should be able to apply the One Health skills of leadership, communication, systems thinking, values and professional ethics pertaining to preventing, detecting and responding to epidemics, epizootics and resistance to antimicrobials and pesticides.</p>
 45 min	Leadership 	<ol style="list-style-type: none"> i) A good leader understands the characteristics of his One Health team, that people are different and have different characters, and that different sectors and departments have different cultures. ii) The social style activity allows participants to understand the different leadership styles or people's characters as a means to improve team relationships.

Discussing Social Styles and Building Self Awareness



- i)* Review the notes on social styles in the facilitator notes.
- ii)* Give a brief PowerPoint presentation (**PPP No. 2**) on social styles. After this, ask the participants to complete the questionnaire on social styles (questionnaire found in Appendix) following the instructions given.
- iii)* During the plenary session, introduce participants to the concept of differences in social styles and their impact on group collaboration and dynamics. The primary activity will be a test to determine each person's social style. Ask participants to identify their social style by responding to the test questions.
- iv)* Emphasize the importance of self-awareness for maintaining and encouraging positive collaboration. Give a brief presentation on the steps involved in training an effective team, so as to show how someone can influence an individual or a group in developing a vision and a common strategy.

Activity

- i)* Start this session by reviewing a few of the concepts discussed in the first introductory part and specifically the differences in attitude and perceptions from one individual or discipline to another, despite the multiple ways in which they agree.
- ii)* The goal of the activity is to make the participants aware of the need to acknowledge differences in social styles, and to remain focused on that issue at all times so as to create an environment that will yield a productive collaboration. Explain the test on social styles, a copy of which will have been included in each participant's course materials. Confirm that each participant understands how to take the test. The test should last about 10 minutes.
- iii)* Ask the participants to form groups based on their results from the social styles test. Emphasize that no style is better than others, and that with a proper understanding of differences in style, we can better understand the attitudes and actions adopted by others for handling emotions.

- iv) Give a short presentation on group dynamics (the steps in training a team) to further highlight the importance of social styles, emotional intelligence and constant self-awareness. Stress the importance of these concepts for improving cross-disciplinary collaboration in implementing the One Health approach.



20 min

Communication: Activity Plenary



This activity will be based on a role-play exercise with two participants alternately playing the roles of speaker and listener during the plenary session. Afterwards, the participants will analyze the behavior of the two individuals who played the roles of speaker and listener. Conclude the activity by giving a brief presentation on negotiating techniques and conflict resolution.

- i) Ask two volunteers to role-play the exercise on attentive listening. One will be the speaker and the other the listener. The audience will act as observers and comment on the behavior of the two volunteers. The speaker (a village resident) has just met the listener (a veterinary services official or a nurse from the village clinic) and wants to know about his or her son, who has been bitten by a dog and has not yet received any prophylactic treatment for rabies. The listener will listen to what the speaker says and respond to his or her concerns.
- ii) Ask the audience to make observations about the behavior of both the speaker and the listener. Make some final observations and then present a summary of the elements that are essential for attentive listening.
- iii) After the exercise, talk about the techniques for negotiation and conflict resolution that require the know-how in attentive listening.



20 min

Activity 1: Introduction to Systems Thinking



Make a PowerPoint presentation (**PPP No. 3**) on Systems Thinking.

Why can't we 'solve' the health problems at the human, animal, ecosystems? Because they are wicked.

Characteristics of Wicked Problems

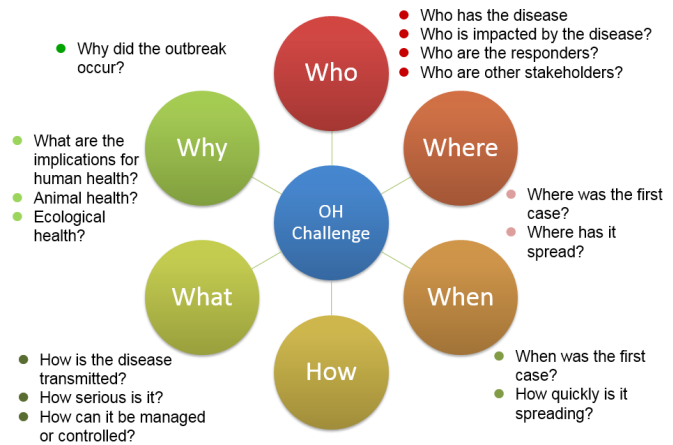
- i) Too complex to fully understand.
- ii) No simple technical "solution".
- iii) Actions precipitate unanticipated and unintended consequences.

iv) Compelling and demand action.

v) Require innovative approaches.

Systems thinking from a One Health perspective allows us to solve “wicked problems” through a simplified process. It provides a means of analyzing the human-animal-environmental interactions, the different disciplines engaged and how they work together as a system to solve complex health problems. It systematically covers the policies, processes, practices and people, as well as the roles each play and how they interact to function effectively to solve public health threats.

The One Health systems thinking uses the problem defining approach to identify and solve the problems.



Challenge 1. There is an outbreak of Rift Valley Fever among people and animals in a small town in Northern Kenya.


Challenge 2. Three individuals come to the health station showing signs and symptoms of hemorrhagic fever in a small town in Uganda.

Questions


1. Can you identify different stakeholders and their roles in addressing the problem?
2. Can you identify different policies that can be employed in addressing the problem?
3. What are the processes and practices that increase or mitigate the risk of the problem?
4. What do you need to know about systems thinking in order to use a systems thinking approach in addressing One Health problems?

5. In what order should you research the items identified in the previous challenge?
6. What are the primary resources that you will use?
7. What will you do when you cannot find the information that you want?
8. What will you do when you have questions?
9. How will you know when you have enough information?

Ask groups to present their systems maps and briefly discuss the three questions above. Summarize the session by stressing the need to simplify the problem and to solve it step by step.



45 min



Group Debrief
Systems Thinking:

Explain this activity through a case study on rabies that involves human health, veterinary services, the environment, the regional government and the community. The case study will be analyzed in small groups to demonstrate how complex problems require the One Health approach and how working in silos is ineffective.



20 min



Group Discussion

Activity

- i) Ask participants to return to the multidisciplinary groups they were in previously to analyze the case study on rabies. This case study will help them understand the importance of systems thinking for the One Health approach.
- ii) At the end of the case study, make some brief comments on the importance of systems thinking for resolving issues that require a multidisciplinary approach.



30 min

Karatu Case Study



20 min

One Health in Action: Is my problem real?



- i)* Provide the participants with the case scenario of Karatu District in Arusha, Tanzania: (Case study included at end of Session 1).
- ii)* Have them read the case study, analyze it and have a discussion based on the questions below. Let them reflect on the questions and record the answers on a flip chart.
 1. What is the problem?
 2. Who is affected?
 3. Is there a social, economic, political angle to this?
 4. What key One Health issues can be identified?
 5. What sectors are involved?
 6. Are there any policy implications?
 7. What measures can be done to protect the health of humans, animals and the environment?
 8. Can you give similar examples from your own background/work?
 9. How did you deal with it?



45 min

Karatu Emergency Stakeholder Meeting



Karatu Emergency Stakeholder Meeting

Give participants the following instructions: With the above scenario, you have been asked to select and coordinate a team to discuss a response to the problem in Karatu, including developing a plan to intervene. The first step of this process is a stakeholder meeting to be held at the Ministry of Health (MoH) national headquarters, chaired by a high-level official from the MoH.

Let them form two groups and task them to:

1. identify a maximum of 10 individuals who will attend the meeting.
2. justify why each member is critical to the response. (i.e. role, expertise, responsibilities, etc.)
3. discuss who should chair the stakeholders' meeting and why.
4. present the information to the class.



20 min



Challenges Facing Stakeholders in Developing an Intervention

- i) Ask participants to briefly reflect on the One Health case study and why there is a need to involve different stakeholders in an issue like that.
- ii) What challenges do the stakeholders face in implementation considering that they are coming from different disciplines?
- iii) List some of these challenges: inadequate distribution of resources across the ministries, different groups are used to working in silos, powerful political interests, economic dynamics of the communities.
- iv) Ask the participants to share similar scenarios they have encountered in their daily practice and disciplines.



20 min

Debrief

Debrief

- i) Ask participants to briefly reflect on the One Health case study and key points that were important.
- ii) What key concept was learnt?



15 min

Introducing One Health Core Competencies (Game)

Miming

- i) Write six One Health competencies on six different pieces of paper.
- ii) Select participants from the group and give them a piece of paper with the competency written on it.
- iii) Using only actions and not words, let the participants try to demonstrate the competency while the rest of the group tries to guess what competency it is.



10 min

Reflection



Reflection

- i) Give a PowerPoint presentation (**PPP No. 4**) on One Health core competences.
- ii) Briefly reflect on the One Health Core Competencies and discuss any questions that arise.
- iii) Reflect on the whole day's discussion of One Health.
- iv) Discuss any concepts that are not clear.



15 min



End of Session Evaluation

- i) Create the flip chart shown below.
- ii) Ask the class: "How did it go today?"
- iii) Ask them to answer the question by drawing one of the faces below to represent their answer and adding comments that they would like to bring to your attention.

How did it go today?



Comments:

Session 1: Facilitator Notes

1. Definition of One Health

There are many different definitions of One Health by different health organizations, but for purposes of this course, we will adopt the American Veterinary Medical Association (AVMA) definition of One Health (www.avma.org). AVMA defines One Health as the integrative (collaborative) effort of multiple disciplines working together locally, nationally, and globally to attain optimal health for people, animals, and the environment. Together, the three make up the One Health triad, and the health of each is inextricably connected to the others in the triad.

The common theme of One Health is multiple disciplines working together to solve problems at the human, animal and environmental interface. Collaborating across sectors that have a direct or indirect impact on health involves thinking and working across silos and enhancing resources and efforts while valuing the role each different sector plays. To improve the effectiveness of the One Health approach, there is need to create a balanced and a greater relationship among existing groups and networks, especially between veterinarians and physicians, and to amplify the role that environmental and wildlife health practitioners, as well as social scientists and other disciplines play to reduce public health threats.

In less than 10 years, One Health has gained significant momentum and is now a fast growing movement. The approach has been formally endorsed by the European Commission, the US Department of State, US Department of Agriculture, US Centers for Disease Control and Prevention (CDC), World Bank, World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO), World Organization for Animal Health (OIE), United Nations System Influenza Coordination (UNSIC), various universities, NGOs and many others.

The current One Health movement is an unexpected positive development that emerged following the unprecedented Global Response to the Highly Pathogenic Avian Influenza. Since the end of 2005, there has been increasing interest in new international political and cross-sectoral collaborations on serious health risks. Numerous international meetings and symposia have been held, including major initiatives in Winnipeg (Manitoba, Canada, March 2009), Hanoi (Vietnam, April 2010), and Stone Mountain (Georgia, US, May 2010), as well as four international One Health scientific congresses, the last which took place in Melbourne, Australia, in December 2016.

2. Definitions of different terms

- **Global Health** is the health of populations in a global context and transcends the perspectives and concerns of individual nations. In global health, problems that transcend national borders or have a global political and economic impact are often emphasized. It has been defined as “the area of study, research and practice that places a priority on improving health and achieving equity in health for all people worldwide.” Thus, global health is about worldwide improvement of health, reduction of disparities, and protection against global threats that disregard national borders. (www.who.org)
- **Environmental Health** is that branch of public health that is concerned with all aspects of the natural and built environment that may affect human health. Other phrases that concern or refer to the discipline of environmental health include environmental

public health and environmental protection. The field of environmental health is closely related to environmental science, and public health like environmental health, is concerned with environmental factors affecting human health. Environmental health addresses all the physical, chemical and biological factors external to a person and all the related factors impacting behaviors. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behavior not related to the environment, as well as behavior related to the social and cultural environment, as well as to genetics.

- **Ecological Health (Eco-Health)** approach focuses, above all, on the place of human beings within their environment. It recognizes that there are inextricable links between humans and their biophysical, social, and economic environments, and that these links are reflected in a population's state of health (International Development Research Centre). The mission of Eco-Health is to strive for sustainable health of people, wildlife and ecosystems by promoting discovery, understanding and trans-disciplinarity. Eco-Health Alliance works at the intersection of ecosystem, animal and human health through local conservation programs and develops global health solutions to emerging diseases. It is an international organization of scientists dedicated to the conservation of biodiversity. Eco-Health Alliance focuses efforts on innovative research, education and training, and accessibility to international conservation partners.
- **Ecosystem Health** is a metaphor used to describe the condition of an ecosystem. Ecosystem condition can vary as a result of fire, flooding, drought, extinctions, invasive species, climate change, mining, overexploitation in fishing, farming or logging, chemical spills, and a host of other reasons. There is no universally accepted benchmark for a healthy ecosystem, rather the apparent health status of an ecosystem can vary depending upon which health metrics are employed in judging it and which societal aspirations are driving the assessment.
- **Planetary Health** is the newest kid on the block. Planetary health is defined as the achievement of the highest attainable standard of health, wellbeing, and equity worldwide through judicious attention to the human systems—political, economic, and social—that shape the future of humanity *and* the earth's natural systems that define the safe environmental limits in which humanity can flourish (Planetary Health Alliance).
- **One Health** is defined as the integrative (collaborative) effort of multiple disciplines working locally, nationally, and globally to attain optimal health for people, animals, and the environment. Together, the three make up the One Health triad, and the health of each is inextricably connected to the others in the triad.

Organizations Operating in the One Health Sphere

- i) World Health Organization (WHO)
- ii) Food and Agriculture Organization (FAO)
- iii) World Organization for Animal Health (OIE)
- iv) One Health Initiative
- v) United States Centers for Disease Control (CDC)
- vi) Eco Health Alliance
- vii) United States Agency for International Development (USAID)
- viii) One Health Central and Eastern Africa (OHCEA)

- ix) Southeast Asia One Health University Network (SEAOHUN)
- x) Universities - Departments, Centers, etc.
- xi) Ministries of Health, Agriculture, Environmental Resources, etc.
- xii) Medical or Health Professional Associations

Conclude with the slides showing the CDC's definitions of One Health and the One Health Initiative. (Adopted from SEAOHUN modules; <https://seaohunonehealth.wordpress.com/>)

The One Health concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment. The synergism achieved will advance health care for the 21st century and beyond by accelerating biomedical research discoveries, enhancing public health efficacy, expeditiously expanding the scientific knowledge base, and improving medical education and clinical care. When properly implemented, it will help protect and save untold millions of lives in our present and future generations – *One Health Initiative*.

The One Health concept recognizes that the health of humans is connected to the health of animals and the environment. CDC uses a One Health approach by working with physicians, ecologists, and veterinarians to monitor and control public health threats. We do this by learning about how diseases spread among people, animals, and the environment – *United States Centers for Disease Control*.

Karatu Case Study



Karatu District Arusha Tanzania

Karatu district is located in Arusha region, Tanzania and is known for its agricultural activities. People practice irrigated farming. Among the major drawbacks that farmers face are pests. As a means to overcome such problems, farmers indiscriminately use pesticides to protect their crops. This practice has been reported to be associated with many problems to the people, domestic and wild animals and the environment.

Cases of abortions in humans and animals are quite high in the district and are associated with pesticide poisoning. Skin diseases and infertility are also rampant especially among people working in horticultural farms. Incidences of fish and aquatic bird mortalities especially Lesser flamingoes (*Phoenicopterus minor*) are observed and both are linked with pesticide poisoning. In 2004, up to 45 000 Lesser flamingoes died at Lake Manyara, which is being fed by rivers draining from the agricultural fields in Karatu district.

Studies have shown high levels of pesticide residues in milk, beef and local chicken eggs. A case control study conducted in pregnant women who went to be delivered at Mount Meru Hospital in Arusha, showed that they had very high levels of pesticide residues in breast milk and abdominal fats. The newly born babies had also high levels of pesticides in muconeum and umbilical blood. Studies further showed high levels of pesticides in water collected from Lake Manyara and different rivers around irrigated farms.

Efforts have been made by the government to overcome the problem. The Tanzania Ministry of Agriculture has been conducting seminars, extension work and restricting uses of pesticides, including advocating for the integrated pest control systems but the problem still exist and is getting worse.

Karatu case study questions

1. What is the problem? Who is affected? What are the challenges?
2. What do you see as the social, economic, political angle to this?
3. What key One Health issues can be identified?
4. What sectors are involved?
5. Are there any government policy implications?
6. What measures can be done to protect the health of humans, animals and the environment?
7. Can you give similar examples from your own background/work? How did you deal with it?

Session 2: Prevention

Session Overview

This session is designed to help participants develop and/or reinforce the skills they need in order to:

- i)* prevent the spread of endemic, epidemic and epizootic diseases and resistance phenomena for antimicrobials and pesticides at both national and international level.
- ii)* protect against, control, monitor and eventually eradicate disease and resistance phenomena for antimicrobials and pesticides by rigorously applying the health standards set forth in the International Health Regulations (IHR) and in the relevant national laws and regulations.
- iii)* avoid creating unnecessary obstacles to commerce and the movement of people, animals and goods.
- iv)* reduce the risk of contamination following improper use of biological or chemical material.
- v)* protect people against potential exposure to biological and chemical materials.
- vi)* actively and effectively participate in monitoring diseases as well as resistance phenomena for antimicrobials and pesticides.
- vii)* manage the potential for contamination where humans, animals and the environment come in contact.

In 2005, the United Nations General Assembly adopted the IHR in all signatory States Parties. The agreement represents an obligation for those States Parties to develop national capabilities with regard to preventing, detecting and responding to diseases and resistance phenomena for antimicrobials and pesticides. The Global Health Security Agenda (GHSa), an international partnership of countries and organizations, emphasize the urgency of implementing the IHR. The GHSa uses the One Health approach.

This session is divided into four units:

- i)* Laws and regulations
- ii)* Biosecurity and biosafety
- iii)* Rational use of antimicrobials and pesticides, and resistance phenomena
- iv)* Conservation, storage and transport of medicines, chemical and biological products and pesticides.

The following instructional methods will be used in this session: case studies, group discussion, brief presentation, demonstration, video, role-play exercises and information-seeking.

Participants will be expected to acquire the technical skills for applying:

- i)* laws and regulations.
- ii)* standard precautions for managing the risk of infection and contamination.
- iii)* best practices in the use of medicines, chemical products and pesticides.
- iv)* best practices for the conservation, storage and transport of medicines, chemical and biological products and pesticides.

- v) methods for monitoring and early detection of epidemics, epizootics and resistance phenomena for antimicrobials and pesticides.
- vi) best practices for environmental management and conservation.

	Unit 2.1	Laws and Regulations
Time	Activity/Topic	Detailed Facilitator Notes



Learning Objective

45 min

This session focuses on the ability to use, apply and ensure compliance with national and international laws and regulations.

By the end of this unit, participants should be able to:

- i) identify the key texts relating to prevention, detection and response to diseases and resistance phenomena for antimicrobials and pesticides.
- ii) apply the mandates contained in laws and regulations.
- iii) promote the application of laws and regulations.
- iv) apply government measures relating to preventing, detecting and responding to epidemics, epizootics and resistance phenomena for antimicrobials and pesticides.

In a plenary session, give a brief presentation on the laws and regulations for preventing, detecting and responding to emerging and re-emerging diseases and resistance to antimicrobials and pesticides.

Divide the participants into interdisciplinary groups and let them discuss the use of current laws and regulations to resolve the case study on avian flu. This activity will give the participants a better understanding of the consequences of failing to comply with the laws and regulations on preventing, detecting and responding to infectious diseases and resistance to antimicrobials and pesticides.

Presentation on Laws and Regulations

Make a presentation on the current laws and regulations in the fields of human and animal health and the environment with regard to preventing, detecting and responding to epidemics, epizootics and resistance phenomena for antimicrobials and pesticides. The presentation will cover the IHR; the Codex Alimentarius; the laws relating to the import and distribution of medicines, chemical products and pesticides; the guides from the WHO, the OIC and the WTO; and documents setting out national policies.

Give each participant a copy of the case study to be discussed in the group as part of his or her course materials. Ensure that each work group has access to the laws, regulations and the documents it needs for the purposes of discussion.

To save time, given that the case study contains several questions, you may assign a different question to each group. When the groups have finished their work, each group will make a report in a plenary session. The participants will have an opportunity to ask questions or comment on the reports by the other groups.

Once all the groups have made the presentations, summarize the legal and regulatory texts. Identify the key aspects of each law or regulation on preventing, detecting and responding to diseases and resistance phenomena for antimicrobials and pesticides. In addition, describe the penalties incurred by health care professionals who fail to comply with those laws and regulations.

Unit 2.2

Biosecurity and Biosafety

Learning Objectives

By the end of this unit, participants should be able to:

- i)* evaluate the risk of exposure to pathogens and chemicals, primarily in health care settings (farms and health facilities), laboratories and at agricultural sites.
- ii)* apply biosecurity and biosafety measures.
- iii)* effectively manage biological and chemical waste.
- iv)* apply the appropriate medical and technical measures for combating an epidemic, epizootic or resistance phenomena for antimicrobials and pesticides.






Group Discussion on Measures to Combat Epidemics



Materials for hand hygiene (washbasin or hand washing station with running water, liquid antiseptic soap or chlorine solution, individual towel for drying hands) and a hydroalcoholic solution or gel for rubbing hands.

- i)* Let participants in interdisciplinary groups identify the medical and technical measures needed to combat an epidemic or epizootic, and explain how the various disciplines complement each other. This discussion will be based on the avian flu case study. In the course of resolving the case study, the participants will learn how to identify the appropriate biosecurity and biosafety measures for preventing and controlling epidemics and epizootics and protecting the environment.
- ii)* Give a brief presentation on standard precautions, followed by videos and images on biosafety and biosecurity, the wearing of PPE, animal slaughter, surface cleaning, virucides, etc.

- iii) Then carry out a demonstration and counter-demonstration on hand hygiene practices, including washing hands in water and rubbing them with hydroalcoholic gels or solutions.
- iv) Let the participants comment on the video. Summarize the unit.

	Unit 2.3	Rational Use of Antimicrobials and Pesticides
Time	Activity/Topic	Detailed Facilitator Notes
	Learning Objectives	<p>By the end of this unit, the participants will be able to:</p> <ul style="list-style-type: none"> i) describe the various steps involved in the rational use of medicines and pesticides in human and animal health care and production. ii) explain the consequences of irrational use of medicines and pesticides for human and animal health and for the environment.
 40 min	Role-play of Virtual Pharmacy 	<ul style="list-style-type: none"> i) Set up a three-part scene in the virtual pharmacy to explain best practices in diagnostics, prescription and drug dispensing. Prepare the scene the day before with the individuals who will play the various roles in the scene, with help from the virtual pharmacy guide your disposal. ii) After each of the three parts has been presented, give a brief presentation to zero in on the issues involved when making diagnoses or prescribing and dispensing antimicrobials and pesticides for human and animal health care. iii) The case of a patient who goes directly to the pharmacy to obtain anti-infective drugs without a medical diagnosis or doctor's prescription and without rational dispensing of the drugs. iv) The case of a patient who goes to the pharmacy and asks the pharmacist a health-related question. The pharmacist suggests medications using the WHIDAM approach, which promotes rational dispensing. v) The case of a farmer who obtains antibiotics in a pharmacy for treating a herd of dairy cows with acute respiratory symptoms. The pharmacist sells the farmer antibiotics used to treat human tuberculosis. After several injections with no improvement in the animals' health, the farmer goes to the veterinarian who then learns about the farmer's improper use of the antibiotics. The veterinarian offers advice to the farmer.

- vi) After the role-plays, let the participants discuss and comment on these three scenarios and then you summarize the discussion.
- vii) Give a brief presentation on the rational use of medicines and pesticides. This will teach the participants about the need to monitor the various steps in rational drug dispensing (procurement, prescription/dispensing and use). Lay emphasis on prescription/dispensing so that the participants understand the need for proper diagnosis and appropriate treatment and monitoring.



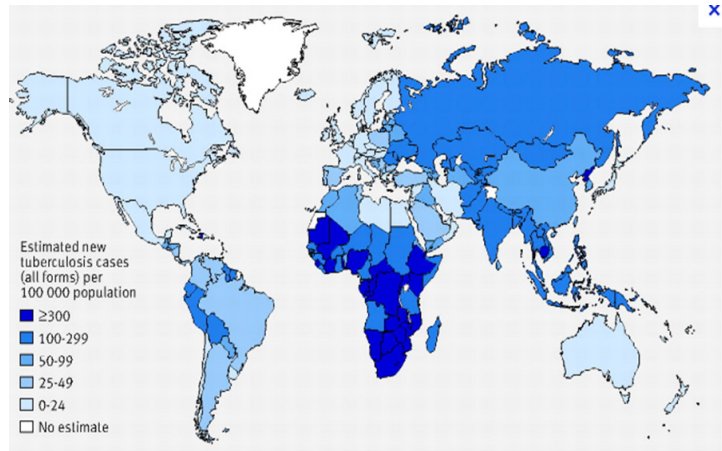
30 min

Case Study on Bovine TB and Antimicrobial Resistance



(If you have
any other case
studies on
antimicrobial
resistance
please add
them)

Provide the participants with the case study on Bovine Tuberculosis



In groups, let the participants discuss the following questions related to the case study:

1. Who and what are the different elements and stakeholders involved in the case of TB?
 - i) Wild animals, domestic animals, humans, birds
 - ii) Multiple governments, veterinarians, medical doctors, wildlife specialists
 - iii) Consumers of milk and meat products, handlers of these products, business people, hunters, women selling milk and handling food, caring for the sick
 - iv) International travel organizations and their governments, WHO, OIE, FAO
 - v) NGOs involved and engaged in disease control

2. What disciplines should work together to control this re-emerging pandemic?

All disciplines medical, veterinary, wildlife, anthropology, local and national leaders, businesses, consumers, multi-lateral organizations: WHO, OIE.

3. What are the benefits of cross-sectoral cooperation and the sharing of resources and information between countries?
 - i) Needed for effective control of highly contagious disease emergencies.
 - ii) Participants should be able to brainstorm here and come up with multiple ideas.
3. What gender issues do you see in this scenario and how would you deal with them?
 - i) Women are responsible for milking, and cooking food.
 - ii) They are caregivers.
 - iii) If not targeted for intervention, cannot be able to control TB.
 - iv) Men are hunters bringing bush meat home.
 - v) Men are traders in illegal bush meat and sometime women are intermediaries.
 - vi) In most communities, women have lesser access than men to medical care and training.
 - vii) Drug resistance (MDR ad XDR) make control difficult.
4. Discuss antimicrobial resistance issues related to Tuberculosis.

Each group should then debrief afterwards.

	Unit 2.4	Biological Mechanisms Behind the Onset and Spread of Antimicrobial and Pesticide Resistance
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Learning Objectives

By the end of this unit, participants should be able to:

- i) explain the mechanisms behind the onset of resistance to antimicrobials and pesticides.
- ii) explain the mechanisms behind the spread of resistance to antimicrobials and pesticides.
- iii) explain the consequences for this resistance to human and animal health and for the environment.



20 min

Video on Causes of Antibiotic Resistance



45 min

Show the following videos: Antibiotic Resistance: A Public Health Crisis | Victoria J. Fraser, MD | TEDxStLouisWomen

<https://www.youtube.com/watch?v=p8QLvHtipJo>

Factory farms, antibiotics and superbugs: Lance Price at TEDxManhattan

<https://www.youtube.com/watch?v=ZwHapgrF99A>

After showing the TED videos, discuss the different causes of antibiotic resistance.

- i)* Make a brief presentation on the mechanisms behind the onset of resistance to antimicrobials and pesticides, the spread of resistance and the associated consequences. This presentation will show participants how drug and pesticide resistance emerges and spreads in the community and the extent of the consequences for human and animal health and the environment.
- ii)* Conduct a multidisciplinary group discussion regarding the case study on malaria, intended to explain how resistance to antimalarial drugs and mosquito resistance to insecticides can spread. The case study involves an epidemic that arose in a health region where hordes of anopheles mosquitoes emerged in the wake of road construction projects. Treatment with ineffective medications, coupled with unsuitable mosquito netting, led to an outbreak of fever in children and pregnant women. This case study is helpful in explaining a variety of factors that promote the spread of resistance and the emergence of epidemics.
- iii)* Let participants present the results of their work on the easel pad during a plenary session.
- iv)* Give a brief summary that stresses the consequences of this resistance for human and animal health and for the environment.

	Unit 2.5	Conservation, Storage and Transport of Medicines and Chemical Products
Time	Activity/Topic	Detailed Facilitator Notes

Learning Objectives

By the end of this unit, participants should be able to:

- i) preserve, store and ship medicines, chemical products and pesticides in accordance with established standards.
- ii) identify the health and environmental consequences (risks) of failing to comply with standards governing the transport, conservation, storage and procurement of medicines and chemical products.



45 min

Safe Storage of Chemicals



- i) Give a brief presentation on the standards for storing, preserving, transporting and procuring medicines, chemical products and pesticides.
- ii) Show a couple of videos on preserving and storing chemical products and medicines. This presentation will be followed by a video illustrating the various phases of the process and precautions to be taken in practice. The presentation and video are both designed to highlight the consequences for and risks associated with improper handling of chemical products and medicines. During the field visits (Session 4: Practices), the practical aspects of these issues will be examined in greater depth with examples and demonstrations.

Video on safe storage of chemicals

<https://www.youtube.com/watch?v=IBth0dEnFIw>

Video on chemical storage hazards

https://www.youtube.com/watch?v=vT8R6gYCn_0

- iii) Show the video on proper procedures and practices for storing, preserving, transporting and procuring medicines and pesticides. Afterwards, start a discussion with the participants to elucidate the topics presented in the video.
- iv) Record the participants' comments on the presentations and video on an easel pad before concluding with a brief summary.

Session 3: Detection

Module Overview

This “Detection Session” addresses monitoring systems and the steps taken in epidemiological investigation triggered by the initial warning signs. Its objective is to help participants acquire the skills for monitoring diseases and resistance phenomena and for conducting epidemiological investigation. With this session, participants will learn how to enlist the community’s help in the surveillance and early detection of an epidemic or epizootic or a resistance phenomenon for antimicrobials and pesticides.






Epidemics in various countries have shown that a belated response to infections can lead to an enormous loss of human and animal life as well as of goods. The main reasons for this loss include an inadequate or nonexistent warning system and malfunction of the monitoring system or the laboratory. By shortening the investigative period, particularly by means of an early warning system, an epidemic can be quickly confirmed and appropriate measures taken in response to minimize losses.

Several instructional methods are used in this session, including presentations, case studies, group discussions and plenary sessions.

This session is intended to enhance the skills of health care professionals and give them the know-how for easier early detection, thanks to improved management of surveillance systems and better knowledge of the steps involved in investigating an epidemic, epizootic or resistance phenomena for antimicrobials and pesticides.

Session Skills and Competences

- i)* The ability to use the various surveillance systems for the prevention of epidemics, epizootics and resistance phenomena.
- ii)* The ability to work with and within the various surveillance systems for preventing and detecting an epidemic, epizootic or antimicrobial or pesticide resistance.
- iii)* The ability to conduct an epidemiological investigation or an investigation of antimicrobial or pesticide resistance.
- iv)* The ability to follow the necessary steps to confirm an epidemic or antimicrobial or pesticide resistance.
- v)* The ability to manage and handle biological specimens securely and appropriately.

Unit 3.1		Disease Surveillance and Investigation of Epidemics and Epizootics
Time	Activity/Topic	Detailed Facilitator Notes
	Learning Objectives	<p>By the end of this unit, participants should be able to:</p> <ol style="list-style-type: none"> describe the various disease surveillance systems for human health and animal health (domestic and wild). explain the importance of the standard case definition for routine surveillance of diseases and antimicrobial and pesticide resistance. describe the steps for investigating an epidemic, epizootic or resistance.
 20 min	 Lecture (Prepare Presentation on Surveillance and Epidemiological Investigation)	Surveillance and Epidemiological Investigation <ol style="list-style-type: none"> Give a brief interactive presentation on surveillance and epidemiological investigation, and describe the types, objectives, applications and principles of surveillance. Also highlight the role of and need for an early warning system and the importance of enlisting the community's help in the surveillance. Discuss with the participants the steps in investigating an outbreak. Refer to the IDSR from the WHO-AFRO and the OIE's PVS tool.
 5 min	 Case study on Malaria	<p>Provide the participants with the following case study and have them respond to the questions that follow.</p> <p>Historically, the prevalence of malaria in northern Uganda has been high (prevalence=15%+). Between 2012 and 2014, Indoor Residual Spraying (IRS) was introduced as an additive malaria prevention intervention in northern Uganda. A few months after IRS, the population of mosquitoes was drastically reduced and the communities no longer felt the need to use mosquito bed nets anymore. The number of malaria cases had indeed gone down. However, in June 2015, the Uganda National Medical Stores reported increased consumption of antimalarials in northern Uganda. This prompted the Ministry of Health to investigate the cause of this increased consumption of antimalarials. The Ministry discovered that there was an ongoing malaria epidemic that had gone undetected for 3 months.</p>



15 min



Large Group Activity

- i)* In a plenary, let each group report on the assigned questions.
 - ii)* Ensure that each group takes no more than 5-6 minutes to have all questions discussed. For each question, make sure the groups address the following questions:
1. How could you tell that the burden of malaria was previously high?
 - Reporting cases, summarizing cases, and monitoring the number of cases over time.
2. What do you think prompted the communities to stop using bed nets?
 - Lack of communication about the need to keep using the bed nets, perceived solution to a problem with the use of IRS.
3. How would you be able to know that IRS worked?
 - Using surveillance to monitor interventions.
4. How could a multidisciplinary team have detected the outbreak earlier?
 - Consider the role of others who may be able to evaluate:
 - Environmental factors such as rain, waterlogging, mosquito populations (engineers, environmental health)
 - Reporting of more human cases (physicians, health care workers)
 - Increased consumption of pharmaceuticals (pharmacists)
 - Increased fevers in communities (community leaders, schools)
 - Similar diseases in animals (veterinarians, community animal health workers)
5. Think of a model system that can integrate reporting of malaria cases in the community, at the health facility, and at the district and national levels.
 - Who would be involved? How would information connect?
6. If the community is reporting an increased number of fever cases, how could you/your team go about confirming whether it is an outbreak of malaria or not?
 - Who would be involved? What samples would you need to collect? Who would be involved in testing the samples? How would results be communicated?

- vi) After all the groups present, in a plenary obtain additional feedback, thoughts, and ideas.
- vii) Close the conversation by summarizing the exercise and reviewing surveillance strategies.



PowerPoint Presentation on Concepts of Epidemic/Epizootic Surveillance



Concepts of Epidemic/Epizootic Surveillance

Give a PowerPoint presentation on the concepts involved in epidemic/epizootic surveillance, bearing in mind that the presentation should be interactive and should draw on the knowledge acquired previously by the participants.

	Unit 3.2	Investigation of Epidemics and Epizootics and the Role of the Laboratory
Time	Activity/Topic	Detailed Facilitator Notes



Learning Objectives

By the end of this unit, participants should be able to:

- i) follow the procedure for an epidemiological investigation.
- ii) discuss the role of the laboratory in an epidemiological investigation.
- iii) apply the methods for secure specimen management.



Guest Speaker

First-Hand Account of an Outbreak Investigation

- i) Obtain a video interview or invite a local partner to describe an outbreak investigation that they were involved in.
- ii) Ask them to not only address the steps involved in the investigation, but also the outcomes and the individuals involved.
- iii) This activity can be tailored to the region by addressing specific diseases and partners that may be unique to the area.



(Game)



Large Group Game

Steps in an Outbreak Investigation

- i) Prior to the class session, prepare the game activity by writing the steps involved in an outbreak investigation on separate sheets of paper. The steps include the following:
 1. Prepare for fieldwork
 2. Establish the existence of an outbreak

3. Verify the diagnosis
4. Define and identify cases
5. Describe and orient the data in terms of time, place, and subject
6. Develop hypotheses
7. Evaluate hypotheses
8. Refine hypotheses and carry out additional studies
9. Implement control and prevention measures
10. Communicate findings

- ii) Ask the class volunteers to shout out steps that they identified in the outbreak investigation discussion. When one is correctly identified, hang the piece of paper with the corresponding step on the wall/whiteboard. As additional steps are identified, ask the participants to put them in order so that by the end of the exercise, all steps in the outbreak shall have been identified.
- iii) Note that the steps listed above are in a logical order, so the final list produced by the participants should be similar.





20 min



Scenario on Epidemiological Investigation and Sample Collection

- i) Prepare the scene well before the start of the session. Identify the participants and their respective roles in the scene. Verify that all the materials needed for the scene are available. The time devoted to the scene must be closely monitored to avoid running over.
- ii) **Short scene on the epidemiological investigation.** The scenario involves an epidemic situation with the H5N1 virus. A multidisciplinary team of investigators arrives at the site of the outbreak. It proceeds as follows:
 - It interviews the key informants to identify the index case and track contacts and suspects.
 - It collects specimens from humans and animals and forwards them to the laboratory.

	Unit 3.3	Surveillance of Medicines, Chemical Products and Pesticides
Time	Activity/Topic	Detailed Facilitator Notes
	Learning Objectives	<p>By the end of this unit, participants should be able to:</p> <ol style="list-style-type: none"> describe the medicine, chemical and pesticide surveillance systems and initiatives used to control resistance phenomena in human and animal health and the environment, both nationally and internationally. interact with surveillance system entities. describe the surveillance process and the appropriate use of the medicine, chemical and pesticide surveillance systems in the laypersons' terms.
 45 min	Systems of Medicinal Surveillance	<p>Show this video on use of pesticides in Hawaii</p> <p>Pesticides in Paradise: Hawaii's Health and Environment at Risk</p> <p>https://www.youtube.com/watch?v=CKhviAbMXE0</p> <ol style="list-style-type: none"> Open the unit with a brief presentation on pharmacovigilance and national and international initiatives on antimicrobial and pesticide surveillance. This will help participants to learn about the scope of the problem of antimicrobial and pesticide resistance, the various systems available and how they operate, and the gaps and challenges connected with the surveillance of medicines, chemical products and pesticides for the purpose of monitoring resistance. Demonstrate how to submit notification of side effects and, if possible, how to contact the pharmacovigilance center for serious side effects. Participants will take part in a notification exercise, a demonstration of how to enter reports in Vigiflow and a demonstration of how to send a report to the CNPV database using an Android phone. The goal of this exercise is to help participants become acquainted with and learn more about one method of human health surveillance. The exercise will include real-time interaction with the pharmacovigilance center. Verify that the necessary hardware and software are available (Vigiflow software, ICD-10, notification form, MedDRA system, etc.). Access to the Internet is essential for this exercise. If a demonstration is not feasible, show a video on drug surveillance.

Session 4: Practices

Module Overview

The “Practices Session” is an integrator session that includes a unit for field visits. For the activities in this Module, participants will visit critical locations or specific health facilities to gain a better understanding of the issues connected with surveillance, detection and response. These locations present a high risk of pathogen transmission from one human or animal to another.

Given the extent in which adults learn by practice, this session is designed to reinforce the knowledge and habits acquired in the other sessions. It will also instill in the participants the skills of critical analysis regarding the realities in the field as they relate to the risk of contamination. Accordingly, active instructional methods will be used, including demonstrations, observations and conversations with experts and others in the field.

By the end of this session, the participants will have improved their practical skills and their understanding of the challenges inherent in preventing, detecting and responding to diseases and resistance phenomena for antimicrobials and pesticides.

	Unit 4.1	Field Visits
Time	Activity/Topic	Detailed Facilitator Notes



Learning Objective

By the end of this unit, the participants should be able to adapt to professional demands in the field by applying principles and theoretical concepts to the task of preventing, detecting and responding to epidemics, epizootics and antimicrobial and pesticide resistance.



480 min

Field Visit



- i) Contact the managers of the site at least one week in advance to review the objectives and expected results of the visit. Determine the conditions that should be set by the site. Those conditions must be met before the visit.
- ii) Ask the participants to prepare their data collection tools the day before and to wear appropriate attire for each visit.
- iii) Confirm that a site guide will be available on the day of the visit to lead the participants. Arrange for a small tip for the guide's services or to thank the guide at the end of the visit.
- iv) Organize transport to the site (e.g. by leasing a minibus).

- v)* Arrange for a light meal or snack during the visit (soft drink, water, cookies, etc.).
 - vi)* Have some means of contacting authorities if necessary.
 - vii)* Ensure that the visit includes at least three of the sites described below. The sites must be chosen so as to include human and animal health and with the safety of the participants in mind.
- a) Slaughterhouse:** The participants will visit the slaughterhouse very early in the morning. This visit will provide an understanding of how a slaughterhouse operates and its role in public health. After their tour, possibly including observation of animal slaughter, the participants will discuss any deficiencies observed with regard to established standards for slaughterhouse operation and hygiene; prevention, detection and response; biosecurity and biosafety; waste and environmental management and professional ethics.
 - b) Market:** The participants will visit a market where animals and foods of animal origin are sold. This visit will help them understand the opportunities for contamination both at the market and throughout the food supply chain (from production to consumption). The important role of veterinary inspection and the health authorities will be highlighted as well. After the visit and any observation of sales activities, the participants will discuss deficiencies and challenges observed with regard to health and hygiene standards and, more broadly, standards for food inspection. Issues related to prevention, detection and response; biosecurity and biosafety; waste and environmental management and professional ethics will be analyzed.

- c) **Laboratory:** The participants will visit a biomedical and/or pharmaceutical laboratory. This visit will provide an understanding of how the laboratory operates and its role in public health. After the visit, the participants will discuss any deficiencies and challenges observed with regard to established standards for laboratory operations; hygiene; prevention, detection and response; biosecurity and biosafety; waste and environmental management; and professional ethics.
- d) **Point of entry:** The participants will visit an airport or port that serves as a point of entry. This visit will provide an understanding of how health authorities operate in these locations which are instrumental in the transmission of pathogens from one region or country to another. People, animals and goods of various types moving through these locations are subject to physical and documentation inspections. After the visit, the participants will have a group discussion on any deficiencies and challenges observed with regard to established standards for point of entry operations; prevention, detection and response; biosecurity and biosafety; waste and environmental management; professional ethics; the import of pharmaceutical products; compliance with national and international laws and regulations.
- e) **Farm:** The participants will visit a livestock farm or agro-veterinary facility. During this visit they will learn about a variety of zootechnical, veterinary and agricultural operations. After their observation of the zootechnical, agricultural and veterinary operations, the participants will discuss any deficiencies and challenges observed with regard to established standards for prevention, detection and response; biosecurity and biosafety; disease surveillance; waste and environmental management; professional ethics; and the use and storage of antimicrobials and pesticides.

f) Pharmaceutical or chemical products

warehouse: A tour of a warehouse for pharmaceutical products, chemicals or pesticides is recommended. This will give the participants an opportunity to observe how various products are stored and managed. They will learn about precautions to be taken and potential consequences with regard to storing, preserving, shipping and using those products.

g) Health region and health clinic/hospital:

The participants will visit a regional health office. This visit will provide an understanding of the various tasks involved in disease surveillance. After their observation of the office, the participants will discuss any deficiencies and challenges observed with regard to established standards for prevention, detection and response; biosecurity and biosafety; cross-sector integration of disease surveillance systems; waste and environmental management; professional ethics.

h) At the health clinic/hospital:

The participants will visit the units responsible for crisis management, hygiene and sanitation. This will help them understand the specific measures taken during epidemics and to prevent nosocomial infections. After their visit, the participants will discuss any deficiencies and challenges observed with regard to established standards for prevention, detection and response; biosecurity and biosafety; disease surveillance; waste and environmental management; professional ethics.

Session 5: Response

Module Overview

The “Response Session” is based on a tabletop simulation involving a response to a zoonotic disease. The simulation will focus on administrative measures and medical/technical measures. It will enable the participants to acquire and practice using their knowledge and the know-how in coordinating a cross-sector team in response to an outbreak of disease or antimicrobial or pesticide resistance. The simulation will also emphasize the importance of conducting needs assessment and mobilizing the community as part of the response.

Past experience has shown that loss of human and animal life can be reduced if appropriate measures are taken quickly and effectively in response to an outbreak of disease or resistance phenomena for antimicrobials and pesticides. Organization and coordination at various levels are critical to the success of that response. In such circumstances, the community needs to mobilize in order to play a major role.

It should be noted that an affected community will express a variety of needs both during and after an epidemic or epizootic. Those needs can be evaluated using several techniques, such as the rapid assessment method, interviews with key informants, surveys, focus groups and so on.

This session is intended to enhance the skills of health care professionals and give them the know-how to facilitate an effective response upon any outbreak of disease or resistance phenomena for antimicrobials and pesticides.

Skills and Competences

- i)* The ability to implement administrative measures during epidemics and epizootics.
- ii)* The ability to understand the organization, operation, role, responsibility, planning, strategies and activities involved in a response.
- iii)* The ability to implement medical and technical measures during an epidemic or epizootic.
- iv)* The ability to implement prophylactic measures, sanitation techniques, isolation, quarantines.
- v)* The ability to conduct a tabletop simulation in order to identify response measures, verify the status of each component of an epidemic response system and evaluate the needs of the community affected.
- vi)* The ability to analyze and identify appropriate response measures, quantify and isolate needs, identify challenges and opportunities in order to mobilize the necessary resources, both in times of crisis and during routine assessments.

	Unit 5.1	Tabletop Simulation
Time	Activity/ Topic	Detailed Facilitator Notes



Learning Objectives

By the end of this unit, participants should be able to:

- i) describe the composition and role of the multi-sector epidemic control committee.
- ii) explain the administrative strategies and measures for responding to avian flu in human and animal health care (e.g. compensation for financial loss, policies put in place, social measures, etc.).
- iii) apply medical and technical measures to contain the spread of the epidemic in slaughterhouses, points of entry, public transport, health care facilities, farms and the community.
- iv) define the needs of the community during the response to an epidemic.
- v) conduct a tabletop simulation to test the efficacy of a system for monitoring and responding to epidemics and epizootics and to identify both the community's needs and the administrative and medical/technical measures required to respond to an epidemic.



240 min



Table Top Simulation

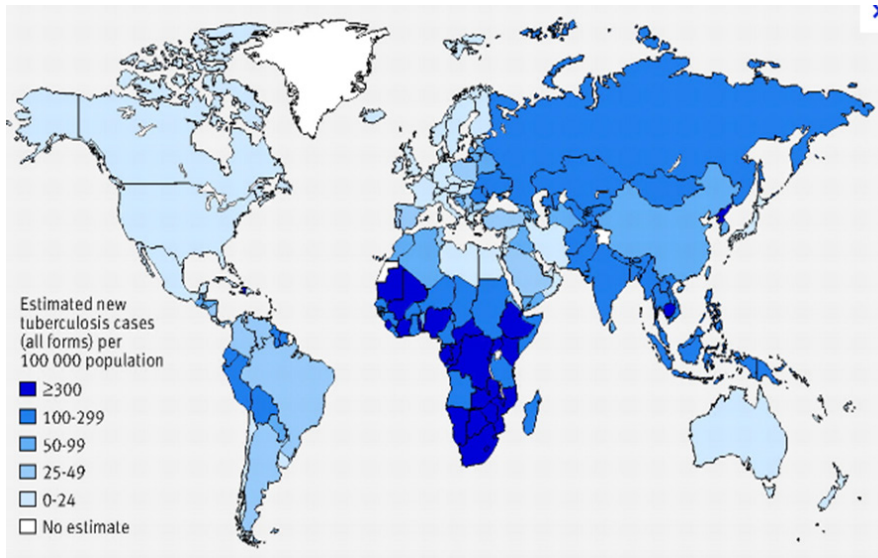
- i) Prepare the simulation well in advance of the scheduled date for the activity, as follows:
 - Either the day before or on the morning of the plenary session, allow the participants, grouped by discipline, to have ample time to reflect on the simulation scenarios.
 - Divide the participants into multidisciplinary sub-groups and assign each sub-group a specific aspect of the simulation.
 - Give each multidisciplinary group enough time to prepare their part of the simulation to be carried out.
 - Place the participants in small groups by discipline. They will study simulation scenarios prior to the organized simulation in the plenary session.
- ii) The tabletop simulation will be conducted in a plenary session based on a scenario involving an avian flu epidemic in a community near a major urban center and an international border. The scenario will consist of the following components:

- a) Risk analysis and definition of response strategies.
- b) Creation of response teams.
- c) Deployment of administrative and medical/technical measures.
- d) Assessment of community needs.
- e) Mobilization of the community.
- f) Evaluation of the efficacy of the surveillance system and response measures.
- i) The simulation will be conducted as described below:
 - a) A warning regarding an epidemic of unknown origin is sent to community leaders. At a different level, risk analyses are conducted, and their findings trigger a response effort.
 - b) Multidisciplinary teams at the central (national), provincial and local levels are mobilized and put in place in order to respond to the avian flu epidemic at the site of the outbreak. Their roles and response plans are discussed.
 - c) The administrative and medical/technical measures are identified and deployed at various locations (farm, health clinic, community, market, etc.). Through group discussions, the participants define a profile for the response teams at the central, intermediate and local levels. A variety of specific actions will be addressed, including hygiene measures; movement control for persons and animals; the closing of local markets; the closing and disinfection of schools and public places; the slaughter of animals; financial compensation for farmers; a vaccination, educational and awareness-raising campaign; clinic-based treatment for patients and psychosocial treatment for those affected; the collection of biological specimens; isolation and quarantine of those infected or suspected of infection; the handling of specimens; the supply of inputs; secure management of waste as well as human and animal corpses transferred from various sources (police, regional government, community and religious leaders, the population at large, medical and veterinary personnel).

In addition, the participants will discuss how the community can be mobilized and what will be needed for that task.

- iv) Make a brief summary presentation of the concepts covered in the unit.
- v) If resources are available, the various presentations by each group can be videoed for later viewing to gather feedback.

Case Study - Bovine TB



Every year, there are 8–10 million new cases of tuberculosis (TB) reported, and 2–3 million deaths attributed to TB. In many countries in Africa, HIV and AIDS is widespread. The biggest killer of people with HIV and AIDS is TB. However, the impact of Bovine TB on humans is poorly documented. Bovine Tuberculosis (BTB) is a major problem for livestock in developing countries and wildlife play a major role in the failure of TB eradication programs. In many cases, consumption of raw meat and milk and development of bush meat consumption as a cheap source of protein are the principal routes of human contamination with BTB.

Human TB of animal origin (zoonotic TB) is an important public health concern in developing countries. African nations face a particular challenge in TB control, deficiencies in public health control measures for cattle and animal products. Once detected, tuberculosis is curable in 90 percent of cases for as little as \$15 per treatment. HIV and AIDS is fueling the TB epidemic, and coordination between the TB and HIV communities is lacking.

The spread of extensively drug-resistant TB (XDR-TB) is a major threat and there is a significant lack of infrastructure and capacity, including laboratory facilities and health workers. This is made worse by the fact that smaller, less-regulated farmers sell unpasteurized milk directly to consumers and most consumers in the village do not boil their milk to the required standards.

Mycobacterium bovis has a broad host range as the principal cause of TB in free-living wildlife, captive wildlife, domestic livestock, and non-human primates. Wild ruminants and carnivores, such as African buffalo, lion, cheetah, greater kudu, leopard, warthog, and eland, can be infected, and in turn, infect both humans and domestic animals. Scavengers (hyenas, genet) and chacma baboons in Kenya became infected through the ingestion of abattoir wastes. Furthermore, recent development of wildlife activities, such as game tourism, farming, and hunting to develop the peripheral zones of protected areas has increased human contact with wild animals. Due to international travel and migration, TB is now considered a rapidly re-emerging pandemic. Many cases diagnosed are multi-drug resistant (MDR) or XDR.

Questions

1. Who and what are the different elements and stakeholders involved in the case of TB?
 - i) Wild animals, domestic animals, humans, birds
 - ii) Multiple governments, veterinarians, medical doctors, wildlife specialists
 - iii) Consumers of milk and meat products, handlers of these products, business people, hunters, women selling milk and handling food, caring for the sick
 - iv) International travel organizations and their governments, WHO, OIE, FAO
 - v) NGOs involved and engaged in disease control
2. What disciplines should work together to control this re-emerging pandemic?
All disciplines medical, veterinary, wildlife, anthropology, local and national leaders, businesses, consumers, multi-lateral organizations: WHO, OIE
3. What are the benefits of cross-sectoral cooperation and the sharing of resources and information between countries?
 - i) Needed for the effective control of highly contagious disease emergencies
 - ii) Participants should be able to brainstorm here and come up with multiple ideas
4. What gender issues do you see in this scenario and how would you deal with them?
 - i) Women are responsible for milking, and cooking food
 - ii) Women are caregivers
 - iii) If women are not targeted for intervention, cannot be able to control TB
 - iv) Men are hunters bringing bush meat home
 - v) Men are traders in illegal bush meat and sometime women are middle men or intermediaries
 - vi) In most communities, women have lesser access to medical care and training.
 - vii) Drug resistance (MDR and XDR) makes control difficult.
5. Discuss the antimicrobial resistance issues related to Tuberculosis.

Session 6: Gender Analysis Tools

Learning and Applying Gender Analysis Tools in Disease Surveillance, Response, Prevention and Control

Module Overview



- i) This session uses all the previous concepts in the specific disease surveillance, response, prevention and control.
- ii) Participants will be able to identify basic gender principles and related concepts including sex, gender, gender roles, equity, equality, and life cycle.
- iii) They will use examples of different diseases (TB, brucellosis, Ebola and Bilharzia) to apply gender tools.

Learning Objectives

By the end of the session, the participants will be able to:

- i) select the relevant gender tool.
- ii) use the gender tool.
- iii) understand the importance of using gender tools and conducting gender analyses.

Detailed Facilitator Notes

	Unit 6	Gender Analysis Tools Module
Time	Activity/Topic	Detailed Facilitator Notes
 60 min	Opening Comments 	<ul style="list-style-type: none">i) Let the participants work in the same four groups that represent surveillance, response, prevention and control and apply the tools to an imaginary rural community according to the disease that was assigned to them. They will use a gender lens to collect relevant data in the context of health. Then the data accumulated in relation to the fictional community will allow the participants to develop a gender sensitive intervention.ii) In the morning, let the participants use tools to understand the community and in the afternoon let them use tools to develop an intervention to mitigate the impact of the disease.”



20 min

Discovery Activity:



What is Gender?

- i) Ask the participants to think as far back as possible and write down their first experience when they realized that they/or someone they knew were different from members of the opposite sex / were expected to act differently/were treated differently. Have them record the following:
 1. How old were you?
 2. Who was involved?
 3. Where did the incident take place?
 4. What incident was it?
 5. How did you feel?
 6. How did other aspects of your identity (race, religious identity, nationality, social status, ethnicity) come into play?
- ii) If not, ask them to share a story about an experience that made them aware of the difference between men and women.



20 min

Discovery Activity:



What does it Mean to be Gender Sensitive?

Divide the class into two groups. Provide each group with a separate activity. Allow them 5 minutes to review the activity provided and then have them discuss it and present their findings to the rest of the team.

Group 1: In this community, there is conflict between the people and the national parks because the community is collecting medicinal plants and firewood from the national parks - an area that is protected. The wildlife has also been destroying the villagers' crops and killing their domestic animals. The national park management decides to create awareness about the role of wildlife by delivering a training and awareness program primarily through night classes.

Group 2: For several years, the community organization has announced its meetings and events through the use of a local grocery store and day-care bulletin boards, and has held its meetings in the local Women's Institute Hall.



10 min



Consequences of Gender Roles

- i) Do a PowerPoint presentation (**PPP No. 5**) for 15 minutes that defines basic terms: gender, sex, reproductive and productive roles, equality, equity; and that introduces the concept of gender. This should lead into a discussion of the gender tree.
- ii) After this introduction, have the participants play the gender game to differentiate between sex and gender.
- iii) Move into the discussion on the gender tree.

- iv)* In society, women are most of the time considered “caring”. As a consequence, they are often given the responsibility of taking care of the sick and the elderly – unpaid work that is valuable in the health of the household. Because women regularly come into contact with sick people, they are more likely to become infected. Women spend a great deal of their time in caregiving activities which involve feeding, cleaning, washing and preparing food. As a consequence, often women and young girls are less likely to be involved in political, educational, and professional activities. Because they are less educated and informed, their knowledge about the disease is often less than what men have.
- v)* To understand the reasons for the differences and the impact of the difference in roles men and women play, use the metaphor of a tree.
- The roots of the tree answer the question: Why are there gender role differences? Answers should include: culture (stereotypes, myths), religion, legal system and politics.
 - The trunk of the tree is the gender roles differences that you identified in caring for sick people.
 - Branches of the tree answer the question: What institutions, legislation, policies create and maintain those gender differences?
 - The leaves are the consequences of institutionalized gender differences. The leaves can represent: the spread of disease (sickness, illness), food insecurity, poverty, or lack of education for women.
- vi)* Divide the participants into three groups.
- vii)* Give each group a piece of flip chart paper and markers. Give them three topics to discuss:
- Women in research/workplace at universities (engineering)
 - Women in politics
 - Male nurses
- viii)* Based on their topic, tell them to draw the tree describing in greater details:
- Why there are role differences between men and women (ROOTS)
 - The different roles of men and women (TRUNK)

- What institutions, legislation policies create and maintain gender differences (BRANCHES)
- The consequences of institutionalized gender differences (LEAVES)

ix) Post the trees and do a gallery walk highlighting:

- Similarities
- Differences
- Missing aspects

Note: Use the tree below to make sure participants have a complete and accurate understanding of the different parts of the tree. When reviewing the tree, provide definitions for gender and sex. Emphasize that culture and as result gender roles are not static.



Root: **why** are there gender role differences?
Culture, stereotypes, religion, legal system, political system

Trunk: **what** are the gender role differences seen? When we did the calendar

Branches: **what creates** and **maintains** those differences? e.g. policies, institutions, legislation

Leaves: **consequences:** disease , food insecurity, poverty, lack of access to resources like education



15 min

Introduction to Gender Analysis



Introduction to Gender Analysis

- Give a brief PowerPoint presentation (**PPP No. 6**) on gender analysis, gender indicators and gender sensitive indicators and statistics.
- Also discuss the different gender analysis concepts.

A good analysis should provide:

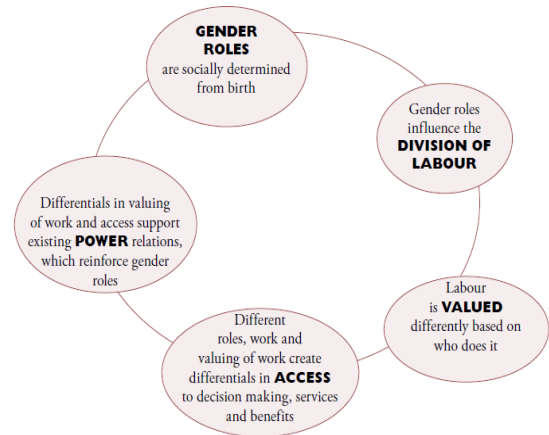
- Gender awareness - understanding of gender relations and their implications for development policy and implementation
- Analysis of the division of labor - activities, access and control
- A review of women's priorities - restraining and driving forces
- Recommendations to address women's practical needs and/or strategic interests.
- Productive and unpaid/reproductive work.



240
min



Activity 1: Gender Matrix- Vulnerability Exposure and Response to Disease Outbreak.



Gender Analysis Tools

The day will focus on the following 5 tools:

- i) Gender analysis matrix
- ii) Access control and benefit over resources
- iii) Social network analysis
- iv) Communication profile
- v) SWOT analysis
- vi) Gender continuum

Gender Analysis Tool: Gender Analysis Matrix

- i) Briefly introduce the Gender Analysis Matrix
- ii) Divide the participants into four groups: Surveillance, Response, Prevention, and Control. Each group will work with the same fictional community. They will use gender tools to collect relevant data in the context of health. The data will be used to develop a gender-sensitive intervention.
 - Ask for four volunteers (2 women and 2 men).
 - Have the volunteers come to the front of the classroom.
 - Have each volunteer pick someone in the class they have not worked with yet and do not know as well. That person stands behind the first volunteer.
 - Ask the second person in line to pick someone they have not worked with yet and do not know well.
 - Continue until everyone is on a team.
- iii) Ask the participants to select a specific urban or rural setting and a different community in different countries.



45 min

- iv)* Assign different diseases to different groups. The diseases could include: Brucellosis, TB, Ebola, Bilharzia or other diseases that are relevant.
- v)* In their selected setting, participants should complete the handouts identifying the vulnerability, exposure and response to disease outbreak as it affects men and women, the household and different communities.
- vi)* The groups should also write down the activities performed by the different genders: for example, under labor: What do men spend their time doing in that community? What resources do they have access to? What are the cultural issues that affect men and women differently in that community?
- vii)* Each group should present this information on a flip chart.

The discussion should emphasize the fact that men and women are often not involved in the same social activities. While men are more likely to be involved in hunting, growing commercial crops, keeping large livestock and formal employment, women are gathering wood, edible and medical plants, caring for small livestock, and producing subsistence food.

Women are also responsible for the nutrition and health of their households, especially when preparing daily meals and taking care of the sick and the elderly (both as paid professionals and as unpaid and untrained persons).

Livestock, crops, natural resources and activities, are thus “gendered” as well as the risk to contract disease as a result of these activities. Distinguishable exposure is often the result of patterns of activities resulting from socially defined gender roles that influence the timing of the contact with the infectious agent within the cycle of the outbreak.



30 min

Activity 2: Access, Control and Benefit over Resources



Activity 2: Access, Control and Benefit over Resources

- i)* Introduce the exercise by showing (**PPP No. 6 Slides 13-16**) and review the data on gender differences in an Ebola outbreak. Refer to Activity 2 in the annex. Use the table with data on Tanzania and Zambia as an example of some of the resources to consider.
- ii)* Instruct the participants to complete Activity 2 and to discuss the implications of the data on the impact of disease and the provision of health care and education about the effects of treatments for their assigned focus (e.g. outbreak, surveillance, prevention, response, control).
- iii)* Each group should prepare a five-minute presentation.



20 min



Group Presentations

- i) In plenary, ask the different groups to present their findings.
- ii) Discuss gender differences relating to the impact of disease and provision of health care and knowledge about effect of treatments.

Gender does not only impact on the risk of contracting diseases, it also influences the likelihood of accessing information and treatment, resources to get access to treatment, to the evolution of the disease and the outcome of the treatment.

Access to services depends on several factors that include, among others, gender, class, religion and education. While women regularly go to the health center when they are pregnant or with young children, who they take for weighing or immunization, they are less likely than men to go to the health center for their own health problems. Often, they do not have the resources to do so and require a formal authorization from their partners. Also, in some cases with particular norms of social behavioral, women may not have the decision-making authority to take their children to the health center and to consult the health center for their own health issues.

While some groups can be more prone to a disease infection, some others, such as pregnant women and breast-feeding women, also find themselves in a situation where the side effects of the medicine on both, them, the fetus and the breast-feeding child are not always well-known.

Stigma can also affect men and women differently. Discrimination and stigmatization are important issues in highly pathogenic avian influenza, (HPAI), Ebola (WHO, 2007) Marburg and HIV.



105 min

Activity 3: Stakeholder and Resource Use Mapping



30 min

Activity 3: Stakeholder and Resource Use Mapping

This is a mapping tool to help people understand, visualize, discuss and improve situations in which many different actors influence outcomes. This social network analysis will specifically focus on participants identifying what they consider are places of significance in a community for different stakeholders.

Divide the class into four groups: women, men, children (noting differences in/with girls and boys), medical personnel (again noting differences in women personnel vs male personnel). They should assume they are in an Ebola outbreak community in Sierra Leone. Each group should then map out the stakeholders and specific resources/places they consider important to them or they will use the most to meet their needs.

This is essential to identify who is most vulnerable in an infectious disease outbreak and why, which capacities need to be strengthened and what relief and services are needed. Vulnerabilities and capacities of individuals and social groups evolve over time and determine people's abilities to cope with and recover from disaster.

Let each group map out the risks faced by their teams (women, men, children, medical personnel). Let them identify/map out in different colors, signs of those risks in the community and add the resources that can be used to mitigate those risks.



Activity 4: Communication Profile

Activity 4: Communication Profile

Divide the participants into three groups: women, men, media, medical, NGO. They should assume they are in an Ebola outbreak in Sierra Leone. Each group should then map out stakeholders and specific places they consider important to them.

Let them identify similarities and differences in the groups, the significance of those differences and how the differences affect access to and control over resources and why.

This is a very simple tool that provides information on how women and men access and share information.

Based on the community they are working in, have participants fill out the communication matrix for their community. They should then display this communication matrix and discuss it with the rest of the class.

Lunch

Activity 5: Gender Continuum Tool



Activity 5: Gender Continuum Tool

Give a brief introduction—PowerPoint presentation (**PPP No. 6**) on what the gender continuum is. This Gender Equality Continuum Tool shows the ways that programs can address gender, or not. Some programs are gender blind—they don't address gender at all. Other programs are aware of how gender norms/inequalities influence behavior and address those norms in their activities.

Gender accommodating programs work around gender norms and dynamics. Gender transformative programs seek to change gender norms and dynamics. These programs also may be synchronized or may intentionally work with women and men in mutually reinforcing ways to address and challenge gender norms.

Programs can include both gender accommodating and transformative elements to achieve/address gender inequalities that are barriers to healthy behavior.

Using the Gender Continuum Tool



Using the Gender Continuum Tool

Have the participants select an activity or project that they work with. It could be their university or a specific project or even specific activity in the OHCEA workplan and analyze it against the continuum.

Are they gender blind/ gender aware, exploitative, accommodating or transformative?

Ask them to begin to think of ways to make them transformative. What specific action items can they come up with?

GENDER EQUALITY CONTINUUM TOOL

Ignores:

- the set of economic/social/political roles, rights, entitlements, responsibilities, obligations and associated with being female & male
- power dynamics between and among men & women, boys & girls

Gender Blind

Gender Aware

Interagency Gender Working Group (IGWG). 2013. Adapted from a framework drawing on a range of efforts that have used a continuum of approaches to understanding gender, especially as they relate to HIV/AIDS. See Geeta Rao Gupta, "Gender, Sexuality and HIV/AIDS: The What, The Why and The How" (Plenary Address at the XIII International AIDS Conference), Durban, South Africa: 2000; Geeta Rao Gupta, Daniel Whelan, and Keera Allendorf, "Integrating Gender into HIV/AIDS Programs: Review Paper for Expert Consultation, 3-5 June 2002," Geneva: World Health Organization 2002.

- Examines and addresses these gender considerations and adopts an approach along the continuum

Exploitative

Reinforces or takes advantage of gender inequalities and stereotypes

Accommodating

Works around existing gender differences and inequalities

Transformative

- Fosters critical examination of gender norms* and dynamics
- Strengthens or creates systems* that support gender equality
- Strengthens or creates equitable gender norms and dynamics
- Changes inequitable gender norms and dynamics

GOAL

Gender Equality and better development outcomes



* Norms encompass attitudes and practices

* A system consists of a set of interacting structures, practices, and relations

Activity 6: Gender Sensitive Emergency Response Planning

Using a Simulation to Integrate Course Concepts, Skills and Knowledge (PPP No. 7)



Activity 6: Gender Sensitive Emergency Response Planning Using a Simulation

A simulation is a tool used for the reproduction of an event and analysis of its results in order to improve readiness for an eventual occurrence of the situation or similar situations. From the point of view of One Health, a simulation is defined as a multi-sector and coordinated approach integrating fauna, animal health, human health, the environment and communication and aims at responding in a more effective way to an emerging pandemic threat.

This approach recognises the need to strengthen collaboration, communication and the coordination amongst specialists of different sectors. It implies the need to create bridges between disciplines in order to complete planning, intervention in terms of surveillance or response, reporting, data analysis and evaluation of activities in an integrated manner in order to better fight pandemic threats.

Use a simulation to integrate skills and knowledge across the domains of:

- i)* Epidemiology
- ii)* Emerging Pandemic Threat Response
- iii)* Gender Analysis
- iv)* One Health

This simulation will evaluate the participants' ability to:

- i)* integrate knowledge across multiple domains.
- ii)* identify the necessary actions within the framework of a national plan of preparation to a pandemic.
- iii)* follow procedures when planning and responding to epidemics and epizootics.
- iv)* work on multi-disciplinary teams.
- v)* coordinate actions across sectors.
- vi)* communicate clear and consistent messages to multiple audiences.

Divide the participants into four groups, and using the following gender tools, let them develop interventions related to their assigned activity (e.g. response, surveillance, prevention, control) to address an Ebola outbreak for the village community they have been working on.

All the data accumulated on the fictional community need to be used to develop a gender-sensitive intervention and the relevant gender-sensitive monitoring. Assign one group to work on surveillance, another on prevention, one other on control and the last one on response. The groups should use the new tools introduced.

In this section, the participants will be able to prepare and respond to an emergency, taking into consideration all the gender tools given during this training, as well as identify and manage challenges that occur in any emergency situation.

Begin by presenting the following scenario to the participants:

You have just been informed that there is a suspected Ebola outbreak in Luwero village, in western Uganda bordering Rwanda. A total of 14 people have died and 26 others in the village are reportedly sick. There is only one health center in the area manned by one local doctor and two nurses. The Government is putting you in charge of the emergency response. You have been given a budget of 20,000 US dollars to mobilize a team to prepare and respond to this emergency.

The four different groups are first of all expected to get together, brainstorm and draw up a plan of action for each different group: Preparation Team, Detection Team, Response Team and Post Emergency & Evaluation Team.

The following are the key points they should consider when brainstorming:

Coordination structures

1. How do you bring gender into the coordination structures you are creating?
2. How do you proactively support gender and protection services? (Gender continuum could be useful here)

Gender analysis to inform preparedness, during and after

1. What gender analysis tools are you going to use to support your activity?
2. What gender lessons would you anticipate?
3. What are the lessons to learn and the recommended actions?

Vulnerability assessments

1. What tools and approaches can you use to map the gender differentiated risks?
2. What technical support will you provide to gain gender differentiated insight into the capacities and the vulnerabilities of the affected communities?
3. What kind of gender technical support can you provide to monitor threats to vulnerable groups?

Information gathering and management

1. How do you ensure an appropriate mix in an assessment team?
2. How do you ensure that you are consulting with all the required parties?
3. How do you ensure post assessments capture relevant data by sex, age, disability and vulnerability?

Information sharing and communication

Provide technical support to ensure that information and communication flows to all groups in the community

Planning

1. How do you ensure that outbreak response prioritization is based on gender analysis?
2. How do you ensure that gender and diversity are included in capacity assessment, that any contingency plans are gender-sensitive, that gender gaps are identified in any section of preparedness, response and evaluation, and that gender is mainstreamed in emergency preparedness training?

Capacity building

1. What existing knowledge among your community members can you build on or enhance?
2. What coping strategies can you identify among the different groups and how do you use this to be more effective?
3. How do you facilitate the community to become self-sustaining /create and implement a disaster management plan?
4. How do you help train and build the capacity of key stakeholders and implementing partners?
5. How do you ensure the capacity building efforts are gender balanced and sustainable?

Resource mobilization

1. How do you ensure that gender needs are reflected in each part of the process and that resources being mobilized are utilized to address all groups?
2. How do you evaluate to see if you handled everything in the right manner?



120
min



3. Develop/put in place a gender-sensitive risk assessment plan and a preparedness plan to ensure you are prepared for another outbreak.
4. What are the key challenges facing this community and the country after the outbreak has been contained?

Step 1

Ask participants to use flip charts and sticky notes to map out a plan of action including the personnel and resources they will need in their group. Let them put resources and personnel and action items on the left side of one flip chart, and on the right, indicate how they will make the process gender-sensitive by responding to the above questions. Let them present this to the plenary. Each group has 10 minutes to make a presentation.

Step 2

Based on the above, let the participants identify/select 5 key activities that their group feels are important to achieve their objective of an efficient gender sensitive preparedness, response or post emergency evaluation program.

Step 3

Using the material provided, let them create/build a visual of their plan focusing on the five activities mentioned above and ensuring that gender issues are reflected in that visual.

Step 4

Allow each group 10 minutes to present their visual/construction plan to the rest of the group. All participants will then grade the groups depending on how good their visual is, how easy it is to understand, how it encompassed gender issues discussed in the training and how efficient it seems to be to achieve its objective. The participants will then select what is considered as the best visual.

Debrief

As you debrief the participants, keep them focused on the following:

1. **Why?** – Why are we doing this initiative?
2. **What?** – What is the work that needs to be performed to successfully complete the initiative? What are the major products/deliverables?
3. **Who?** – Who will be involved and what will be their responsibilities within the initiative? How will they be organized?



60 min



Implication of Gender and Cultural Issues for Disease Surveillance, Control and Response

4. When? – What is the timeline and when will milestones be completed?

5. Where? – Where is the engendered One Health initiative taking place (e.g. the location)?

These questions are critical in defining the limiting constraints on an initiative, or the scope, resources and schedules available in an emergency.

Group Presentations

- i) Ask the different groups to present their findings in the plenary.
- ii) Regroup and analyze the groups' findings.

Elements for the discussion

Guidelines for disease surveillance and response systems rarely include specific indicators for gender and cultural issues. However, as discussed earlier, gender differentials create different circumstances with impact on the implementation of biosecurity and eco-security measures. Similarly, socio-economic and cultural aspects influence the socially accepted measures to be taken.

As a consequence, gender and cultural aspects need to be collected and taken into consideration during all phases of both the collection of information and the intervention. For example, gender and cultural aspects have been identified as a major issue in relation to the prevention and impact mitigation of HIV and AIDS (UNAIDS, 2009a; 2009b).

Gender-sensitive Disease Surveillance, Control and Response

It is important to better understand disease epidemics and responses in terms of gender in order to better meet the needs of all groups within a community. All data such as infection rate and case-fatality should be disaggregated by sex. Similarly, the profile of symptoms for men and women should be also separated.

The use of relevant sex and age-disaggregation helps to build the knowledge necessary for programming action and for developing gender-responsive programming. It is necessary to gather and use sex and age-disaggregated data and other relevant socio-cultural, economic and legal data in addition to carrying out gender analyses in all phases of programming and action. It enables the understanding of the varying impacts of infectious disease and emerging diseases at all levels of society on women, men, girls and boys as people that are or can be infected and affected by the diseases in various ways.

The epidemiology of risk and vulnerability for all groups must be analyzed, taking into account the economic, legal and sociological contexts that fuel the spread of the disease, increase their burden of care, and prevent effective treatment and support (UNAIDS, 2009b).

Culturally Sensitive Disease Surveillance, Control and Response

Local differences in both the cosmological views and the etiology of the diseases and in the treatments, impact on all phases of an intervention. Thus, understanding the context is fundamental in order to draw upon local knowledge to strengthen disease surveillance and response (Hewlett and Hewlett, 2008).

Specialists in cultural issues (anthropologist or sociologists) should be involved whenever possible (WHO, 2007). A participatory approach that enables discussion and the sharing of both the biomedical approach and the local knowledge on medical issues facilitates dialogue with communities in order to develop messages and measures together to limit risk and treat specific signs and syndromes. The health burden carried out by women has to be reduced by involving men in the care for the sick and sharing the responsibilities of caring for babies and children (Sweetman, 2002; The Guttmacher Institute, 2003, Father Incorporated, 2003).

Health programs that emphasize women's role in the caring responsibilities reinforce gender stereotypes and contribute to maintaining women in a gender confine world with limited access to information and resources.



20 min

Summary of the Session

- i) Review the gender analysis tools
- ii) Review activities
- iii) Ask participants:
 - 1. What stood out as key learning issues?
 - 2. What surprised you?
 - 3. How do you plan to use gender analysis tools and techniques in your work?



10 min



How did it go today?



Comments:

OHCEA Event Evaluation – Outbreak Investigation and Response Training

Facilitators: _____

Dates: _____

OHCEA supported you to attend the Outbreak Investigation and Response training. Please take a few minutes to fill out the following confidential questionnaire. Your responses will help us better understand the value of this event and improve future programs. Thank you!

Please circle your response to each of the following

1. This event met my expectations.
 - (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know
2. This event was relevant to my personal interests.
 - (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know
3. This event was relevant to my professional interests.
 - (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know
4. The information presented was new to me.
 - (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know
5. The amount of information provided was:
 - (a) Not enough
 - (b) About right
 - (c) Too much
6. This event helped clarify my understanding of "One Health."

- (a) Strongly disagree
- (b) Disagree
- (c) Agree
- (g) Strongly agree
- (h) Don't know

7. The pre-event logistics were well organized.

- (a) Strongly disagree
- (b) Disagree
- (c) Agree
- (d) Strongly agree
- (e) Don't know

8. The event itself was well organized.

- (a) Strongly disagree
- (b) Disagree
- (c) Agree
- (d) Strongly agree
- (e) Don't know

9. Overall, I found this event to be worthwhile.

- (a) Strongly disagree
- (b) Disagree
- (c) Agree
- (d) Strongly agree
- (e) Don't know

10. I intend to take actions in my work because of what I have learned at this event.

- (a) Strongly disagree
- (b) Disagree
- (c) Agree
- (d) Strongly agree
- (e) Don't know

11. Describe what, if any, actions you will take in your work because of this event.

12. What were the strengths of this event?

13. What can be done to improve this event?

14. What single most important lesson did you learn from this event?

15. Please write any additional comments you may have about this event.

16. Did you present at this event?

- (a) Yes
- (b) No

17. (a) If yes, what was the topic of your presentation?

18. What is your *primary* area of work?

- (a) Nursing
- (b) Human Medicine
- (c) Veterinary Medicine
- (d) Wildlife Medicine
- (e) Public Human Health
- (f) Public Veterinary Health
- (g) Other (please specify): _____

19. Which sector do you represent?

- (a) Government
- (b) Private sector
- (c) Education
- (d) Non-governmental organization (NGO)
- (e) Research
- (f) Other (please specify): _____

20. What is your sex?

- (a) Male
- (b) Female

21. Nationality: _____

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