

ONE HEALTH PRINCIPLES AND CONCEPTS



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 8 countries in Eastern, Central and Western Africa 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 SEAOHUN One Health Course Modules: <https://seahunonehealth.wordpress.com/ecosystem-health/>

- 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 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 (60) 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 OH application and appreciation of the local African context.

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One Health
WORKFORCE



Overview of the One Health Principles and Concepts Module

There is abundant evidence and lessons learned 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 last year and the highly pathogenic avian influenza in the past few years demonstrated the effectiveness of multi-sectoral, multi-agency approaches that are 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 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 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, to contribute to improved capacity of countries to respond to any emerging pandemics in the region. The OHCEA networks' vision is to be a global leader in One Health, promoting sustainable health for prosperous 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.

This module introduces the One Health approach for addressing issues at the interface of humans, animals and the environment. Key outcomes of this module are the ability to:

- i) understand the principles of One Health approach concept.
- ii) understand the benefit of One Health approach.
- iii) appreciate the value of working in multidisciplinary setting.
- iv) apply One Health principles to infectious diseases management

This will enable participants to acquire the knowledge, skills and transformation of attitudes regarding One Health issues and, to apply and promote the One Health (OH) approach in addressing public health challenges at the national and regional levels.

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 all allied health professionals and their organizations including medical, pharmacy and veterinary associations, as well as nursing and public health officers, environmental scientists, biotechnologists, medical laboratory technologists, epidemiologists, wildlife officers and managers.

Goals of the Module

- i) The goal of this module is to foster a comprehensive understanding of concepts and principles of One Health including the scope of One Health, historical perspectives, and how participants will apply the One Health to create stronger and more efficient integrated health systems with inputs from multiple stakeholders in addressing global health issues.
- ii) The course will also provide participants an opportunity to gain a working knowledge of One Health, become familiar with the language tools and approaches of various disciplines and apply this knowledge in formulating strategies and interventions to global health challenges.
- iii) Through this course, participants will gain an understanding of the interactions of humans, animals and environment in an ecosystem, appreciate the influence of these interactions on the health of humans, animals and environment as well as the risks of disrupted ecosystem services on human and animal health and some of the policies governing ecosystem health
- iv) Participants will be more effective in their disciplines by being aware of gender dynamics and applying gender sensitive approaches to emerging pandemic detection, prevention, disease control, surveillance and response.
- v) Participants will acquire the skills and knowledge to be effective agents of responsive One Health approaches.

Learning Objectives of the One Health Module

The participants should be able to:

- i) explain the OH approach and the application of One Health core competencies in multiple disciplines.
- ii) apply the principles of ecosystem health and the concept of human animal environmental interface to the strengthening of global health equity.
- iii) explain the basic principles of integrated zoonotic disease prevention and control.
- iv) demonstrate leadership and management skills in One Health and become transformative agents by promoting gender equality and equity in all aspects of their work.
- v) define and explain infectious disease epidemiology and transmission process and gain competence in basic concepts, theory and methods for surveillance, prevention, control and response to emerging pandemic threats.
- vi) recognize gaps in One Health and identify resources to address those gaps.
- vii) relate and assess how one health intersects with other disciplines, describe the global problem of inequitable health and the importance of using a One Health approach.
- viii) identify basic gender principles and related concepts and develop gender-sensitive emergency response plans.
- ix) develop an advocacy plan for engendering One Health and emerging pandemics.

Module Overview

| Topic (goal) | Learning Objectives (LO) | Instructional Activities (Mode of Delivery) | Materials | Time (Min) |
|---|---|--|---|------------|
| Discovering basic principles and concepts of One Health | Identify and apply basic principles of One Health and related concepts. Explain OH core competencies. | Brainstorming discovery activities, videos, PowerPoint presentations, group discussions, Internet searches, case studies, games (pictionary and mimes) | Computer, LCD projector, screen/blank wall Flipchart or whiteboard with markers 5-10 desks and chairs Scripts Case studies Internet videos | 720 |
| Integrated Infectious Disease Management | Explain human animal environmental interaction in Infectious disease epidemiology and transmission. Apply multidisciplinary approach to infectious disease investigation and response. | PowerPoint presentations, role plays, Movies, case studies, group discussions and brainstorming | Computer, LCD projector, screen/blank wall Flipchart or whiteboard with markers 5-10 desks and chairs Scripts Case studies Internet videos | 330 |
| One Health Leadership and Management | Apply leadership and management principles to combat public health threats. Create emergency response budgets, timelines and manage resources. | Brainstorming, group discussions, PowerPoints, videos, role plays, case studies, simulation of emergencies | Computer, LCD projector, screen/blank wall Flipchart or whiteboard with markers 5-10 desks and chairs Scripts Case studies Internet videos | 415 |

| | | | | |
|---|--|---|---|-----|
| Simulation and Gender Sensitive Emergency Response Planning | Perform a simulation exercise of an outbreak scenario Examine advocacy for One Health | Brainstorming, group discussions, videos, simulation of emergencies | Flipchart or whiteboard with markers 5-10 desks and chairs Scripts Case studies Internet videos Simulation equipment | 340 |
|---|--|---|---|-----|

Session 1: Discovering Basic Principles and Concepts of One Health Approach and Introducing One Health Core Competencies

Session Overview

The opening session provides an overview of the goals, the course agenda, and introduces the element of multi-disciplinarity giving participants an opportunity to learn more about one another's background, disciplines and skills, and how these complement one another and build better global health leaders. Key One Health terms and concepts are introduced to participants.

Session Learning Objectives

Participants will be able to identify:

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

| Time | Activity/ Topic | Facilitator Instructions (Detailed facilitator notes are 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, check on housing accommodations. |
|  15 min | Welcome | <p>Facilitator welcoming remarks and introductions</p> <p>Participant introductions:</p> <ol style="list-style-type: none"> i) In pairs, have participants share their: <ul style="list-style-type: none"> • Name • Where they are from • Type of work and position • Their expectations for the course • What inspired them to apply for the course ii) Participants prepare a one-minute introduction of their partner to the class iii) Go around the room and have each pair present their partner to the class. |
|  10 min | Expectations | <p>Set up: Have two flipcharts in the front of the room: one titled “Expectations” and the other “Concerns.”</p> <ol style="list-style-type: none"> i) Give each participant two different colored sticky notes. ii) Ask participants to write down their expectations for the short course on one of the sticky notes (specify color) and their concerns about the course on the second sticky notes (specify color). |



10 min

Sharing Goals and Objectives of the Course



- iii) Have participants place their expectation sticky notes on a flipchart titled “Expectations” and their concerns sticky notes on another flipchart titled “Concerns”.
- iv) Organise the sticky notes according to common themes.

Share the goals and objectives of the OH course and show an overview.

- i) Explain the agenda for the course and the goals of the course highlighting the expectations that will be met and the expectations that will not be met. Comment on and address concerns.
- ii) Explain that this course is sponsored by OHCEA.
 - OHCEA is the One Health Central and Eastern Africa network comprised of 24 academic institutions from eight African countries consisting of Schools of Public Health, Veterinary medicine, and Environmental Sciences with two US partners. The US partners are: Tufts University and the University of Minnesota. OHCEA is funded by the USAID Emerging Pandemics Threat Program.
 - OHCEA’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 expand the human resource base needed to detect and respond to potential pandemic disease outbreaks.



25 min

Guest Speaker- and Pre-Test



In advance, be sure the speaker is prepared to address the group. Share with the speaker the short course goals and desired outcomes and what you would like the speaker to emphasize in her/his address.

- Introduce invited guest speaker to officially open the course. After the speaker, pass out copies of the pre-test. Tell participants they have 15 minutes to complete the pre-test. Explain that a pre-test is used to gauge how much they may have learned from the pre-workshop assignment; a post-test will be administered at the end of the course. The two tests will be compared. There is no grade associated with the pre-test. When participants finish, they can begin their break.

Part 1: Introduction to One Health Concepts and Principles

| Time | Activity/ Topic | Facilitator Instructions (Facilitator notes included at end of the session) |
|---|---|--|
|  | <p>Pre- Workshop Assignment</p>  | <p>Assignment: Required prior reading: Prior to coming to this training or course, 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 (article found in Resources folder)</p> |
|  <p>20 min</p> | <p>Introduction to One Health</p> | <ul style="list-style-type: none"> i) Divide participants into groups. (Utmost 5 people per group). ii) Give each group a blank piece of paper iii) Have participants brainstorm and draw on it a picture that they think represents One Health (that in their opinion can be understood by a community member) iv) Have participants tape the drawing against the wall. v) All participants should then review the drawings and grade them. vi) The grades are 1-5 with 5 being the highest or what is considered best. vii) 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). |
|  <p>20 min</p> | <p>Discovery Activity: What is One Health?</p>   | <p>Begin the session by having the participants watch the following videos:</p> <p>One Health: from Concept to Action by CDC https://www.youtube.com/watch?v=TG0pduAYESA</p> <p>One Health: from Idea to Action: https://www.youtube.com/watch?v=gJ9ybOumITg&t=4s</p> |
| | | <p>Briefly discuss the two videos with the participants. Summarize the description of One Health derived from the videos. Have each participant take 5-7 minutes to think about and legibly write down on separate sticky notes the answers to the following questions:</p> <ol style="list-style-type: none"> 1. Give the meaning of One Health approach. 2. Identify two examples of One Health in practice. 3. Identify two to three advantages to multiple disciplines working together to promote One Health. <p>Have them display these sticky notes on the wall in three separate sections. Then in a plenary review the following:</p> <ol style="list-style-type: none"> 1. What are the common things identified? 2. What are the differences? 3. Is there anything that surprised anyone? <p>Come up with a group description of what One Health is (See facilitator notes for definitions of One Health)</p> |



60 min

Discovery Activity: A One Health Problem
Video: Fatal Infestations



Show the video; **Killer outbreaks: Fatal Infestations** (or a similar video that shows a One Health problem)

The 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 crow and Zoo birds in NYC. This video focuses on how west Nile virus was first detected and the way multiple agencies interacted to respond to it.

- i) After viewing the video, divide the class into four groups of mixed disciplines.
- ii) Give each group flipchart 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

Each group then discusses their topic and highlights the role played in the video. Each group will have 15 minutes to prepare their assignment and present it to the plenary. Groups are encouraged to present their assignments in the most innovative ways- such as using role plays, mimes, timelines, and news interview. All participants and disciplines are required to contribute based on the view from their discipline.

Group Discussion



- Process and discuss the video:
 - ◇ Start by focusing on main themes of the video
 - ◇ Disease, human animal environment ecosystem dynamics
 - ◇ Disciplines involved and the relationships and how these affect the response
 - ◇ The socio-political interactions
 - ◇ Outcomes and policy implications
- Next discuss how this is related to One Health.
- Debrief the activity by asking the group about:
 - ◇ Areas of agreement/disagreement among team members as they worked on their assignment
 - ◇ Surprises

Give a PowerPoint presentation (**PPP No. 1**) on One Health (PowerPoint found in the slide section)

This presentation introduces One Health, the interdependence between humans, animals and the environment and why disciplines need to work together. It also answers the questions: why One Health and why now?

Debrief the session by asking participants to reflect on what One Health is and any questions they may have related to the PowerPoint presentation.



20 min

PowerPoint Presentation on One Health



Part 2: One Health Definitions and Stakeholders

| Time | Activity/Topic | Facilitator Instructions |
|---|---|--|
|  20 min | One Health Definitions and Stakeholders  | <p>Instruct the participants to individually conduct the Internet search to define the following terms and then write down the local, regional and international organizations that operate in each sector (this will take 10–20 minutes depending on the Internet speed):</p> <ul style="list-style-type: none"> • Eco Health • Ecosystem Health • Planetary Health • Global Health • One Health • Environmental Health |
| | Large Group Discussion  | <p>Have participants read the definitions they found out loud to the class and capture the key points on a flipchart or whiteboard. Ask the participants to note the areas of overlap among the concepts, as well as the major differences.</p> <p>It is important to define other terms that are closely linked to One Health. Remember One Health is not a discipline: it is an approach and it is easy to confuse all these terms since many times people tend to use them interchangeably. The following definitions were obtained from the related websites. (Definitions are given in the facilitator notes section)</p> <p>Conclude with the slides showing the One Health Initiative's and the CDC's definitions of One Health and the One Health Initiative. (adopted from SEAOHUN modules found in the facilitator notes section; https://seahunonehealth.wordpress.com/)</p> |
|  45 min | One Health in Action: What a Pest!  | <p>Karatu Case study</p>  <p>Provide the participants with the case study of Karatu District in Arusha Tanzania.</p> <p>Have them read the case study and analyze it and have a discussion based on the ensuing questions. Reflect on the following questions and record the answers on a flip chart:</p> |



30 min

Stakeholder Analysis and Emergency Meeting



Large group brainstorm

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. Are there any 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?
8. How did you deal with it?
9. Are there any gender issues identified in the case study?

Give the participants the following instructions on how to do a stakeholder analysis: Form groups of 6 team members;

1. a) You have been provided with a set of sticky notes.
 - i) On a sticky note, write a name of a stakeholder or player in the Karatu scenario. One name per note. Write as many stakeholders as you can think of. Identify them by their roles. Consider their gender as well especially at the community level.
 - ii) Line the sticky notes on the plain piece of paper according to whether they are international, national, regional or local.
 - iii) Draw a circle around those stakeholders with lots of power and authority using a red marker.
 - iv) Draw a square around those players with the most interest in the activity or who are impacted the most.
 - v) Using a red marker, draw arrows that show flow of decision making (power and authority) from one stakeholder to another.
 - vi) Using a green marker draw arrows that show flow of resources (funding) from one stakeholder to another.
 - vii) Using a blue marker draw arrows that show communication flow from one stakeholder to another. Have the groups discuss the map and the following questions:
 1. Who has power and authority?
 2. Who do you think should have power and yet does not?
 3. Who is being left out of the different arrows and yet considered important and how do you include them?
 4. Can you identify any gender differences in power, communication flow and resource flow?

(This exercise was adopted from the University of Minnesota OH-SMART tool (<https://www.vetmed.umn.edu/centers-programs/global-one-health-initiative/one-health-systems-mapping-and-analysis-resource-toolkit>) and from work done by Professor Jodi Sandfort of UMN on Policy Field analysis

2. b) You have been asked to select and coordinate a team to discuss 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.

Your task is to:

- i) identify a maximum of 10 individuals who will attend the meeting.
- ii) justify why each member is critical to the response, (i.e., role, expertise, responsibilities, etc. (present these in a table)
- iii) discuss who should chair the stakeholders meeting and why?

Groups should present the information to the class.

Have the participants briefly reflect on the One Health case study and why there is a need to involve different stakeholders in an issue like that.

1. What challenges do the stakeholders face in implementation considering that they are coming from different disciplines?
2. 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.

Watch the Video: Danger of a single story; Chimamanda Ngozi Adichie, TED Global 2009; Filmed June 2009. Discuss this video with the group and relate it to a multi-disciplinary approach

<https://www.youtube.com/watch?v=D9Ihs241zeg>

Questions:

1. What would you consider a single story when discussing One Health?
2. How do we ensure that we are not working in silos?

Debrief with participants on stakeholders and need to break silos

- i) Briefly reflect on the One Health case study and video and key points that were important
- ii) What key concept was learnt?



30 min

Stakeholders Challenges in Developing an Intervention



20 min

Video on Need for Collaboration



15 min

Debrief



Part 3: One Health Core Competencies (OHCC)

| Time | Activity/Topic | Facilitator Instructions |
|---|---|--|
|  15 min | Game 1: Competency Pictionary  | Participants are divided into two groups: <ol style="list-style-type: none"> Each group is given a flipchart and markers for drawing Each group is provided with 6 papers with a One Health competency written on it but they are not allowed to see what is written on the paper. One person in the group is given one of the papers and required to draw a picture of the competency while the rest of the group guess what it is. The group that gets it first shouts bingo. The group that gets the most competencies wins a prize. |
|  15 min | Game 2: Miming  | 6 One Health competencies are written on a piece of paper: <ol style="list-style-type: none"> Participants selected from the group are given a piece of paper with the competency written on it Using only actions and not words, the participant tries to demonstrate the One Health Competency while the rest of the group try to guess what competency it is. |
|  15 min | Give a PowerPoint Presentation on OHCC  | This presentation (PPP No. 2) introduces One Health Core Competencies, what they are, how they have been developed from the global forums to the African region. Provide the following introduction to the class: In the last activity, you identified the various disciplines that might be represented on a One Health team investigating a public health scenario. As we discussed, each person on the team brings expertise in their respective field, yet they must be able to work well with others and understand what other members of the team must offer. A One Health Team member must know their capabilities, strengths and limitations and be able to identify gaps in technical knowledge and skills that an expert from another field could fill. Team work and team building are important if the One Health approach is to yield optimal results. To identify the broad competencies that each person on a One Health team needs to possess for the team to operate successfully, an international group of experts from a variety of disciplines was assembled. The broad competencies identified by this group have been termed the One Health Core Competency Domains or Categories. Within these domains, more specific skills, knowledge and behaviors were defined and then named the ‘One Health Core Competencies.’ |
|  10 min | Debrief  | Debrief the session by asking participants to reflect on what core competencies are and any questions they may have related to the PowerPoint presentation. <ol style="list-style-type: none"> Discuss any questions that arise. Discuss any concepts that are not clear. |



15 min

Introducing Systems Thinking



Video- cats in Borneo

Watch the following video:

Video clip : Systems Thinking: A Cautionary Tale - Cats in Borneo

<https://www.youtube.com/watch?v=17BP9n6g1F0>

After watching this video, have each participant take 10 minutes to think and write on separate sticky notes, answers to the following questions from lessons learned in the video clip 1.

1. What started the problem?
2. Explain the ripple effect of spraying the mosquitoes with DDT?
3. What is the importance of considering the whole?

Debrief

In concluding this section, have participants write on one sticky note two examples of what they would consider One Health complex problems; on another sticky note, let them write two ways in which they would use Systems Thinking approach to find solutions to the problem. Put these on the wall and do a quick discussion by asking them why they specifically chose those issues and why they chose the solutions they gave.



20 min

Discovery Activity: What is Systems Thinking?



To understand and appreciate the relationship within systems, it is important to adopt systems thinking to tackle complex health problems and risk factors. Systems Thinking has huge and untapped potential first, in deciphering the complexity of a public health issue; and second, in applying this understanding to design and evaluate interventions that improve health across other areas. Systems Thinking can provide a way forward for operating more successfully and effectively in complex real world settings.

Divide participants into two groups. Each group will receive one of the following scenarios:

Scenario 1:

There is a severe drought affecting Kenya, which has driven up the cost of food and fueled inflation, and has become a key issue on the election campaign trail. Food security has deteriorated since the end of 2016 and conditions remain dire in half of the country's 47 counties. The situation has been exacerbated by the impact of climate change, and it is anticipated that some regions could reach emergency levels by September. The consequences of this drought could stretch across many sectors including agriculture, education, livestock, and even cause political instability.

Scenario 2:

In January 2010, a catastrophic 7.0m earthquake struck Haiti with an epicenter near the town of Léogâne, killing anywhere from 100,000 to 316,000 people and displacing an estimated three million inhabitants. Ten months later, the world's worst cholera epidemic in modern times broke out in the rural Center Department of Haiti, about 65 miles north of the nation's capital, Port-au-Prince, killing at least 10,000 people and infecting an estimated 800,000 more.

By the first ten weeks of the outbreak, cholera had spread throughout Haiti. In an update, the New York Times reported that the UN's "auditors found that poor sanitation practices remained unaddressed not only in its Haitian mission but also in at least six others in Africa and the Middle East." Despite the horrific and shameful lessons learned in Haiti, UN peacekeepers throughout the world are still lax in their adherence to established protocols for wastewater, sewage, and hazardous waste disposal.

Let the groups discuss the following questions:

1. In each scenario, can you identify at least 5 consequences of the problem?
2. Can you identify 5 different stakeholders in the problem?
3. Can you discuss the different sectors/disciplines/departments that should be engaged in analyzing the problem and developing solutions?
4. What different ways can you use to solve the crisis?
For example, in the first case, some consequences would include:
 - i) Drought
 - ii) Food crisis: maize deficit up to 16 million tons
 - iii) Malnutrition
 - iv) Loss of livelihoods
 - v) Livestock deaths
 - vi) Water shortage leading to hydroelectric power shortage
 - vii) Disease outbreaks as water resources are shared
 - viii) Cholera
 - ix) Environmental degradation
 - x) Political instability

The groups should present their findings in a plenary. Use this to generate a discussion.

These two problems cannot be approached unilaterally. They need a systems thinking approach to identify the multifaceted layers and to generate solutions. The solutions will require input from different building blocks including government sectors, communities, financial resources and information and service delivery sector. All these sectors need to coordinate and collaborate effectively to get a satisfactory solution.



15 min

PowerPoint Presentation on Systems Thinking



Systems are rarely simple and when you begin to learn about a system, its complexity may be overwhelming. Systems Thinking approach allows us to begin to understand the complexity and use it to find answers that matter.

Introducing One Health Systems thinking as a competency

Ask the participants to share their understanding of Systems Thinking.

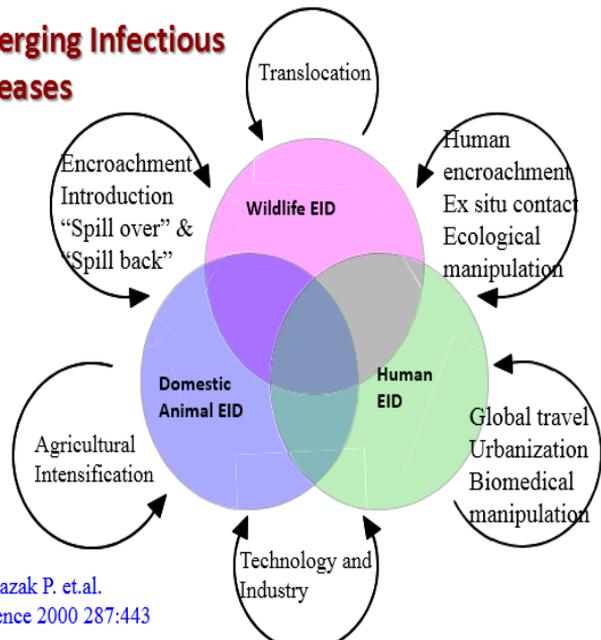
Present an introductory PowerPoint lecture (**PPP No. 3**) on Systems Thinking.

Why can't we 'solve' the health problems at the human, animal, ecosystems -because they are.... complex and require a systems thinking approach.

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
- vi) Every wicked problem can be considered to be a symptom of another problem

Emerging Infectious Diseases





20 min

Systems Thinking from a One Health Perspective



Group activity

Systems Thinking from a One Health perspective, allows us to solve “wicked complex problems” through a simplified process. It provides a means of analyzing the human-animal-environmental interactions and 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, 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 problem.



Activity: Have participants form three groups. Each group should use the above systems thinking approach to map out, identify and begin to address the challenges identified below

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 a hemorrhagic fever in a small town in Uganda

Challenge 3: There is a reported aflatoxicosis outbreak among school going children in Jimma primary school. Three children have died; the aflatoxins are believed to originate from milk & meat products sold in Jimma town in Ethiopia.

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?

What are the processes and practices that increase or mitigate the risk of the problem?

3. What do you need to know about Systems Thinking in order to use a systems thinking approach in addressing One Health problems?
4. In what order should you research the items identified in the previous challenge?
5. What are the primary resources that you will use?
6. What will you do when you cannot find the information that you want?
7. What will you do when you have questions?
8. How will you know when you have enough information?



15 min

Debrief



Groups should present their systems maps and briefly discuss the two questions above. Summarize the session by stressing the need to simplify the problem and to solve it step by step.



20 min

One Health Risk Communication as a Competency

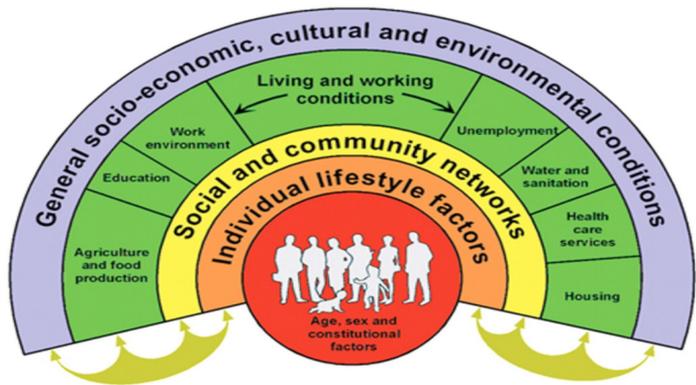
One Health Risk Communication as a competency: Have participants break into three groups. Each group is assigned to brainstorm one of the following questions. They should write their answers and put them on a flip chart for the rest of the class to see. They should be able to search for the information from the Internet if network is available.

1. What is risk?
2. What causes risk? (Social determinants of Health)
3. Why is communication important?

To effectively communicate about risk, it is important to understand why people are exposed to risk, and why people behave the way they do. Do a brief introduction of the social determinants of health. These are defined by WHO as:

“Circumstances, in which people are born, grow up, live, work and age and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies and politics” WHO

Briefly brainstorm what some of these circumstances and shapers are and how they link up with a systems thinking approach in One Health and then show the class the picture below on the social determinants of Health.



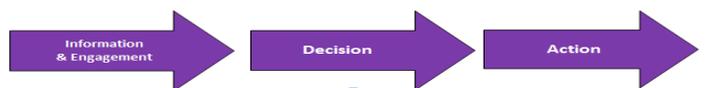
(Image obtained from Whitehead and Dahlgren: Concepts and Principles for tackling Social inequities in Health, WHO 2006)

Briefly discuss the picture: what are the One Health issues identified in the picture that determine the health of individuals?

b) **Risk communication** is an open, two-way exchange of information and opinion about risk that leads to better understanding and better risk management decisions by all involved.

Risk Communication(s) refers to the real-time exchange of information, advice and opinions between experts or officials and people who face a threat (hazard) to their survival, health or economic or social well-being. Its ultimate purpose is that everyone at risk can take informed decisions to mitigate the effects of the threat (hazard) such as a disease outbreak and take protective and preventive action.

Risk Communication uses a mix of communication and engagement strategies and tactics, including but not limited to, media communications, social media, mass awareness campaigns, health promotion, stakeholder engagement, social mobilization and community engagement.



It is critical to have a plan in place to deal with a crisis before it happens. Communicating information about possible life-threatening issues can be difficult, but if it is not done well, the communicator can put the public at greater risk by creating misunderstanding or possibly inciting panic. Professional communicators owe it to the people and agencies they represent, as well as to the public, to be prepared to deal with a crisis – natural or manmade.

Establishing trust and credibility are two of the cornerstones of effective risk communication. When an issue is of high concern, such as the most recent Ebola outbreak, trust and credibility on the part of communicators is essential. Without them your message will not be heard, people will not make informed decisions, and problems can escalate. Using risk communication best practices can help manage risks better



20 min

PowerPoint Presentation on Risk Communication

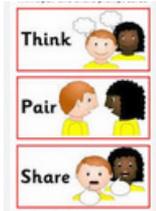


Present introduction on risk communication using PowerPoint: (PPP No. 4) this brief PowerPoint will introduce the idea of risk communication to the learners stressing the points mentioned above.



10 min

Think, Pair, Share



Present the following scenarios to participants and have them find solutions through think, pair and share technique. They should think of an answer, pair with a neighbor, share with each other and then have one of them share with the rest of the group the solutions they came up with.

Scenario 1

- i) You are Spokesperson for the National Emergency Taskforce leading government response to an outbreak of anthrax in wildlife in a national park that has spilled over to domestic animals and humans. Over 500 hippos have so far died.
- ii) Following the initial press release about the outbreak you are miss-quoted in the international media - misinformation which may cause undue concern or alarm and massively affect the tourism industry (outrage!).
- iii) As Spokesperson how should you address inconsistent messages about the outbreak?

Scenario 2

- i) You receive information that there seems to be a “strange disease” / hemorrhagic fever outbreak in a remote town.
- ii) As a One Health leader how can you communicate appropriate risk messages and ensure that you are communicating to the right audience (take gender roles into consideration; who has access to what communication channels?)
- iii) Identify one audience, one to two communication vehicles and develop 3 key points (messages).

Scenario 3

- i) There is an outbreak of Marburg in Kween district, Eastern Uganda. Marburg is known to be a hemorrhagic fever with high fatality rates. The index cases died three days ago.
- ii) A traditional burial was done. He was a renowned business man trading between Uganda and Kenya. He had more than ten wives and three of them are presenting with signs and symptoms of Marburg. His care taker who was his closest sister has developed signs & symptoms too.
- iii) The health worker requests that they isolate anyone who meets the case definition. However, the community at large thinks that this could be witchcraft because the disease is congregated in one family. They have hidden the suspected cases and promise to strangle any health worker who comes around asking for the case.
- iv) As a One Health champion, how best would you communicate this incidence to the media and the community at large so that they are able to understand the consequences of not reporting suspected cases.



25 min

Activity: **Developing a Risk Communication Plan**

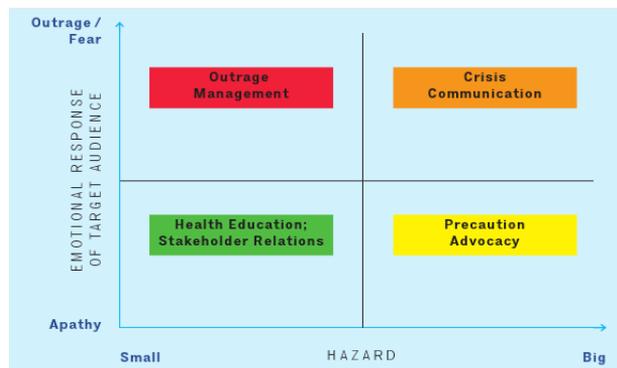


Activity: Ask the participants to break into groups. In their groups ask them to do the following:

- i) Develop an interim plan for risk communication and information dissemination to educate the public regarding exposure risks and effective public response on an emergency of your choice. The following key issues need to be addressed.
- ii) As part of the plan, identify key One Health spokespersons that can effectively communicate with the public and media to prepare for and respond to. Who did you select and why?
- iii) Establish an emergency public information system, including call-down lists of one health contacts, backup personnel who can be activated to address communications, and information dissemination issues during the emergency. Ensure you are being gender sensitive.
- iv) Establish mechanisms for tracking and monitoring message dissemination and exposure, media coverage, audience reaction and feedback, and changing communication issues and priorities.
- v) Consider how to communicate to multiple audiences based on their gender, culture, age, literacy status.

Participants need to appreciate how outrage during risk communication is managed.

- i) Calm the audience down respectfully and reasonably.
- ii) Listen to their concerns.
- iii) Apologize for any mistake the organization has made.
- iv) Communicate facts and evidence after you have demonstrated listening.
- v) Respectfully acknowledge anger and fear.
- vi) Explain the actual danger.
- vii) Cite credible third parties (experts, scientific research etc.)
- viii) Correct misinformation.
- ix) Resolve rumors.



Tips during risk communication:

- i) Community engagement is not an option.
- ii) Communities must be at the heart of any health emergency response.
- iii) Identify and involve stakeholder groups e.g. VHTs, LCs, Councillors, army, police, DISO, schools, teachers, Boda Boda, taxi operators, private clinics.
- iv) Respect social and cultural values of the population.
- v) Involve influential people in the community i.e. clan leaders, elders, chiefs, religious leaders.
- vi) Identify the most effective locally available protection advice and solutions during the outbreak response.
- vii) Communicate risk reduction behaviours that are realistic, effective and culturally appropriate.
- viii) Identify community information needs and use trusted sources of information.



5 min

Debrief



Debrief on Message Basics

- i) Know your audience, keep messages short and focused (single sentences & headlines), save the background information for later, give action recommendations in positive terms (“do” rather than “don’t do”).
- ii) Prioritize messages: first and last, must do, should do, could do, use visuals (graphics, demos), use non-technical language, use common figures of speech, don’t overwhelm with numbers / probabilities.
- iii) Be gender sensitive and endeavor to keep trust among community members.

Gender and One Health

| Time | Activity/Topic | Facilitator Instructions |
|------|----------------|--------------------------|
|------|----------------|--------------------------|



15 min

Activity: What does it mean to be gender sensitive?



Divide the class into four 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: There is an outbreak of avian influenza in this community. The government decides that in order to completely eradicate this disease, they will slaughter all birds be they ducks or chicken. They decide to compensate all bird owners with more than 100 birds. Backyard poultry farmers are not compensated because they are not considered important enough.

Group 3: For several years, a community organization has announced its meetings and events using local grocery store and day-care bulletin boards and has held its meetings in the local Women’s Institute Hall.

Group 4: The government wants to target farmers for training in poultry production and management on Avian Influenza prevention and control. They ask the animal health workers in the communities to identify people for training. Since men are the heads of households, they are selected to attend the training.

Point of Discussion: The groups should discuss the following:

- i) What are the gender differentials and issues that are present in the above scenarios?



45 min

**PowerPoint
Presentation:
Introduction to
Basic Gender
Terms**



- ii) What solutions can they come up with?
- iii) Can they identify the appropriate IEC (Information/Education/Communication) materials to use during the campaign?
- iv) What is the most appropriate communication channel (Radio, TV, community gathering, newspapers?) for each gender?

Do a PowerPoint presentation (**PPP No. 5**) for 15 minutes that defines basic terms; gender, sex, reproductive and productive roles, equality, equity and introduces the concept of gender. This should lead into a discussion of the gender tree.

- i) After this introduction, have the participants play the gender game to differentiate between sex and gender.
- ii) Move into the discussion on the gender tree.

In society most of the time, women are considered “caring.” Consequently, they are often given the responsibility to take care of the sick and the elderly – unpaid work that is valuable in the health of the household. Because women regularly encounter sick people, they are more likely to become infected. Women spend a great deal of their time in the caring activities which involve feeding, cleaning, washing, 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. 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.

- i) The roots of the tree answer the question why there are gender role differences. Answer should include: culture (stereotypes, myths), religion, legal system, and politics.
- ii) The trunk of the tree is gender roles differences that you just identified in caring for sick people.
- iii) Branches of the tree answer the question: what institutions, legislation, policies create and maintain those gender differences.
- iv) 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.
- v) Divide the class into three groups.
- vi) Give each group a piece of flipchart paper and markers. Give them three topics to discuss:
 - Women in research/workplace at universities (engineering)
 - Women in politics
 - Male nurses

- vii) Tell them to draw the tree describing in greater detail based on their topic:
- Why there are role differences between men and women (ROOTS).
 - The different roles men and women perform (TRUNK).
 - What institutions, legislation policies create and maintain gender differences (BRANCHES).
 - The consequences of institutionalized gender differences (LEAVES).

UNDERSTANDING REASONS FOR DIFFERENCES AND IMPACTS OF THESE DIFFERENCES IN ROLES MEN AND WOMEN PLAY



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

- viii) Post the trees and do a gallery walk highlighting:

- Similarities
- Differences
- Missing aspects

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



45 min

Gender Analysis in One Health

Case study:
Environmental, Wildlife and Health issues in Kilosa District, Tanzania

Gender Analysis in One health



Who does what?

Who has what?

Who decides?

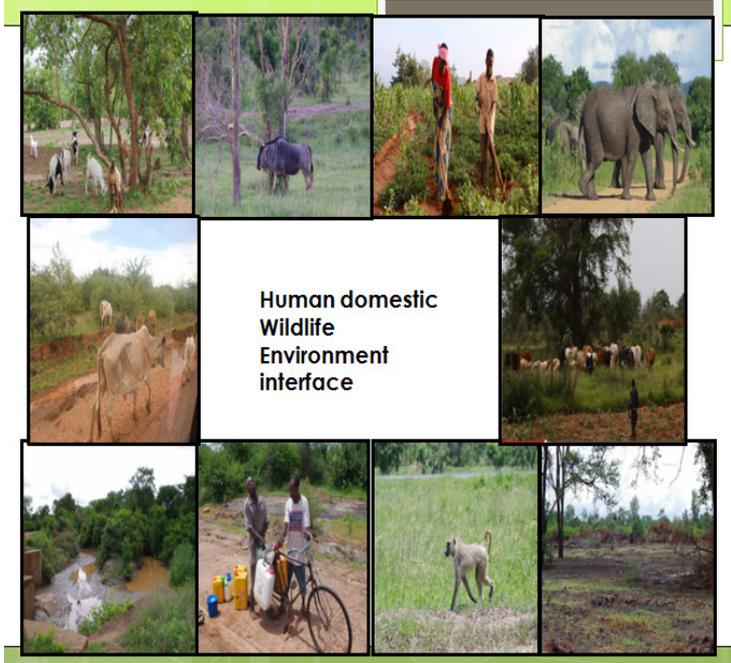
How?

Who gains?

Who loses?

- It is important to identify the **Gender-related practices** which increase the risk and probability of men or women being exposed to public health threats. This can also be important for mitigating risk and responding and controlling disease outbreaks

Case study: Environmental, Wildlife and Health issues in Kilosa District, Tanzania



Have the participants discuss the case study questions below:
Why do you think this situation is ideal for One Health activities?

1. Identify key issues that are problems in this area?
2. Identify key elements and stakeholders in the area?
3. What One Health related interventions can be done and how can you engage key stakeholders in the interventions?
4. What gender issues do you see in this scenario and how would you deal with them?



45 min

Case study: Resource Mapping



Installing Water System in Teso District- Resource Mapping

Present the case study on Installing Water System in Teso District
Have the participants answer the following questions:

1. Draw a daily activity clock for the men and women in the village.
2. What would be the best time to meet the women and where would the meeting be?
3. What would be the best time to meet the men and where would that meeting be located?
4. Is it possible to have a combined meeting for the men and women? Where would it be and when?
5. Plot a resource map indicating issues of accesses, ownership and control.
6. Why did the women shun the tap built by the NGO's?



15 min



Concluding Comments

Understanding the interaction between gender roles, One Health and EPTs can lead to important insights into disease transmission patterns, strategies for prevention and control and the use of a multidisciplinary approach to inform policy and practice. The focus on gender, One Health and EPT terms and concepts has allowed the participants to critically analyze the convergence of gender and One Health using practical tools, the tree metaphor and case studies. This section provides a basis that allows the participants to begin identifying the gender gaps in One Health and EPT, the resources available in the communities, as well as exposure to some tools that can be used in developing a framework for gender analysis.

- i) Briefly reflect on the gender issues and discuss any questions that arise.
- ii) Reflect on the whole day's discussion of OH.
- iii) Discuss any concepts that are not clear.



10 min

Debrief



End of Session Evaluation

- Create the flipchart shown below.
- Ask the class: "How did it go today?"

| |
|---|
| <p>How did it go today?</p> <p>😊 😐 😞</p> <p>Comments:</p> |
|---|



15 min



Session 1: Facilitator Notes

1. Definition of One Health

There are many similar definitions of One Health by health organizations, but for the purpose of the course we will adopt the American Veterinary Medical Association (AVMA) definition of One Health (www.avma.org)

AVMA: 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.

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 balance 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. It is now a movement and it is moving fast. 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 of which took place in Melbourne, Australia, in December 2016.

WHO (2007). “Addressing Sex and Gender in Epidemic-Prone Infectious Diseases” from www.who.int/csr/resources/publications/SexGenderInfectDis.pdf

OCDE (2012). “Tackling the Root Causes of Gender Inequalities in the Post-2015 Development Agenda,” from www.worldwewant2015.org/file/287499/download/311690

FAO (2013). “Understanding and Integrating Gender Issues into Livestock Projects and Programmes: Checklist for Practitioners,” from www.fao.org/docrep/018/i3216e/i3216e.pdf

Ebola’s lasting Legacy by Erika Check Hayden: *Nature*: volume 519, 5 March 2015

Gender issues in Human, Animal and Plant health using an Eco Health perspective by Brigitte Bagnol, Robyn Alders and Robyn Mcconchie: *Environmental and Natural Resources Research* Vol 5 No1, 2015

What the solution isn’t: the parallel of Zika and HIV viruses for Women: Susan T. Fried and Debra J. Liebowitz: *The Lancet global health blog*; February 2016

Definitions of Different Terms

- i) **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)

- ii) **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, as is 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.
- iii) **Ecological Health (Eco Health)**: The 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.
- iv) **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.
- v) **Planetary Health**: 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 within which humanity can flourish. – (Planetary Health Alliance)
- vi) **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.
- vii) Following the discussion, have the participants call out the One Health-related organizations that they found in their research. Possible organizations that participants should reference are outlined below. Be sure to probe the participants for the organizations on the list as well as local/regional entities working in the sector.

Organizations Operating in the One Health Sphere

- ◇ World Health Organization (WHO)
- ◇ Food and Agriculture Organization (FAO)
- ◇ World Organization for Animal Health (OIE)
- ◇ One Health Initiative
- ◇ United States Centers for Disease Control (CDC)
- ◇ Eco Health Alliance
- ◇ United States Agency for International Development (USAID)
- ◇ OHCEA- One Health Central and Eastern Africa
- ◇ Southeast Asia One Health University Network (SEAOHUN)
- ◇ Universities - Departments, Centers, etc.
- ◇ Ministries of Health, Agriculture, Environmental Resources, etc.
- ◇ Medical or Health Professional Associations
- ◇ Participatory Epidemiology Network for Animal and Public Health (PENAPH)

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

- i) 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
- ii) 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

Case Study 1: Karatu



Karatu District Arusha Tanzania

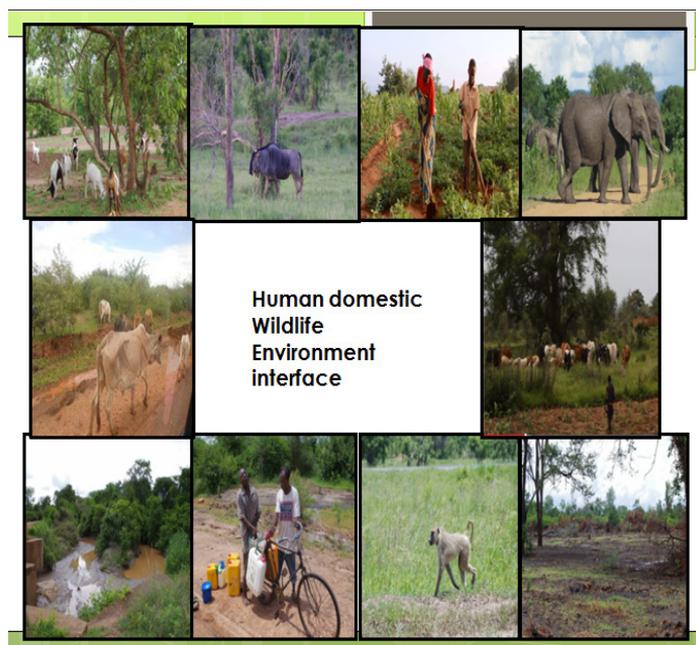
Karatu district is located in Arusha region, Tanzania and is known by its agricultural activities. People practice irrigated farming. Among the major drawbacks that face the farmers are pests. As a means to overcome such problems, farmers indiscriminately use pesticides to protect their crops. This practice has been reported to be associated with many problems to the people, domestic and wild animals and the environment at large. 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 to people working in horticultural farms. Incidences of fish and aquatic bird mortalities especially Lesser flamingoes (*Phoenicopterus minor*) are observed and all 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 go to deliver 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 done 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 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?
8. What challenges do you think you might encounter while addressing this issue?

Case study 2: Environmental, Wildlife and Health Issues in Kilosa District, Tanzania



Considering the increasing global demographics, disease emergence and intensified encroachment on natural habitats, meeting the needs of the community and safeguarding their health is becoming a significant challenge. Engaging communities in One Health activities is one way to ensure that they are involved in the planning, implementation and management of activities and interventions right from the beginning. In Kilosa district of Tanzania, close to the Mikumi national park, wildlife, livestock and people live in close proximity making the plains a potential “Hot spot” for emerging pandemic threats. This area has been identified as ideal for a One Health demonstration site. Specific human health, animal health, and ecosystem challenges and impact were identified, such as local human, livestock and wildlife diseases, habitat fragmentation, edge effect and biodiversity loss.

The Kilosa region is strategically positioned in terms of cultural resources and vulnerable populations as well as endemic or threatened wildlife species. Rabies, Rift Valley Fever and milk borne (Bovine Tuberculosis and Brucellosis) as well as water borne zoonoses are identified by community members as priority diseases that could be intervened effectively using One Health approach. There is ongoing conflict among pastoralists and farmers, and the national parks administration. Wildlife like elephants constantly destroyed farmers’ crops and human wildlife conflict was rampant. Environmental degradation is evident with community members cutting down trees to sell charcoal. Recent flooding in the area had led to massive soil erosion as well as people and animal displacement. As a result of this, there is conflict over scarcity of water resources for wildlife, animals and humans. Poaching in the Mikumi national park was constant and road kill of wildlife was big problem since this was the main high way for transnational tracks from Tanzania to southern Africa. Conflict between the national park rangers and communities also results from the fact that women go into the park to gather firewood and fruits for food. Potential opportunities for the demonstration site to contribute to the local economy by virtue of employment, improved subsistence resources, conservation and sustainability, biodiversity protection, improved recreation or appreciation by tourists are present.

Questions:

1. Why do you think this situation is ideal for One Health activities?
 - i) Specific human, animal, and ecosystem health challenges and impact consistent with One Health themes and competencies (e.g. local human, livestock and wildlife diseases, habitat fragmentation, biodiversity loss)
 - ii) Examples of, and/or future opportunities for community-based participatory research, training and interventions.
 - iii) Policy/political/government issues that come up from the case study
 - iv) Presence of ongoing /resolved issues/ stakeholder conflicts and degree to which such issues present opportunities or obstacles to success in the teaching and learning environment.
 - v) Involvement/presence of community and district level stakeholders/personnel who are willing to be part of the team
 - vi) Gender roles in the community, issues of access and control over resources
2. Identify key issues that are problems in this area.
 - i) Zoonotic diseases: Rabies, Rift Valley Fever and milk borne (Bovine Tuberculosis and Brucellosis) as well as water borne zoonoses were identified by community members as priority diseases that would be intervened effectively using One Health approach.
 - ii) Human- wildlife conflict, conflict between farmers and the national park rangers, conflict over scarcity of resources such as foliage and water, poaching in Mikumi national park, conflict between pastoralists and herders
 - iii) Flooding and displacement and what happens to animals
 - iv) Tourism and its impact, traffic in the area and road kill of wildlife
 - v) Gender issues
3. Identify key elements and stakeholders in the area.
 - i) Wildlife, domestic animals, crops,
 - ii) Farmers, herders, pastoralists, women collecting firewood, internally displaced people
 - iii) Poachers different ministries-national park rangers, ministry of agriculture
 - iv) Veterinarians, medical doctors, disaster management teams, district officers in different departments
 - v) Police officers, tourists, car owners travelling to other countries
4. What One Health related interventions can be done and how can you engage key stakeholders in the interventions?
 - i) Rabies, Rift Valley Fever and milk borne (Bovine Tuberculosis and Brucellosis) as well as water borne zoonoses were identified by community members as priority diseases that would be intervened effectively using One Health approach.
 - ii) Ongoing conflict among pastoralists, farmers, and the national parks administration present opportunities for research and novel intervention systems.
 - iii) Gender distribution of roles and responsibilities and impact of that in conflict
 - iv) Tourism and road kill are key issues for the park to deal with.
 - v) All the activities mentioned as One Health issues can become interventions with community
 - vi) Look for opportunities to engage the communities in the interventions
5. What gender issues do you see in this scenario and how would you deal with them?

Case study 3: Installing Water System in Teso District

A village in eastern Uganda consists of a farming community that keeps livestock and grows crops. The children go to school during the mornings then help their parents with chores up to the evening. The men's activities consist taking the cattle for grazing in the communal fields at around 9-10am. This would be after the women have milked the cows and fed the calves. The young boys take the goats and sheep that are tethered around the home to graze and browse in the nearby fields upon returning home from school. Cultivating in the crop garden during the rainy season starts in the cool of the morning, just before dawn ending by around 10:00 am. Both men and women participate and oxen may be used to draw the ploughs. Sometimes children help especially in the planting up just before they go to school which starts at 8:30am. The women use the remainder of the day to do their household activities. Notably, the afternoons up to 4:00pm are set aside to collect water from the village stream. The market day is usually held twice a month on Saturdays and is an activity where the whole family participates. The men would be selling livestock, farm implements, farming pesticides and acaricides, crops like rice and maize. The women, on the other hand sell vegetables, fruit, dried fish and oil seed crops like groundnuts and sim-sim. It is during this period that village bazaars or entertainment are held. It is interesting that due to strong religious and cultural beliefs, the men do not intermingle.

Recently, an NGO visited the village and upon the suggestion from the men, built and installed a water tap in the center of the village. This was hoped to help the women by decreasing the amount of time spent collecting water from the stream. However, to their disappointment, the women neglected to use the tap and insisted on going in their groups to collect water from the stream. Only in cases when one had to attend to a sick patient at home, did they use the nearby tap.

Case study Questions:

1. Draw a daily activity clock for the men and women in the village.
2. What would be the best time to meet the women and where would the meeting be?
3. What would be the best time to meet the men and where would that meeting be located?
4. Is it possible to have a combined meeting for the men and women? Where would it be and when?
5. Plot a resource map indicating issues of access, ownership and control.
6. Why did the women shun the tap built by the NGO's?

Session 2: Integrated Infectious Disease Management

Session Overview

This session aims to introduce participants to the basic principles of preventing, detecting, and responding to infectious disease outbreaks in the context of One Health. A One Health approach is used to examine various important infectious diseases of humans and animals and helps participants understand the fundamentals of infectious disease ecology and their impact on humans, animals and the environment.

Session Learning Objectives and Activities

Participants will be able to:

- i) describe the principles of ecosystem health and the human-animal-environmental interface.
- ii) address health issues that cannot be solved through a single disciplinary approach.
- iii) use a gender-sensitive approach to epidemiology.
- iv) explain the relationship between humans, animals, and the environment in infectious disease transmission.
- v) explain the role of surveillance in infectious disease management.
- vi) apply multi-disciplinary approaches to infectious disease investigation and response.

| Schedule | Topic/Activity | Learning Activity | Materials |
|---------------|--|--------------------------------------|--|
| 8:00 - 9:00 | Registration | | Sign in sheet |
| 9:00 - 9:30 | Morning Reflections | Plenary Session | 2 Flipcharts Sticky notes* |
| 9:30 - 10:30 | Introduction to infectious disease management | Case Study and Small Group Activity | PowerPoint |
| 10:00 - 10:30 | Basic principles of Infectious disease management Case studies: | Small Group Activity | |
| 10:30 - 10:45 | Tea Break | | |
| 10:45 - 11:45 | Group Presentations | Plenary Session | |
| 11:45 - 12:45 | | Presentation Small Group Activity | PowerPoint Role cards Flipchart Paper Colored Markers |
| 12:45 - 1:45 | Lunch | | |
| 1:45 - 2:30 | Disease surveillance in Infectious disease management | Presentation | PowerPoint |
| 2:30 - 3:30 | Surveillance for Rio Olympics presentations | Small Group Activity | |
| 3:15 - 3:30 | Tea Break | | |
| 3:30 - 4:30 | Steps in outbreak investigation | Plenary Session | |
| 4:00 - 4:15 | Evaluation of the day | Plenary | Flip Chart |

Detailed Facilitator Notes

Part 1: Introduction to Infectious Disease Epidemiology and Management

| Time | Activity/Topic | Facilitator Instructions (facilitator notes added at end of the session) |
|---|--|--|
|  15 min | Introduction on Priority Infectious diseases  | <p>Give a presentation (PPP No. 6A) that provides an overview of 2 common/priority infectious diseases in the region. Make sure the diseases have human, animal, and/or environmental elements in the transmission cycle. Additionally, the diseases selected should represent all major modes of transmission. Use the PowerPoint template to design the presentation prior to the course. Malaria, Ebola, Avian Influenza, and Plague are included as examples. Consider providing copies of your presentation for participant note-taking.</p> <p>More facilitator notes on infectious diseases included at the end of the session.</p> |
|  60 min | Small Group Role Play: Disease Transmission  Role Play | <p>Small Group Role Play: Disease Transmission</p> <p>Before the class, create four groups ensuring that all disciplines are represented in each group. Post the group assignments so that the participants assemble in the correct groups. Each group will be assigned one of the diseases presented and will develop a role play to demonstrate how the disease is transmitted and how the transmission cycle can be interrupted and disease prevented.</p> <p>Give participants the following instructions:</p> <p>“For the disease you have been assigned, design a short role play (no more than 5 minutes) demonstrating how the disease is transmitted. Once you have demonstrated transmission, demonstrate how certain prevention measures can break the cycle of transmission.”</p> <p>Primary prevention</p> <p>Target population: the entire population with special attention to healthy individuals</p> <p>Objective: prevent onset of illness</p> <p>Methods: education, immunization, nutrition & sanitation, lifestyle changes</p> <p>Specific prophylaxis; objective is to prevent onset of specific diseases</p> <p>Methods: education, immunization, nutritional supplement (Vitamin A, iodine), chemoprophylaxis e.g. against malaria</p> |

Secondary prevention:

Target audience: sick individuals,

Objective: early diagnosis & treatment to prevent further damage to the individual and in cases of infectious diseases, spread to the community.

Tertiary prevention:

Target population: sick patients

Objective: reduce damage from disease and restore function

Methods: skilled clinical care and social support to limit physical and social damage from disease.

Rehabilitation:

Target population: convalescent patients

Objective: restore function and capability

Methods: physical and social rehabilitation

Give the participants 15 minutes to plan their role plays and then have each group present their role play over the next 20 minutes.

During role play presentations:

Group members who are not participating in the role play will observe the presentations and take notes to provide feedback as well as identify gaps. An instructor checklist may be provided to aid in evaluation.

After role play presentations:

Participants will individually fill out an index card listing one thing they think would help prevent transmission of the disease they presented. This aspect will allow the instructors to assess individual student knowledge of disease transmission.

Have participants discuss the activity and identify key take-home messages and conclusions. In particular, consider using the following questions as prompts:

1. What did you observe during the role play presentations?
2. Describe different ways by which diseases can be transmitted.
3. Based on transmission method, how can disease prevention vary?
4. Are there other professionals you may need to work with to understand transmission mechanisms or implement prevention measures?
5. What factors are responsible for affecting the transmission of the infection in the host? (age, sex, pregnancy, nutrition, trauma and fatigue, herd immunity)



15 min

Large Group Debrief: Disease Transmission Role Play



Large Group Debrief

6. How can these diseases be controlled? (This usually depends on the extent of the outbreak/emergency. Control programmes are normally available that deal with recognizing the infection and the confirmation of the diagnosis, notifying the appropriate authority about the disease and finding the source of infection).

Methods of control include:

- i) Elimination of the reservoir for the infection (for human reservoirs, isolate patients or quarantine).
- ii) Interrupt the pathway of transmission (This involves improving environmental sanitation and hygiene).
- iii) Protection of susceptible hosts (Through passive or active immunization, use of antimicrobial drugs, e.g. chemoprophylaxis used for the prevention of malaria).

Provide additional feedback and identify gaps if necessary. If applicable, distribute disease notes after the discussion.

Part 2: Basic principles of Infectious Disease Management



60 min

Assignment on the Movie: - *Contagion*



Assignment: The previous night participants will have watched the movie: *Contagion*.

Provide then with the following required reading as well.

- i) **Required reading:** Article, “Interventions for Avian Influenza: A (H5N1) Risk Management in Live Bird Market Networks” (Fournie et al 2013.)
- ii) Avian Influenza Fact Sheet (World Health Organization [WHO])

Infectious Disease Management Fundamentals

Using the movie, *Contagion* as a case study, to better understand the importance of the mode of disease transmission and possible risk factors, and to form a logical disease management plan, consider the following questions based on the movie:

1. What type of infectious organism is involved in outbreak?
2. What host species are usually infected?
3. Are there known reservoir hosts that spread organisms, but do not develop disease?
4. How is the disease transmitted from host to host?
5. What interventions (treatment, prevention, vaccination) are available?
6. What are possible prevention strategies?
 - i) Lower the risk of infection by implementing interventions that limit contact between susceptible hosts and infectious agents.
 - ii) Change high-risk behavior(s) through health education.
 - iii) Quickly identify, properly treat and where appropriate, isolate newly infected cases (i.e., persons or animals with the disease of interest).

The participants will spend the next 45 minutes discussing questions related to the movie. Ensure that the main themes in the movie are discussed:

1. Interspecies transmission: Spread of the virus: how does that happen?
2. Immunity: Mitch was immune: how real is that? Can you explain that concept?
3. Disease ecology and epidemiology, clinical signs and symptoms of diseases: Did the symptoms seem plausible?
4. Stakeholders: Can you identify multiple stakeholders in the movie and their roles?
5. What are other social, economic and political effects, conflict/ impact that can be seen?



20 min

**PowerPoint
on *Contagion*
fundamentals**



6. Communication –what is the role of communication and impact of miscommunication?
7. What are the risk factors from the infection?

Present the PowerPoint (PPP No. 7) on *Contagion* fundamentals that:

- i) explain the progression of a disease within an individual.
- ii) describe how infections are transmitted from individual to individual.
- iii) describe the transmission of a disease within a population.

Part 3: Disease surveillance in Infectious Disease Management

| Time | Activity/Topic | Facilitator Instructions |
|---|--|---|
|  20 min | Case Study: Malaria Prevalence  | <p>Surveillance is the ongoing, systematic collection, collation, analysis, and interpretation of health data. It includes the timely dissemination of the information for action.</p> <ol style="list-style-type: none"> Used for planning, implementation, and evaluation of public health practices at any level. Regardless of the type of surveillance, remember that surveillance is data for action! <p>Briefly Discuss the Different Types of Surveillance</p> <ol style="list-style-type: none"> Health facility or community-based surveillance – location focused surveillance activities Sentinel surveillance - designated site representative of an area or in an area of likely risk to serve as early warning for a disease of concern Disease-specific surveillance – surveillance aimed at targeted health data for a specific disease Event-based surveillance – collecting health data on specific events <p>Before the class, create small groups ensuring that all disciplines are represented in each group. Post the group assignments so that the participants will know their group prior to the class activity. Provide participants with the following case study.</p> <p>Distribute the case study on malaria to the student groups and allow them about 5 minutes to read and become familiar with the case.</p> |
|  25 min |  Group Discussion | <p>The case scenario will include the following questions for participants to consider:</p> <ol style="list-style-type: none"> How could you tell that the burden of malaria was previously high? What do you think prompted the communities to stop using bed nets? How would you be able to know that Indoor Residual Spraying worked? How could a multidisciplinary team have detected the outbreak earlier? 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. 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? |

Each group should spend about 10 minutes brainstorming answers to each question posed by the scenario. They should then use the remaining 15 minutes to focus on responding to their assigned question or questions.

The facilitator(s) should walk around the room and listen in to the various group discussions, being available to answer questions or guide the groups if they are struggling.

The class will come back together so that each group can report out on their assigned questions.

Ensure that each group takes no more than 5-6 minutes to make sure that all questions are discussed. For each question, make sure the groups address the following topics:

After all groups present, ask the large group for additional feedback, thoughts, and ideas. Close the conversation by summarizing the exercise and reviewing surveillance strategies.

Developing a Surveillance System for the Olympic Games in Rio De Janeiro Brazil, 2016

Divide the participants into groups of 5. Provide them with the following scenario:

You are the person in charge of the Disease surveillance for the Rio Olympic games. This is a complex wicked challenge in which you will have thousands of people participating in the Olympics in different capacities.

- i) Develop a phone application (app) for your travelers coming into Brazil. Make sure that your app is attractive enough for people who want to download it. As you develop the App, consider the following:

1. What would you call it?
2. How would you frame your introduction to ensure people are using it?
3. What five key questions would you ask that would help with your disease surveillance?
 - ii) Create a disease surveillance and response model plan for the Olympics. Consider the following questions:
 1. What infectious diseases would you watch out for?
 2. What kind of team would you put in place?
 3. What gender considerations would you look out for?
 4. Who would be your response teams?
 5. What kind of risks would you look out for?
 6. What kind of post-game evaluation would you do?



60 min

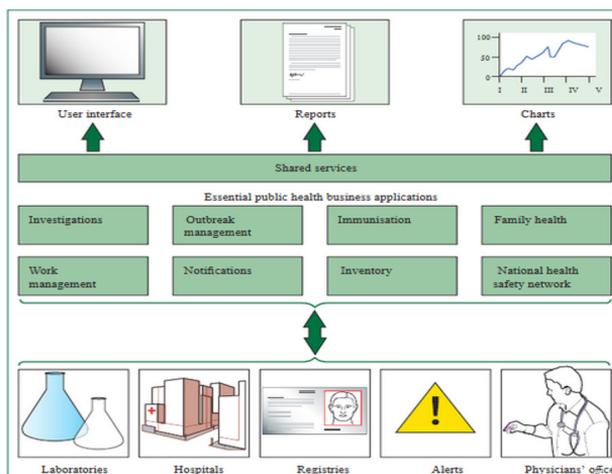
One Health approach to Infectious Disease Surveillance



Consider the following areas that we have previously discussed as you work through this model:

Rio-Pre, during and post Olympics, human, animal and environmental interactions, multidisciplinary and cross -ectoral collaboration, gender issues, One Health competencies, global, local and national impact and players

- i) Diseases and disasters know no borders. Be prepared. Develop district/county EPR plan that accounts for all potential emergencies.
- ii) Establish communication plan for sharing information with communities at all times.
- iii) Mobilize resources from local and national levels and procure emergency medicines and supplies.
- iv) Enhance linkages with community (VHTs, local leaders) to ensure early detection of public health events.
- v) Ensure proper coordination and information exchange with your counterparts across the border.
- vi) Ensure surveillance tools and guidelines are standardized and harmonized with your neighbors.



Web Based Health care surveillance network

Have the groups present their apps and their disease surveillance models

An outbreak is defined as a “sudden occurrence of an event beyond the normal” It involves a key factor on place, person and time. The common types of outbreaks are:

- An epidemic; it occurs in a small geographical area, within the expected numbers.
- A pandemic- occurs beyond a given geographical area e.g. the Avian influenza in Asia which spread to other areas.



30 min

Steps in an Outbreak Investigation:



An outbreak can be from a common source, propagated source (cases occur at different points) or a point source (cases will show signs and symptoms at the same time).

Consider the following two scenarios and discuss them in light of an outbreak investigation.

Scenario 1

The viral haemorrhagic Surveillance Program at Uganda Virus Research Institute received a blood sample from one individual suspected of Viral Haemorrhagic Fever (VHF) from Kiboga hospital on Friday 18th August 2017 at 6:35 pm. The patient had no Case Report Form (CRF) but came with a Laboratory Request Form for Kiboga hospital in the names of TA, male aged 19 years. Test requested was VHF. The sample was sent to us from CPHL.

In the same evening of Friday 18th August 17, UVRI received calls from Nakaseke hospital laboratory focal person reporting patients with epistaxis. Two samples were being collected and they were delivered on Saturday 19th August 2017 at the VHF laboratory UVRI Entebbe.

The three blood samples (one from Kiboga hospital and 2 from Nakaseke hospital) were tested by RT-QPCR for Ebola viruses, Marburg viruses, Rift Valley Fever viruses, Sosuga virus and Crimean Congo Haemorrhagic fever virus. Two samples turned out to be positive by RT-qPCR for Crimean Congo Haemorrhagic Fever virus (CCHF) and they were re-confirmed on Sunday 20th August 17.

Having no other information about these patients since none came with a CRF, and as standard operating procedure for our VHF surveillance program to be in the outbreak area within 12 hours of confirmation of a positive case, describe the steps you would take to respond to this epidemic.

Scenario 2

You are working at the Ministry of Health Surveillance Division. A school in Nyagatare District reported an outbreak of suspected measles; the symptoms included fever and rash. Your supervisor asked you to take the lead to deal with this situation. What would you do?

In the above two scenarios can participants begin to identify the different steps in outbreak investigation?

Steps in an outbreak Investigation: Large Group Game

Prior to class, prepare the game activity by writing the steps involved in an outbreak investigation on separate sheets of paper. The steps include the following:

- i) Planning
- ii) Prepare for fieldwork.
- iii) Establish the existence of an outbreak.

- iv) Verify the diagnosis.
- v) Define and identify cases.
- vi) Describe and orient the data in terms of time, place, and subject.
- vii) Develop hypotheses.
- viii) Evaluate hypotheses.
- ix) Refine hypotheses and carry out additional studies.
- x) Implement control and prevention measures.
- xi) Communicate findings.
- xii) Evaluation

Divide the participants into two groups. Provide them with mixed up sheets of paper with steps on them. Have them rearrange the steps to get the right order. The team that finishes first wins a prize. Note that the steps listed above are in a logical order so the final list of the participants should be similar. Facilitator is at liberty to add more steps to the list.

For in-service trainees it is important to feed them with this additional information found in the facilitator notes. It gives important information for each of the steps described in outbreak investigations. This could be given to participants in softcopy for those who need to read out and understand the detail of outbreak investigation

Decide whether/how to respond:

- i) Scope of outbreak (number of cases reported)
- ii) Severity of disease (hospitalizations, deaths)
- iii) Potential to spread to other areas
- iv) Potential involvement of commercial products
- v) New/resurgent disease
- vi) Disease targeted for elimination
- vii) Availability of control measures
- viii) Press/media/political/international interest
- ix) Request by local public health agency

(More facilitator notes on outbreak investigation steps provided at the end of the session)

Reflections

Have two flipcharts in the front of the room:

Give each participant two sticky notes.

- i) Have participants write down one key thing they learnt about infectious disease transmission, identify one stakeholder in the movie they thought had an impact and write their responses on the sticky notes.
- ii) Have participants put their sticky notes.
- iii) on the respective flipcharts.
- iv) Review and discuss the comments.



20 min

Debrief





15 min



End of session two Evaluation

- Create the flipchart shown below.
- Ask the class: “How did it go today?”

How did it go today?



Comments:

Session 2: Facilitator Notes

1. Epidemiology of Infectious Diseases

Communicable diseases are characterized by the existence of a living infectious agent which is transmissible. Apart from the infectious agent, two other factors, the host and environment, affect the epidemiology of the infection. The relationship between these three components may be illustrated using the following analogy:

Agent, host, route of transmission, the seed, the soil and the climate.

Infectious agents may be viruses, rickettsia, bacteria, protozoa, fungi or helminths. The biological properties of the agent play a major role in its epidemiology.

In order to survive an infectious agent must be able to do the following:

- Multiply
- Emerge from the host
- Reach the new host and infect the new host

The ability of the infective agent to survive in the environment is an important factor in the epidemiology of the infection.

Human reservoir may explain the number of important pathogens that are specifically adapted to man - the infective agents of measles, HIV and AIDS, typhoid, meningococcal meningitis, gonorrhoea and syphilis.

Animal reservoir; the term zoonosis is applied to those infectious diseases of vertebrate animals which are transmissible to man under natural conditions;

- Where humans use the animal for food, e.g. taeniasis
- Where there is a vector transmitting the infection from animals to humans e.g. plague (flae), viral encephalitis (mosquito)
- Where the animal bites human beings (e.g. rabies)
- Where the animal contaminates human environment including food e.g. salmonellosis.

Routes of transmission include:

- Contact, either directly, person to person or indirectly through contaminated objects (fomites). Contact infections are more likely to occur where there is overcrowding e.g. TB, Ebola and are common in urban centers.
- Penetration of the skin, directly by the organism itself (e.g. hookworm larvae, schistosomiasis), by the bite of a vector (e.g. malaria & plague) or through wounds (e.g. tetanus).
- Inhalation of airborne infections. Poor ventilation, overcrowding in sleeping quarters and in public places are important factors in epidemiology of airborne infections.

- iv) Ingestion, from contaminated hands, food or water.
- v) Trans-placental infection; some infective agents cross the placenta to infect the fetus in the womb, producing congenital infections (e.g. HIV, syphilis and toxoplasmosis).

Case Study: Malaria

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 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.

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, greater use of pharmaceuticals
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 Indoor Residual Spraying 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, water logging, mosquito populations (engineers, environmental health, meteorologists)
 - Reporting of more human cases (physicians, healthcare workers, teachers)
 - Increased consumption of pharmaceuticals (pharmacists)
 - Collecting qualitative data (Social workers)
 - 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?

Notes on the Movie, *Contagion*

The participants will spend the next 45 minutes discussing questions related to the movie as indicated below. Begin by identifying the main themes in the movie: some of the issues to be discussed can include:

- i) Interspecies Transmission: Spread of the virus: how does that happen?
- ii) The fictional MEV-1 virus begins to spread when an infected bat drops a piece of banana that is eaten by pigs. Could that really happen?
- iii) The potential for rapid virus spread: which other diseases can we think of?

This was based on the Nipah virus, which can travel from bat to pig to human. If the virus in the movie were that virulent, it wouldn't take many virus particles to spread. Concepts emphasized: they did a wonderful job of dramatizing interspecies transmission and recombination in an animal cooking vessel — which is often a pig — and then making the jump to humans. They made a complex biological concept understandable to the public. The other thing they did beautifully was emphasize the potential for rapid virus spread in a globalized society. Beth Emhoff got sick in Hong Kong, and by the time she was on a plane home, people she had contact with were sparking outbreaks around the world — even before she was symptomatic.

- iv) Mitch was immune: how real is that? Can you explain that concept?

They did not make that very clear. Almost all viral diseases have what we call the iceberg effect. Many people get infected but they have no symptoms. Others get infected and they have some symptoms but not very serious ones. And then a smaller number get infected and it's very acute. Only a few of those will die. Mitch Emhoff may have been an asymptomatic case- In the movie they said that three-quarters of people get it and don't die. He was lucky — a run-of-the-mill survivor.

- v) Did the symptoms seem plausible?

A little rapid; I thought those seizures looked pretty good. The first seizure didn't, but the second one was spot on. Generally, that stuff was well done. The cough, the headache, the encephalitis [swelling of the brain due to infection]

- vi) Stakeholders in the movie? Identify the different stakeholders in the movie and the roles they played.

The movie also took a close look at public health officials, such as CDC deputy director Dr. Ellis Cheever (Laurence Fishburne). Investigators like Dr. Erin Mears (Kate Winslet) and others work to fight the disease. How accurately did the film depict their work? The workers mentioned a shortage of body bags at one point. But they didn't mention that these respiratory devices they're wearing — called powered air purifying respirators, or PAPRs — were going to run out real fast. We hardly have any of them.

- vii) Social, political and economic effects: Shortage of food: is that expected? Contagion shows people fighting over emergency rations, but the principal characters seem to remain well-fed. Would there be enough to eat?

Not with the infrastructure collapsing. If you cut off the entire food supply to a city, you have five days. Five to seven days for gasoline. So, yes, that's an issue. That was hinted at, but they focused more on social panic than on the fact that this very complex, just-in-time economy we now have would absolutely fall apart. **Social panic?**

- viii) The role played by media blogger Alan Krumwide: risk communication/information channels and how one person can influence people when there is a major controversy or outbreak

He was a caricature, but it was well done and he illustrated a really important public health concept. He is influencing millions of followers who are just grasping at the first thing they read on the Internet. An outbreak, more than any other time, is when you need to trust authoritative sources, like the CDC. That's another important object lesson here.

The movie certainly is anti-blog where the blog represented misinformation.

Do you think the public health people should have offered a stronger response: We cannot have public health leaders be wimps when they are dealing with people like that, who are a public health threat? You are going to take on powerful forces and venomous critics. Public health is a contact sport.

- ix) So, what's your final verdict? Did you like or not like the movie and why?

I liked the movie a lot. Some of the reasons had nothing to do with science. I thought the public health people were portrayed as being kind, benevolent people — which I think they deserve. A doctor is beloved for saving a life, but public health people are behind the scenes, and they do not really get as much respect as they should.

I also liked the fact that the movie took the disruption of society and laid it against the non-disruption of society. They could still go home and do things. People think that when all hell breaks loose, everything falls apart — it does not. Certain parts of society do and certain parts do not, and I think they portrayed that well.

It is refreshing to see a movie that tries to be as authentic as this one. I thought it was really good at depicting the real situation. It is very nice to see a movie where scientists are not the evil ones. And I also must admit I was really pleased to see women who were strong and capable and who showed leadership qualities.

As opposed to the Americans who were tackling each other and stealing their drugs and their food and shooting people in their houses?

This film effectively conveyed public health concepts: the importance of infrastructure, the importance of personnel, the notion that germs do not care about your politics or your ideology.

What makes this movie scarier than the typical horror film is that it could happen. The errors in the film were not errors; they were poetic license.

Detailed Steps in Outbreak Investigation

For in-service trainees it is important to feed them with this additional information found in the facilitator notes. It gives important information for each of the steps described in outbreak investigations. This could be given to participants in softcopy for those who need to read out and understand the detail of outbreak investigation.

1. Decide whether/how to respond:

Scope of outbreak (number of cases reported)

- i) Severity of disease (hospitalizations, deaths)
- ii) Potential to spread to other areas
- iii) Potential involvement of commercial products
- iv) New/resurgent disease
- v) Disease targeted for elimination
- vi) Availability of control measures
- vii) Press/media/political/international interest
- viii) Request by local public health agency
- ix) Availability of resources
- x) Training opportunity to improve competency

2. Prepare for Field Work

Scientific issues to think about:

- i) Discuss with lab staff on types of specimens needed, specimen collection, storage and transport.
- ii) Contact chief physician ASAP to collect clinical specimens before antimicrobial use!
- iii) Consult with disease experts on clinical issues.

- iv) Develop objectives for investigation.
- v) Review literature and collect reference materials.

3. Logistical/Administrative Issues to Consider

- i) Seek permission to investigate.
- ii) Engage intra and inter-agency partners
- iii) Assemble investigation team as necessary and clarify team member's roles and responsibilities.
- iv) Consult with agency communication officer.
- v) Anticipate and prepare for early logistical needs.
- vi) Prepare for daily consultation with supervisors.

4. Establish existence of outbreak

- i) Are there higher rates than expected?
- ii) Same disease or related diseases?
- iii) Change in case definition/lab method/report staff?
- iv) Increased awareness?
- v) Misdiagnosis, lab error in diagnosis?
- vi) Batched reporting?
- vii) Population change?

5. Verify diagnosis

- i) Review clinical findings
- ii) Compare percent distribution of clinical features with what is expected for the disease
- iii) Evaluate lab findings and methods
- iv) Visit and talk with case-patients

6. Construct a working case definition

- i) NEVER include exposure of interest in case definition
- ii) Use objective, easily available clinical features
- iii) Specify time, place, person
- iv) Have multiple levels of certainty (suspected, probable, confirmed cases) as necessary
- v) Leave no ambiguity: One person should only be classified into one category
- vi) Use sensitive case-definition for case-findings; more specific one for analytic epidemiology.

7. Find cases systematically

- i) Contact healthcare practitioners and facilities.
- ii) Solicit public reporting.
- iii) Conduct population survey.
- iv) Ask case-patients about other ill patients.
- v) Create case form/line listing to include:
 - identifying and contact info
 - demographic info
 - clinical features
 - reporter info

8. Perform descriptive epidemiology

- i) Time: Epidemic curve
 - Use equal time intervals, each bar $\leq 1/2$ incubation or generation periods.
 - Show ≥ 2 generations before and after outbreak.
 - Mark key exposures on epi curve.
 - Recognize and interpret common epidemic curves.
 - Construct stratified epidemic curves as necessary.
- ix) Place: Map (spot map, area map...)
 - Show potentially related factors (roads, wind direction...) on map
 - Indicate scale, longitude/latitude, orientation
- ix) Person:
 - Evaluate host characteristics (age, sex, education, occupation, medical status...)
 - Assess possible exposures (occupation, leisure activities, and use of medications/tobacco/drugs...)
 - Use rates whenever possible; avoid use of proportions of total cases

9. Develop a working hypothesis

- i) Consider known facts about the disease (biology, nature, mode of transmission...)
- ii) Use descriptive epi (time, place, person).
- iii) Conduct hypothesis-generating interviews of patients, clinicians, public health experts.
- iv) Consider analogy, e.g., mode of transmission of similar diseases.
- v) Pay special attention to outliers and persons with unexpected observations.
- vi) Limit number of viable hypotheses to i-ii.

10. Evaluate hypotheses epidemiologically

- i) Select appropriate study design: case-control; retrospective cohort; other.
- ii) Choose appropriate comparison group.
- iii) Enroll as many cases as feasible.
- iv) Evaluate hypotheses against causal criteria:
 - Strength of association
 - Consistency with other studies
 - Time sequence (exposure precedes disease)
 - Biological plausibility
 - Dose-response relationship
- xi) Consider both relative risk and attributable risk.

11. Reconsider/refine hypotheses

- i) Re-evaluate hypotheses against causal criteria.
- ii) Ensure most cases can be explained by exposure.
- iii) Ensure all significant findings are explained.
- iv) Achieve greater specificity (e.g., specific brand/batch/lot of drug).
- v) Address unanswered research questions when possible.

12. Compare/reconcile with lab/environmental studies

- i) Collaborate with lab/environmental experts.
- ii) Value, but do not over-rely on lab findings.
- iii) Use environmental studies to pin-point when/where/how exposure occurred.

13. Implement control and prevention measures

- i) Implement generic measures early; modify as new info becomes available.
- ii) Target segments in transmission chain (i.e., agent, source, mode of transmission, port of entry, host) susceptible to intervention.
- iii) Conduct trace-back/trace-forward studies.
- iv) Protect patients' confidentiality.

14. Initiate/maintain surveillance

- i) Evaluate effectiveness of prevention and control measures.
- ii) Monitor potential spread of outbreak.

15. Communicate findings

- i) Be first! Be right! Be credible!
- ii) Aim at improving public health practices.
- iii) Know your audience.
- iv) Select appropriate format:
 - Oral briefing
 - Press release
 - Investigation report
 - Conference presentation
 - Bulletin article
 - Peer-reviewed journal article

Session 3: One Health Leadership and Management

Leadership and Management Overview

This session will enable participants to gain the skills, knowledge and behaviors needed to ensure they can effectively prepare, plan and manage resources when there is an infectious diseases event, that they can resolve challenges during and after the threat and that they can efficiently evaluate and monitor a situation in order to achieve good health outcomes for people, animals and the environment. The goal of this session is to graduate multidisciplinary teams capable of initiating a shared vision; create, inspire, motivate teams across sectors; execute a role; through team-work and professionalism and manage (plan, design, implement, organize, monitor and evaluate) infectious diseases outbreaks through a One Health approach.

One Health Leadership is inclusive, participatory and horizontal and focuses on capitalizing on ideas and skills of multidisciplinary teams of people to combat any infectious disease threats. The merit and productivity of a good One Health leader is dependent on the quality of their interactions with multiple collaborators. A good One Health leader is also conscious that the processes, means by which objectives are carried out must encompass teamwork, professionalism and emotional intelligence.

Management in One Health (OH) is the process of planning, designing, implementing, organizing, monitoring, and evaluating OH programs in order to maximize the effectiveness of OH action and desired health outcomes.

Session Learning Objectives and Activities

Participants will be able to:

- i) discuss what leadership is and how cultural and sectoral lenses impact our perceptions of effective leadership.
- ii) describe the skills, knowledge and behaviors that make one an effective leader in one health initiatives.
- iii) demonstrate leadership through mutual respect between different professionals through networking and team building.
- iv) negotiate, advocate and lobby for one health policies and actions.
- v) demonstrate techniques for empowering others to take leadership action through one health approaches.
- vi) apply the principles of management for the control of infectious diseases outbreaks through OH approach.
- vii) develop strategies for the intervention in infectious diseases outbreaks of global health threats.
- viii) identify and mobilize multidisciplinary stakeholders in infectious disease outbreaks.
- ix) develop and apply monitoring and evaluation tools for the control of infectious diseases outbreaks by tracking indicators and operating within budget in a timely manner to achieve results.

| | | | |
|----------------------|---|-------------------|----------------------|
| 8:00 - 9:00 | Registration | | Sign in sheet |
| 9:00 - 9:15 | Introduction to Day Three | | |
| 9:15 - 9:45 | Defining leadership | Group Activity | Activity 1 |
| 9:45 - 10:15 | Leadership domains | PowerPoint | |
| 10:15 - 10:20 | Social styles and building self awareness | Plenary Session | PowerPoint |
| | | | Activity 2 |
| 10:20 - 10:50 | Competency building and team work | Group Activity | Activity 3 |
| 10:50 - 11:00 | Tea Break | | |
| 11:00 - 11:30 | Introduction to management | Plenary Session | |
| 11:15 - 12:00 | | Plenary Session | PowerPoint |
| 12:00 - 12:30 | Case study: Panic in Rwanda | Group Activity | |
| 1:15 - 2:15 | Lunch | | |
| 2:15 - 3:15 | Case study continuation | Group activity | |
| 3:15 - 3:45 | Presentation on project management | Plenary Session | PowerPoint |
| Schedule | Topic/Activity | Learning Activity | Materials |
| 3:45 - 4:00 | Tea Break | | |
| 4:00 - 4:20 | Planning for emergency response to an infectious disease outbreak | Group activity | |
| 4:20 - 4:30 | Evaluation of the day | Plenary Session | Evaluation chart |

| Time | Activity/Topic | Facilitator Instructions |
|---|--|--|
| Part 1: Defining Leadership | | |
|  20 min | Introduction to Leadership  | Have learners complete the following tasks: <ol style="list-style-type: none"> 1. Identify one leader that you admire. Write down what their leadership role is and 2 or 3 skills or attributes that make them an effective leader to you. Write this on a blue sticky note. 2. Identify one leader that you do not admire. Write down what their leadership role is and 2 or 3 skills or attributes that make them an ineffective leader to you. Write it on a red sticky note and put it on the wall. 3. All participants will go around the wall and read what has been written. 4. Initiate a discussion on what leadership is not. Identify at least five things that are not good One Health leadership attributes/skills: 5. If you had to choose an animal that best describes what a good style of leadership is, what would it be? 6. Why? What characteristics does it display that reflect that style? |
|  20 min |  Group discussion | |



20 min

**PowerPoint
Presentation
on Leadership
and One Health
Leadership
Domains and
Competencies**



7. Participant will appreciate the role of a good leader and also apply the ball game approach to appreciate the importance of team work during infectious disease management.
8. To understand the different types of leadership and the leadership styles.

Give a brief presentation (**PPP No. 8**) that defines what leadership is and is not. As part of this presentation discuss the competencies expected of a good leader in the context of One Health initiatives. Provide a quick overview of the domains and describe what it means to demonstrate each of them. The OH leadership domains include:

- i) Shared Vision, Strategic and Critical Thinking
- ii) Decision Making, Collaborative Solutions, Team Formation and Commitment

The Leadership competencies include:

- i) Promote mutual respect between different [professional] corporations for complex of superiority or inferiority
- ii) Develop an integrative vision, strategic thinking and vision
- iii) Ability to motivate and delegate
- iv) Resource mobilization, networking and team building
- v) Multi-tasking, public relations
- vi) Demonstrate decisiveness in OH relevant situations
- vii) Demonstrate effective teamwork
- viii) Ability to maintain composure; ability to appropriately react to a situation
- ix) Demonstrate capacity to assess and control one's emotions or stress response
- x) Leadership skills (negotiation skills, lobbying)
- xi) To be able to mobilize, coach, and mentor others
- xii) Conflict resolution and management
- xiii) Ability to introduce and manage change
- xiv) Motivate diverse disciplines towards OH goals
- xv) Influence OH stakeholders, demonstrate the ability to lead

Other definitions of leadership (from leaders in the leadership field):

- i) Leadership is a process of social influence, which maximizes the efforts of others, towards the achievement of a goal. (Kevin Kruse, Forbes magazine)
- ii) Leadership is the art of leading others to deliberately create a result that would not have happened otherwise. (Search Inside Yourself [SIY] Leadership Institute)
- iii) Leadership is the capacity to translate vision into reality. (Warren Bennis)

- iv) Leadership is influence – nothing more, nothing less. (John Maxwell)
- v) Leadership is an opportunity to serve. It is not a trumpet call to self-importance. (J. Donald Walters)

Leadership Styles

Authoritarian/ autocratic- tells his employees what to do and how to do it without getting their advice. Make decisions without consulting the team members.

Democratic/ participative- Includes one or more employees in decision making process but a leader normally maintains final decisions making authority

Laissaze- fair style- Gives their team members a lot of freedom on how they do their work and how they set their deadlines. The leader allows employees to make decisions but the leader is still responsible of the final decision.

Transformational leadership- James McGregor, defines it as a process where leaders and their follower's raise one another's higher levels of morality and motivation.

A transformational leader;

- i) is a model of integrity and fairness.
- ii) sets clear goals.
- iii) has high expectations.
- iv) encourages others.
- v) provides support and recognition.
- vi) stirs the emotions of people.
- vii) gets people to look beyond their self interest.
- viii) inspires people to look beyond their self-interest.
- ix) inspires people to reach for the impossible.



30 min

Discussing Social Styles and Building self Awareness



Social Styles Questionnaire

A good leader understands the characteristics of his One Health team, is aware that people are different and have different characters, and that different sectors and departments have different cultures. The social style activity allows participants to understand different leadership styles or people's characteristics to improve team relationships.

Review the notes on social styles in the facilitator notes

Give a brief PowerPoint presentation (**PPP No. 9**) on social styles.

After which ask the participants to complete the questionnaire on social styles following the instructions given (questionnaire found in Appendix)

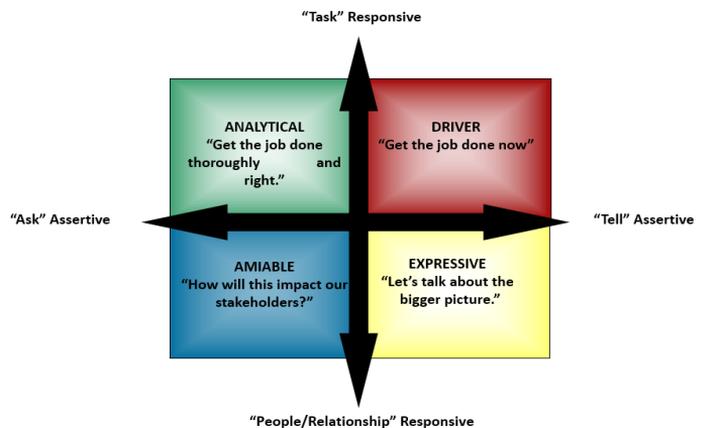


Choose the statement in each pair that you think most accurately expresses how other people see you at work. If you think that neither reflects how you come across to others, choose the one that more closely describes how others perceive your behaviour. On some items you may think some people would see you as described by one statement while others might see you as described by the other statement. For those items, select the statement that represents how a majority might view you.

When you have completed the questionnaire, please add up the total number of Xs in each column from both pages and enter in the TOTALS space provided below: (max total = 9)

| TOTALS | | | |
|---------------------|-------------------|--------------------|----------------------|
| Column 1 | Column 2 | Column 3 | Column 4 |
| <i>The "Greens"</i> | <i>The "Reds"</i> | <i>The "Blues"</i> | <i>The "Yellows"</i> |

After combining the totals, identify which social styles you belong to according to the 2 by 2 table below



Different social styles have different strengths. Discuss these different social styles and how they can work together as multi-sectoral teams. This activity is very interesting because people discuss what they think their social styles are.

Communicating with Different Social Styles



Activity 2: Find someone with a different style than you. Ask them these questions:

- i) What communication style works best for you? (formal, informal, fast, slow, face to face, verbal, written)
- ii) How do you like to get information (details, summary, facts, people)?
- iii) Switch roles and let them ask you questions.

Part 2 : Competency Building and Team Work

| Time | Activity/Topic | Facilitator Instructions |
|---|---|---|
|  5 mins | Team work  | Watch video on competency building, leadership and teamwork by Candy Mauricio https://www.youtube.com/watch?v=nD6tUEp1lws |
|  45 min | Team Work Role Play  | <p>After watching this video:</p> <ol style="list-style-type: none"> i) Break into groups: Each group will be given 10 minutes to generate an idea and develop a role play/ skit on teamwork. ii) The teams will then present their role plays to the rest of the class. The roles plays should only last at most 3 minutes. Discuss the role plays and key themes identified that make a good team. iii) Summarize the section by talking about teamwork and the qualities expected of an efficient One Health team. Discuss the concept of teams. <p>Points for discussion:</p> <ol style="list-style-type: none"> 1. What happened? What did you notice about how teams prepared? 2. What were the leadership dynamics? (e.g., were there discussions about who would lead? Did different people assume leadership at different times?) 3. What did the leader(s) do that was effective? Not as effective? 4. As a team member, how did you communicate to leadership your personal needs and opinions? 5. Did you feel you were competing with the other teams to be the first? Or did the teams collaborate? 6. What will you do differently next time . . . as a leader? As a follower? |

Part 3: Management



20 min

Introduction to Management



Ask participants to do the following:

1. In your own words, define management. Write down on a sticky note a few sentences or points to share with the class.
2. Have each participant identify at least two competencies they think a good manager should have. They should write these on a piece of paper and stick it to the wall. These should include the list provided in resources:
3. Article for reading– Joint FAO/OIE Committee on Global Rinderpest Eradication with a focus on the Background and Findings sections (pp. 5–9).



30 min

Panic in Rwanda - Case Study



Present “Panic in Rwanda” case study to the participants

This case study will allow the participants to begin to apply the principles of One Health approach in the management of a conflict in a scenario that covers a local and international issue and has political and economic implications for a country.

Write out the following questions on paper. Have the participants work in groups of 2 to answer one question and present their results to the class for discussion.



Analytical Questions

1. Discuss human and wildlife conflicts in Rwanda and in the other East African countries and how this should be managed.
2. What are the possible effects of furadone (pesticide) on animals, humans and the environment?
3. Considering the information provided by the tourists and how it affected Rwanda, how would you communicate or control flow of information in this scenario?
4. What kind of team should be mobilized to respond to the suspected outbreak and work with the community to establish and control the outbreak? List the members of the team and their roles.
5. With an international crisis of avian influenza, how should the Rwanda team manage this situation?
6. How does the extinction of the lion affect the ecosystem?
7. What interventions should be put in place for this situation?
8. What is the role of the community and how should they be involved?



20 min

PowerPoint Presentation on Project Management



Summary of Section

As a summary of the section, present a ten-minute lecture on what good management is, the project management triangle, the competencies expected of a good manager and how to be an effective One Health manager that can bring together different disciplines as well as handle multiple scenarios when there is a crisis.

PowerPoint Presentation (PPP No. 8) on Project Management

The Project Management Triangle

This approach balances scope, available resources, schedule and quality outputs

The Project Management Triangle



Schedule: Refers to the amount of time available to complete a project.

Resources: Refer to the people, budget, materials, etc. available to produce the initiative's outcomes.

Scope: Refers to what must be done to produce the initiative's outcomes.

Competencies a good manager should have:

- i) Awareness of his or her role as a Public Health actor
- ii) Develop integrated training program (pre-service and in-service)
- iii) Adapt training to the realities of public health
- iv) Capacity building
- v) Resource management and mobilization
- vi) Ability to conduct situation analysis.
- vii) Create a OH action plan
- viii) Ability to develop and apply M and E tools
- ix) Ability to plan for management of infectious diseases (control, prevention, elimination and eradication.)
- x) Ability to mobilize and manage resources (e.g. human, material and financial)



20 min

Discussion on Change Management



- xi) Ability to monitor and evaluate infectious diseases management programs
- xii) Identify and prioritize OH related problems with respect to infectious diseases.
- xiii) Prepare plan
- xiv) Identify and mobilize resources
- xv) Implement the plan
- xvi) Develop indicators
- xvii) Measure merits and de-merits
- xviii) Impact assessment

Change management in infectious diseases management

- i) A systematic process; formal process for organizational change
- ii) Systematic approach and application of knowledge-Is a means of transitioning people.
- iii) Critical part of project that leads, manages and enables people to accept new system structure.

OR

Is the process of taking a planned and structured approach to help align organization with change?

Importance of change management

- i) Checks people's capacity to adapt to change. If change is misunderstood, people may resist an ongoing issue.
- ii) If people understand the benefits of change, they participate and see that it is successfully carried out and that no disruption occurs in an organization.

Successful change management is due to:

- i) Planning
- ii) Defined government/leaders
- iii) Committed leadership
- iv) Informed stakeholders, all stakeholders at the community level
- v) Aligned workforce

Simple principles to achieve change

- i) Thoughtful planning and sensitive implementation
- ii) At all-time involve people within a system; you cannot take anything to the community without prior planning with them.
- iii) Understand where you are or the organization is at the moment.

- iv) Understand where you want to be, when, why and what measures will be put in place to get you there.
- v) Plan and develop achievable and measurable targets.
- vi) Communicate, involve, enable and facilitate involvement from people as early as possible.

Rules of effective change management

- i) Consultation with and involvement of people affected by changes
- ii) If you force change on people normally problems arise
- iii) Change must be realistic, achievable and measurable
- iv) These aspects are especially relevant to managing personal change. Before starting organizational change, ask yourself “What do we want to achieve with this change? (END RESULTS).

Why change fails?

- i) Increase importance, inspire people to move, make objectives real and relevant.
- ii) Build a guiding team, get the right people in place with the right emotional commitment and the right mix of skills and level.
- iii) Get the vision right; get the team to establish a simple vision and strategy.
- iv) Communicate for buy in.
- v) Create short-term wins that are timely, visible and meaningful to people you need to influence.

Part 4: Planning for Emergency Response to an Infectious Disease Outbreak

| Time | Activity/Topic | Facilitator Instructions |
|---|---|---|
|  10 min | Planning for Emergency Response  | <p>In this section, participants will be able to plan for an emergency, identify, and manage challenges that occur in any emergency situation. They should also be able to explain the financial and logistical complications experienced in an emergency. It challenges participants to proactively adjust work plans when faced with common management-related challenges such as budget reductions, loss of critical personnel or other resources, or reduced timelines, when managing a One Health initiative:</p> <p>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 dollars to mobilize a team to prepare and respond to this emergency</p> <p>In 3 groups respond to the scenario in the following manner:</p> |
|  30 min |  | <p>Step 1</p> <ol style="list-style-type: none"> i) Create a budget for this emergency response. ii) Identify and price the key resources that you will need. iii) Identify key personnel and logistics required to respond to this emergency. iv) Develop a timeline of your activities to respond to the emergency. v) Present your budget and timeline. |
|  15 min |  | <p>Step 2</p> <p>You receive information from the ministry of health informing you that you only have 8,000 dollars because the 12,000 dollars was a commitment from one of the international organizations and those funds have not come through. You still need to respond to the emergency.</p> <ol style="list-style-type: none"> i) Re-budget and identify priority resources that you will need and what you will eliminate to work with the 20,000 dollars that you now have. ii) Identify other resources that you can mobilize. |



15 min



Step 3

Just as you finish budgeting and are getting ready to leave for the field, you are informed that your contact health personnel on the ground, the local doctor and the two nurses at the local hospital have died of Ebola.

Present a plan on how you are going to go ahead and respond to this emergency without the local team.

Possible responses

- i) Identify other human resources to replace.
- ii) Proceed and review activities that the deceased have been doing.
- iii) Do the line listing for the contacts (e.g. within their families).
- iv) Contact the District Health Officer.
- v) Replace the deceased.
- vi) Re-plan the outbreak.
- vii) Present yourselves to the local leaders.
- viii) Identify all the possible stakeholders at hand.
- ix) Liaise with the people nearby (if they are near they can help out).



15 min



Step 4

Your logistics coordinator informs you that the personal protective equipment (PPE) you ordered will not arrive for the next 48 hours.

What will you do in this case to manage this situation and ensure that you are responding?

Possible responses

- i) Interrupt infection and transmission immediately.
- ii) Borrow PPEs from the neighboring hospitals.
- iii) Utilize what is readily available.
- iv) Contact other NGOs available if they can be of help.



15 min



Step 5

You believe that you have everything sorted out and in place and are on your way to the village. On the way you receive information that the villagers are attacking any medical or emergency response personnel because they believe that the disease was deliberately brought into their community. Two members of your team who had gone earlier have died, and the rest have fled the village.

Develop a plan on who is/ how you are going to deal with this new scenario. Your ultimate goal is to ensure that the disease is contained and therefore you cannot turn away.

Possible responses

- i) Mobilize the group leaders.
- ii) Involve opinion leaders.
- iii) Streamline how the information is released.
- iv) Restrict access to and exit of the community
- v) Increase the budget on security and sensitization.
- vi) Intensify sensitization.
- vii) Re-mobilize and organize the teams.
- viii) Request for security from the army.



15 min



Step 6

When you are in the village, you hear the local politician telling the community members that they should burn down the houses of all the Ebola victims to ensure that there is no more spread.

1. What do you do in this situation?
2. Who can you reach out to help you solve the problem?

Pointers: Ask the class, “What should be included in an emergency communication plan?” Possible answers include:

- i) Assigned roles and responsibilities including primary decision-maker/emergency coordinator and back-up
- ii) Emergency contacts (e.g. police, fire department, doctors)
- iii) Contact list of all personnel
- iv) Phone/e-mail trees
- v) Employee evacuation plan
- vi) Website and/or phone/voice mail emergency messaging plan
- vii) System to account for all personnel
- viii) Stakeholder communication plan including clients, regulatory agencies, etc.
- ix) Media communication plan
- x) Training and summary booklets/brochures/cards



15 min



Step 7

You have worked tirelessly for the last two weeks and have now contained the outbreak. However, because of the outbreak, the country has been hit with an economic crisis.

1. What do you do to monitor the situation?
2. How do you evaluate to see if you handled everything in the right manner?
3. Develop/ put in place a 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?

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?
4. **When?** – What is the timeline and when will milestones be completed?
5. **Where?** – Where is the 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. The combination of these elements is referred to as the Project Management Triangle already mentioned previously and understanding the relationships between the elements helps managers make better choices and tradeoffs. These elements are often competing and termed the ‘triple constraints’ of a project. Changes in any part of the triangle impact the other parts. For example, increasing the scope typically means increased time and increased cost, or a tight schedule could mean increased costs and reduced scope, or a tight budget could mean increased time and reduced scope.



10 min



End of session Evaluation

- Create the flipchart shown below.
- Ask the class: “How did it go today?”

How did it go today?



Comments:

Session 3: Facilitator Notes

Social Styles and Self Awareness

Begin this session by doing a brief presentation on self-awareness.

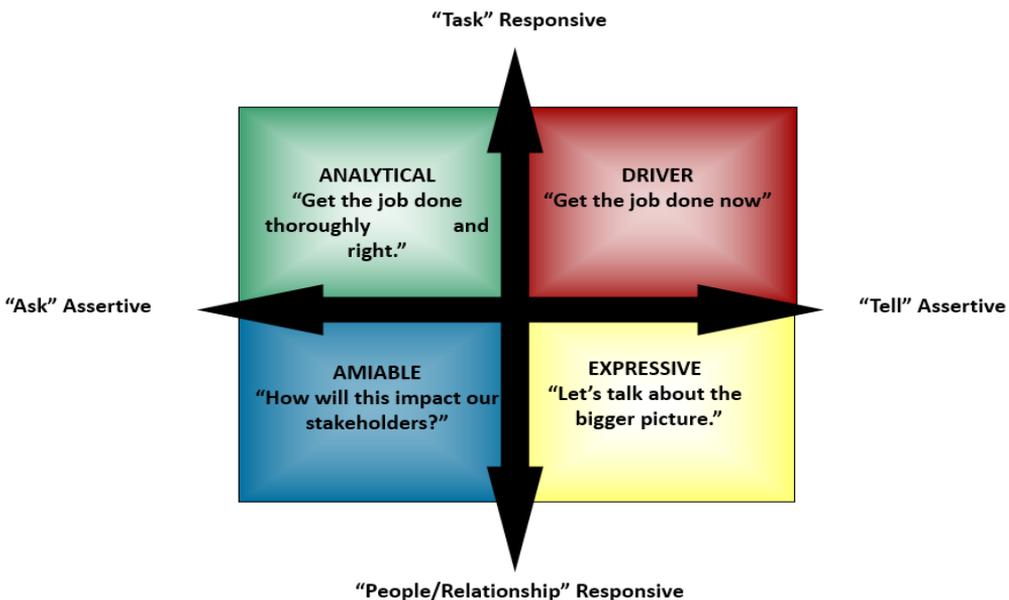
Self-Awareness: the ability to recognise and understand your moods, emotions and drives as well as your effect on others.

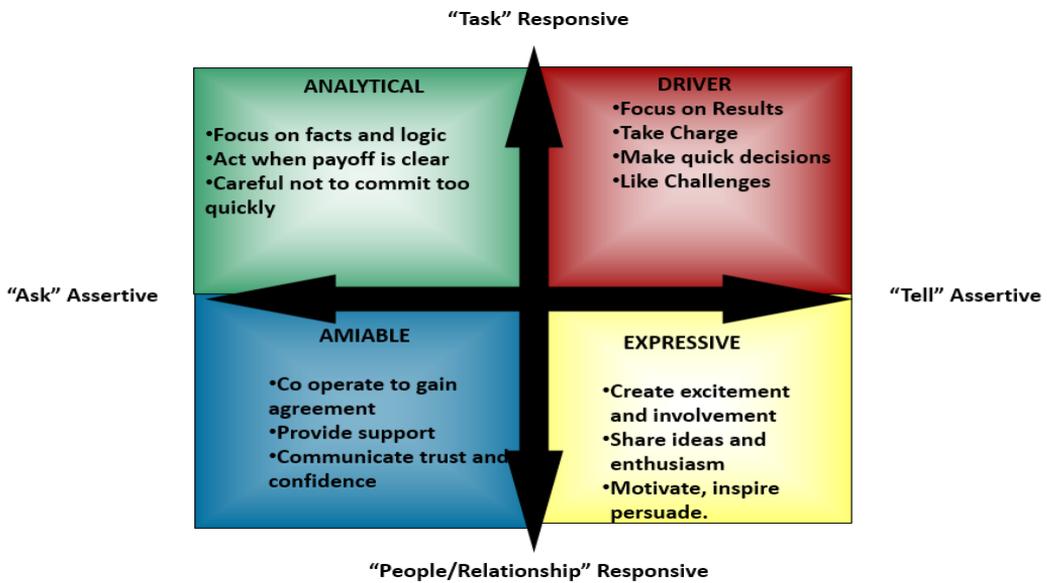
Self-Regulation: the ability to control or redirect disruptive impulses and moods: the ability to think before acting and to suspend judgement.

Empathy: the ability to understand the emotional make up of other people and to be sensitive to their emotional needs. Understanding social Styles builds our **self-awareness** around how we like to communicate, provides **clues** as to why we find some communication situations **difficult**, helps us to **appreciate difference**, equips us to **recognise different styles and to adapt to connect more effectively**.

Social Style is the *world's leading Behavioral Style model*. It has been used by thousands of organizations to improve leadership performance and sales results. SOCIAL STYLE is powerful because it's easy to understand and easy to apply with others. It makes your relationships more effective. Years of research into workplace success have shown that people are one of four SOCIAL STYLEs, each with their own preferred way of acting, thinking and making decisions. Understanding those preferences allows you to determine the best way to interact with anyone.

Each Style represents itself through people's daily interactions. At surface level, each Style is closely linked to whether an individual tends to assert himself or respond to others in social settings, and whether he tends to display emotion or secure control in group settings.





What Makes Them Tick: Social Styles – Characteristics

| | |
|---|---|
| <p style="text-align: center; color: #008080;"><u>Analyticals – The “Greens”</u></p> <ul style="list-style-type: none"> ❖ Dislike rapid change ❖ Dislike personal attention ❖ Accuracy ❖ Task focused – method and detail ❖ Serious, orderly and persistent ❖ Cautious ❖ High standards ❖ Like clear org structures ❖ Neat and tidy ❖ Decide when information is complete and have taken time to reflect | <p style="text-align: center; color: #800000;"><u>Drivers – The “Reds”</u></p> <ul style="list-style-type: none"> ❖ Tangible results ❖ Shape their own world ❖ Task focused – getting it done now ❖ Control and dominance ❖ Assess benefits and risks ❖ Emotion averse ❖ Independent and strong willed ❖ Cool, calculating and competitive ❖ Love a challenge ❖ Can be impatient ❖ Work independently ❖ Entrepreneurial |
| <p style="text-align: center; color: #000080;"><u>Amiables – The “Blues”</u></p> <ul style="list-style-type: none"> ❖ Relationships ❖ Build trust ❖ Personal worth measured by response from others ❖ Supportive, approachable ❖ Aggressive behavior switches them off ❖ Steady, agreeable ❖ Relaxed ❖ Decide after careful consideration ❖ Change in small doses ❖ Criticism and conflict averse ❖ Informal and welcoming | <p style="text-align: center; color: #808000;"><u>Expressives – The “Yellows”</u></p> <ul style="list-style-type: none"> ❖ Acknowledgement and recognition ❖ Fast-paced manner ❖ Relationship driven ❖ Like to join in ❖ Enjoy visibility ❖ Visionaries ❖ Enthusiastic, charismatic ❖ Optimistic - glass is half full ❖ Detail averse ❖ May jump to conclusions ❖ Like open friendly environments ❖ Quick to say yes to an exciting opportunity |

Social Style Questionnaire

Behavioural Inventory guidelines: The questionnaire gives you **eighteen pairs of statements**, each with a numbered box.

Choose the statement in each pair that you think most accurately expresses how other people see you at work. If you think that neither reflects how you come across to others, choose the one that more closely

describes how others perceive your behaviour. On some items you may think some people would see you as described by one statement while others might see you as described by the other statement. For those items, select the statement that represents how a majority might view you.

Each statement has a word in it that suggests a comparison: more, less, fewer etc. In each case, think in terms of “more than”, “less than”, “fewer than” half the population.

Example

Indicate your choice by drawing an X in the white box to the left of the statement in each pair that best describes how you think others see you. Be sure to select one statement from each of the pairs.

| | 1 | 2 | 3 | 4 | Statement |
|---|---|---|---|---|--|
| 1 | X | | | | More likely to lean backward when stating opinions |
| | | | | | More likely to sit up straight or lean forward when stating opinions |

| | 1 | 2 | 3 | 4 | Statement |
|---|---|---|---|---|---|
| 1 | | | | | More likely to lean backward when stating opinions |
| | | | | | More likely to sit up straight or lean forward when stating opinion |
| 2 | | | | | Less use of hands when talking |
| | | | | | More use of hands when talking |
| 3 | | | | | Demonstrates less energy |
| | | | | | Demonstrates more energy |
| 4 | | | | | More controlled body movement |
| | | | | | Less controlled body movement |
| 5 | | | | | Less forceful gestures |
| | | | | | More forceful gestures |
| 6 | | | | | Less facial expressiveness |
| | | | | | More facial expressiveness |

| | | | | | |
|----|---|---|---|---|---|
| 7 | | | | | Softer spoken |
| | | | | | Louder voice |
| 8 | | | | | Appears more serious |
| | | | | | Appears more fun-loving and casual |
| 9 | | | | | More likely to ask questions |
| | | | | | More likely to make statements |
| | 1 | 2 | 3 | 4 | Statement |
| 10 | | | | | Less inflection in voice |
| | | | | | More inflection in voice |
| 11 | | | | | Less likely to exert pressure for action |
| | | | | | More likely to exert pressure for action |
| 12 | | | | | Less likely to show feelings / emotions |
| | | | | | More likely to show feelings / emotions |
| 13 | | | | | Less comfortable expressing opinions |
| | | | | | More comfortable expressing opinions |
| 14 | | | | | More task-oriented conversations |
| | | | | | More people-oriented conversations |
| 15 | | | | | Slower to address / resolve problem situations |
| | | | | | Quicker to address / resolve problem situations |

| | | | | | |
|----|--|--|--|--|---|
| | | | | | More oriented toward facts and logic |
| 16 | | | | | More oriented toward feelings and opinions |
| | | | | | Slower paced |
| 17 | | | | | Faster paced |
| | | | | | Less likely to use small talk or tell stories / anecdotes |
| 18 | | | | | More likely to use small talk or tell stories / anecdotes |

SCORING

When you have completed the questionnaire, please **add up the total number of Xs in each column** from both pages and enter in the TOTALS space provided below: (**max total = 9**)

TOTALS

| Column 1 | Column 2 | Column 3 | Column 4 |
|---------------------|-------------------|--------------------|----------------------|
| <i>The "Greens"</i> | <i>The "Reds"</i> | <i>The "Blues"</i> | <i>The "Yellows"</i> |

Rank order your colours (highest to lowest)

First colour:

Second colour:

Third colour:

Fourth colour:

Panic in Rwanda Case Study

In Rwanda, Herdsmen frequently graze their animals in the Akagera national park. As a result, their cows are attacked by wildlife specifically lions. This constantly causes conflict between the communities and wildlife park management. In many incidents when domestic animals are killed, the farmers respond by using furadone, a pesticide to poison the wild animals. In one such incident, when a farmer's cow was killed he was layered the dead animal with furadone. The following day there were dead carcasses of lions, and hyenas. A few days later many scavenger birds like vultures were found dead. Tourists going through the park found very many dead vultures and immediately panicked and reported it to the game warden as possible cases of avian influenza. Since it coincided with a worldwide outbreak of avian influenza, newspapers magnified the story. Rwanda depends very heavily on the tourism industry and any mention of influenza was immediately going to stall the country economically. Politicians and high-level government officials mobilized a team and sent them to investigate and to work with the community. This incident led to the extinction of the lion in Rwanda.

Analytical Questions

1. Discuss human wildlife conflict in Rwanda and in the other East African countries.
2. What are the effects of the pesticides on the animals, humans and environment?
3. Considering the information provided by the tourists and how it affected Rwanda, how would you communicate or control flow of information in this scenario?
4. What kind of team should be mobilized to respond to this emergency and to work with the community?
5. With an international crisis of avian influenza, how should the Rwanda team manage this situation?
6. How does the extinction of the lion affect the ecosystem?
7. What interventions would be used in this situation?
8. What is the role of the community and how should they be involved?

Session 4 Simulation: Gender-Sensitive Emergency Response Planning and Communication

Session Overview

This session focuses on gender sensitive emergency response planning. The session takes the approach of student-based-learning, facilitating participants to reflect on the relevance and gaps of what they do daily in managing disease pandemics. The rest of the day will engage participants in simulation exercise in which participants will be expected to construct a visual of their plan engaging either the community or stakeholders. This will require participants to be innovative and come up with exciting and new ideas on how to present their plan to the community.

Session Learning Objectives

Participants will be able to:

- i) create and implement gender-sensitive disease outbreak emergency response plans across all phases (e.g., preparation and planning, detection and risk assessment, response, and evaluation) of a response.
- ii) advocate for One Health change.

| Schedule | Topic/Activity | Learning Activity | Materials |
|----------------------|---|-------------------|--|
| 8:00 - 9:00 | Registration | | Sign in sheet |
| 9:00 - 9:15 | Introduction to Day Four | | |
| 9:15 - 10:15 | Fundamental principles of gender-sensitive emergency response planning in disease outbreaks | Plenary Session | PowerPoint |
| 10:15 - 10:30 | Tea Break | | |
| 10:30 - 11:30 | Advocacy | Group Activity | PowerPoint presentation and Group Activity |
| 11:30 - 1:00 | Simulation exercise and first presentation | Group activity | Activity |
| 1:00 - 2:00 | Lunch | | |
| 2:00 - 3:00 | Simulation exercise | Group activity | Internet Access |
| 3:00 - 3:15 | Tea Break | | |
| 3:15 - 4:30 | Simulation exercise | Group Activity | |
| 4:30 - 4:45 | Summary of simulation | Plenary Session | |
| 4:45 - 5:00 | Evaluation of the day | Plenary Session | Evaluation Chart |

Detailed Facilitator Notes

| Time | Activity/Topic | Facilitator Instructions |
|---|--|---|
|  10 min | Registration | Have participants sign the OHCEA attendance register |
|  15 min | Introduction to Emergency Response Planning | <p>This morning focuses on gender sensitive emergency response planning that is both efficient and effective in planning properly for men and women, boys and girls, young and old. Participants will be able to develop emergency plans along the following scenarios.</p> <ul style="list-style-type: none"> i) preparation and planning ii) detection and risk assessment iii) response iv) evaluation |
|  | Fundamental Principles of Gender-Sensitive Emergency Response Planning in Disease Outbreaks | <p>Present an interactive lecture (PPP No. 8) covering:</p> <ul style="list-style-type: none"> i) What is emergency response planning? ii) The fundamentals of emergency response planning in disease outbreaks iii) Key steps in outbreak response intervention preparedness iv) Challenges encountered during emergency response planning in infectious disease outbreak |

One Health Policy and Advocacy


45 min

Introduction to Policy and Advocacy



The WHO defines health policy as “decisions, plans, and actions that are undertaken to achieve specific health care goals within a society. An explicit health policy can achieve several things: it defines a vision for the future which in turn helps to establish targets and points of reference for the short and medium term. It outlines priorities and the expected roles of different groups; and it builds consensus and informs people.” A regulation provides the specific rules for implementing a policy.

One Health policy is defined as the rules and regulations governing One Health related issues. Policy change is a shift in the rules that allows for new ways of doing things such as using a multidisciplinary approach and looking at health from an integrated perspective with a focus on humans, animals and environments.

One Health Advocacy can be defined as a key means of promoting favorable policy change by influencing decision makers and other stake holders to endorse or implement policies that contribute to improving One Health. Advocacy is a way to change both the existing policy rules and resource allocation decisions of governments and private institutions. In this section, we will briefly discuss advocacy issues related to increasing awareness of One Health and emerging pandemics. Present a brief lecture on advocacy.



30 min

What has been the Driving Need for One Health Policy?



Through a brainstorming session with the participants, identify events or activities that are driving the One Health and policy debates over the past few years. The discussion should include issues such as Emerging and re-emerging diseases such as pandemic influenza, Antimicrobial resistance, Global warming and climate change, Globalization and travel, Disease outbreaks such as Ebola and Zika virus, bioterrorist threats, environmental disasters, Global health Security

Watch the video: Killer outbreaks: deadly animals among us. A story of the spread of monkey pox, a deadly virus through the purchase of pet rats infected with the virus in the mid-west of the United States.

Discuss this video with the participants and have them identify specific areas that would require policy changes.

- What do they think should be done?
- What policies should be put in place?
- What agencies should be responsible for the implementation of these policies?

Process of Advocating for Change: There are two major phases of advocacy: the steps that make change happen and the places where the decisions are made.



30 min

Video Case Study: Killer Outbreaks: Deadly Animals Among Us



20 min

Advocating for Change



Advocacy World



The advocacy template from :.....

Step 1: Getting the facts-Research and data collection

Provide participants with the article: **Case for reducing the cost of HIV drugs to zero**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1122133/pdf/214.pdf>



60 min

Four steps of advocating for One Health Policy



In the 90s the world was plagued by AIDS especially in the Africa. Antiretrovirals existed but the cost was prohibitive for all the poor and dying in Africa until a team of advocates using facts and data decided to take on the big organizations and the drug companies to campaign for free drugs for people with AIDS across the world. This was one of the most successful campaigns ever done but they had facts and data to back them up.

Discuss this article in class. Let participants come up with other areas where they had an issue and either had the facts and data to back them up or did not- and what the outcome was.

Getting the Facts on Lead

In 1992, PodeR, a grassroots group organizing families for environmental and economic justice in the Mission district of San Francisco, realized that many children were suffering from lead poisoning. They did research and found studies that showed lead-based paints were often the cause of lead poisoning in children and that many homes in the Mission district were older and contained lead-based paint. Using this information, along with other data and local surveys, they were successful in getting a comprehensive environmental lead Poisoning Prevention law and program for all of San Francisco.

Activity 1: In 4 groups identify a One Health issue that you wish to advocate for. Decide as a group what you need to focus on. Spend the next 30 minutes identifying facts and data to back up your argument. The information can be found in books newspapers, periodicals, articles, the Internet, government reports and documents or organizations and individuals, academic sources and data sources.

The questions that need to be addressed include:

- i) Who is being hurt/ or what needs to be changed; figures and numbers are important.
- ii) How are they being hurt/describe the problem?
- iii) How serious and widespread is it?
- iv) What are the consequences if left unattended?
- v) How is the community affected?
- vi) Why does the issue matter?

Video on Advocacy



Step 2: Building support-organization and coalition building

Individuals can be successful but it is always better to have a coalition of people with the same goals. The One Health movement has a great coalition now with big organizations like USAID, and WHO supporting it. Coalition building must be done to get groups working together towards the same goal.

Activity 2: Have participants identify the teams of people they think can support them in their cause. Identify important members of the media and social media who can support your cause. If the organization involves a diverse group of organizations and individuals, the media and public will perceive it as there being a broad consensus on the problem and therefore pay attention to it.

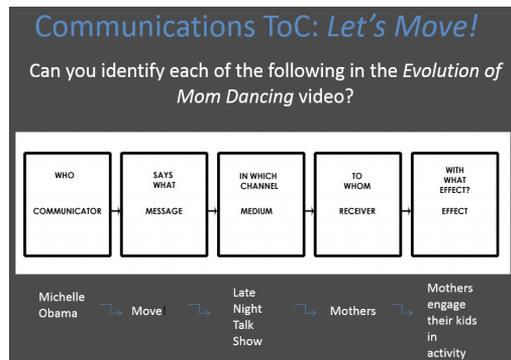
Step 3: Plan: Develop goals and strategies. Developing goals and strategies allows you to define where you are going and how you want to get there. You require a plan to get from the problem to the solution.

Activity 3: Groups should make a plan and lay out a strategy for their campaign. The plan should include the following:

- i) A clearly defined problem
- ii) A clearly defined solution and interim goals
- iii) An assessment of resources
- iv) A clear strategy

Step 4: Communicate your message-inform the public and decision makers. The key to this part is making sure you communicate your message in a way that facts are understood and believed and can move the people to action and make sure you are targeting the right audience.

Watch the following YouTube video of Michelle's Obama and Jimmy Fallon's the evolution of mom dancing which changed Mrs Obama's *Let's Move Campaign* because of her target audience.



Activity 4: Create your message. Create an advocacy message for your One Health issue. Keep in mind the following four foundations:

- i) You must offer accurate facts and respected analysis.
- ii) You must present a broadly acknowledged value.
- iii) You must tell a simple and compelling story - Frame the issue.
- iv) You must reach the right audience.

Each group should present their message to the plenary for discussion. Other team members should analyze to make sure they have included all the issues mentioned above.

If your campaign is successful, someone has to take on the burden of turning it into legislation and that is still a long process so continuous follow up must be done.

Watch the video on *am just a bill*

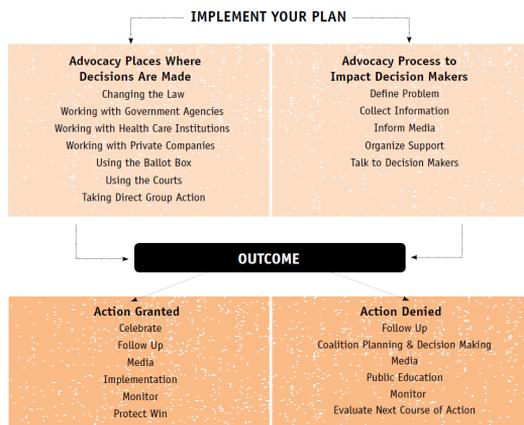
<https://www.youtube.com/watch?v=tyeJ55o3El0>

Identify any of the institutions that you need to work closely with. The outcome can be successful or not but in either case change has happened and there was impact.



20 min

Advocacy places where decisions are made



Adopted from:

Advocating for Change | Understanding How to Impact Health Policy
 Written by Harry Snyder, with assistance from Matt Iverson
 Copiedited by Lisa Black Designed by Lane + Lane

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View the following videos

Video: Rabies Advocacy

Select one of the videos from the list below.

- Her Royal Highness Princess Haya with OIE Against Rabies [at http://www.youtube.com/watch?v=XjbBeie2G7I](http://www.youtube.com/watch?v=XjbBeie2G7I)



30 min

Rabies Advocacy Video



- No More Deaths from Rabies at <https://www.youtube.com/watch?v=qoBumMaDr3g>
- Fighting Rabies in Asia at http://www.youtube.com/watch?v=RS4_38sZF3w&feature=c4-overview&list=UUYWwT1w9Yv2qpKChz9Hoomg

Debrief the video:

1. Ask four or five participants to share an experience when an individual or organization advocated on their behalf about a health issue and changed a dynamic in their lives. How did it feel to have someone advocate for them?
2. Ask four or five participants to share their experiences when they had opportunity to advocate for someone about a health issue. What were the challenges and how did they overcome them? How did they feel advocating for someone?
3. How did the community perceive their advocacy?
4. Discuss how to advocate for One Health- (for more info on this, refer to Policy and Advocacy module).

Debrief the Video



Simulation Exercise



200 min

Using a Simulation to Integrate Course Concepts, Skills and Knowledge



Simulation Exercise

1. The rest of the day will be spent developing a simulation exercise. The participants will form 4 groups.
2. Preparation team
3. Detection- (surveillance)
4. Response
5. Post emergency response and evaluation

STEPS IN CONTAINING A DISEASE OUTBREAK



A simulation is a tool used for the reproduction of an event and analysis of its results 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 an emerging pandemic threat.

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

In this module, we are using a simulation to integrate skills and knowledge across the domains of One Health and emerging pandemics:

In this training, we are using a simulation to integrate skills and knowledge across the domains of:

- i) One Health
- ii) Infectious disease/Emerging pandemic threat response
- iii) Systems thinking
- iv) Leadership and management
- v) Gender analysis
- vi) Risk communication

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 epizooties.
- iv) work on multi-disciplinary teams. coordinate actions across sectors.
- v) communicate clear and consistent messages to multiple audiences.



15 min



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

Begin by Presenting the Following Scenario

There is a report that Maria, a woman who sells bush meat in Kibera market died three days ago of what is suspected to be an infectious disease. As of today, 7 other women traders and 15 members of their families have died with Ebola like symptoms. 47 other people are reportedly sick and being taken care of in their homes or admitted to the district hospital.

One of the sick women is the senior business trader who goes to bring meat from DRC- in fact she fell ill while in DRC and is being treated there by families and friends. The disease seems to be spreading rapidly in Kibera. You are part of the response team.

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 and response team and post emergency and evaluation team.

The following are the key points to consider when brainstorming. Target the following questions:

1. Information gathering and management
 - ◇ How do you ensure an appropriate mix in an assessment team and how do you ensure that you are consulting with all the required parties?
 - ◇ How do you ensure post assessments capture relevant data by sex, age, disability and vulnerability?
2. Information sharing and communication
Provide technical support to ensure that information and communication flows to all groups in the community.
3. Capacity building:
 - ◇ What existing knowledge among your community members can you build on or enhance...
 - ◇ What copying strategies can you identify among the different groups and how do you use this to be more effective. How do you facilitate the community to become self-sustaining /create and implement a disaster management plan?
 - ◇ How do you help train and build the capacity of key stakeholders and implementing partners?
 - ◇ How do you ensure the capacity building efforts are gender balanced and sustainable?
4. Resource mobilization
 - ◇ 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?
 - ◇ How do you evaluate to see if you handled everything in the right manner?
 - ◇ What are the key challenges facing this community and the country after the outbreak has been contained?



45 min



20 min



Step 1

Using flip charts and sticky notes map out a plan of action including the personnel and resources you will need in your group. Put resources and personnel and action items on the left side of one flip chart and on the right, indicate how you will make the process gender sensitive by responding to the above questions. Present this to the plenary. Each group has 10 minutes to make a presentation.

Step 2

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



75 min



Step 3

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



30 min



Step 4

Each group will be allowed 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 able 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?
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.



As each group's response and action need to build on the work of the following group, it is important that during the debrief, the facilitator reviews the presenting team's performance and gives feedback ensuring that participants know what the complete and accurate actions should be.

Session 4: Facilitator notes

Preparation Team

- i) Form a gender balanced Outbreak Technical Committee (OTC). The team should have at least one member of opposite sex.
- ii) All sectors directly affected by Avian Influenza must be represented on the team (Veterinary, Health, Wild life, Security, Media, Community Development/Gender expert, Community leader/Politician, Development Partners.
- iii) Hold outbreak coordination meetings chaired and co-chaired by Commissioner for Health and Commissioner of Veterinary Services respectively.
- iv) Put in place a surveillance system: weekly reports to Ministry of Health, Ministry of Animal Industry, WHO, OIE and FAO.
- v) Develop and outbreak response plan: resources, skills and activities required.
- vi) Stockpiles: sampling kits, chemicals, drugs and vaccines.
- vii) Develop contingency plans for isolation wards in hospitals, and quarantine of poultry.
- viii) Put in place laboratory support.
- ix) Planning for zoonotic disease out breaks ought to be carried out within the frame-work of one health with deliberate efforts to consider:

The following are important in outbreak response planning/preparation:

- i) Formation of a cross-sector, national coordination team
- ii) Coordination meetings
- iii) Surveillance system- daily outbreak reports
- iv) A profile of the resources, skills and activities required
- v) Stockpiles the necessary drugs/vaccines
- vi) Contingency plans for isolation facilities
- vii) Laboratory support
- viii) Components of a coordination team
 - Surveillance
 - Training/capacity building
 - Infection prevention and control
 - Diagnostic laboratories
 - Communication plan
 - Logistics and finance
 - Written response plan
 - Evaluation and post emergency coordination

Detection Team

- i) From the preliminary laboratory sample reports and circumstantial evidence, the outbreak technical team has been convinced that there is an outbreak of HPAI in the country, and thus they recommend the concerned sectors to constitute a field detection team immediately. The field detection team will be directly reporting to the OTC.
- ii) The Field detection team is formed consisting of the relevant experts of Veterinarian, Medical doctor, Nurse, Wild life expert, disease anthropologist/socio-economist, laboratory technologist, and communication expert. Generally, the team is composed of the surveillance team which is led by the District Surveillance officer (DSO), the case

management team led by a Clinician, Data management team led by a biostatistician, coordination team to oversee the overall outbreak, social mobilization team led by a community worker/social worker and the psychosocial support team.

- iii) The team sets out to the field to collect interview responses and laboratory samples from poultry and human beings with suspected clinical signs.
- iv) The team must be gender balance and must deliberately include female respondents
- v) The samples are submitted to the laboratory.
- vi) Tests are carried out and report written and submitted to the OTC.

The detection and risk management team should establish the following:

- i) A surveillance system
- ii) Early warning system
- iii) Contact tracing
- iv) Who the key stakeholders are
- v) Informal/formal communication channels
- vi) Resources and tools
- vii) Laboratory resources: regional, international
- viii) Timeline for different activities

Response Team

- i) The outbreak Technical Team recommends formation of a response team.
- ii) The response team consists of expert members from the relevant sectors (veterinary, medical, nurse, wild life, laboratory personnel, psych social experts, social workers, gender/community development expert, communication expert, community leader, and international organizations (e.g., FAO and WHO)
- iii) The response team must consist of at least a member of opposite sex to avoid gender insensitive conclusions and decisions.
- iv) The response team studies the reports (both laboratory and field reports) to confirm Avian influenza.
- v) The number of cases highly points to the outbreak of Avian influenza.
- vi) Clinical specimens are dispatched to CDC laboratories for confirmation.
- vii) The response team counts number of cases and determines size of population to calculate attack rate.
- viii) Analyze descriptive data to date e.g. time/date of onset, place/location of cases and individual characteristics such as age and sex.
- ix) Determine the at-risk population (This must be age and gender disaggregated)
- x) Formulate hypothesis for pathogen/source transmission
- xi) Follow up cases and contacts
- xii) Produce a report (Results and recommendations for action)
- xiii) Discuss the report with the OTC.
- xiv) Implement control and prevention measures specific for the disease (press releases, public education messages radio and TV talk shows, memos from the Ministry headquarters to District Directors of health, Commissioner of Veterinary Sciences to DVOs.
- xv) Institute quarantine of poultry.
- xvi) Produce bio-securities SOPs to be used on farms.

- xvii) After the disease is seemingly under control, e.g., no reports of new cases, the OTC recommendation for the formation of an evaluation team.

The response team should:

- i) activate the outbreak control team.
- ii) train the different stakeholders.
- iii) advocate for gender responsiveness.
- iv) investigate/ approve the tools to be used during the response.
- v) contain the outbreak with minimal resources.
- vi) lay down the roles of the different stakeholders.
- vii) coordinate daily meeting during the outbreak.
- viii) control the outbreak.

Evaluation Team

- i) It consists of at least one of the following experts: veterinarian, medical doctor, nurse, wild life expert, community development expert, media expert, epidemiologists and public health specialists.
- ii) The team assesses the appropriateness of containment measures.
- iii) Assess timeliness of outbreak detection and response.
- iv) Assesses the preparedness of the country as far as the disease is concerned.
- v) Assesses the effectiveness of the various teams in terms of gender composition and OH compliance.
- vi) Writes and disseminates the outbreak report, declaring the status of the disease and recommendations where necessary for future implementation.

The evaluation team should:

- i) assess appropriateness and effectiveness of containment measures.
- ii) review, monitor and evaluate response strategies/measures.
- iii) assess timeliness of outbreak detection and response.
- iv) change public health policy if indicated.
- v) write and disseminate outbreak report.
- vi) develop/formulate post emergency response strategy.

Bringing it All Together: Evaluation



15 min

Self-Evaluation



1. Refer participants to the self-evaluation in their guidebook.
2. Ask them to rate how effective they were in:
 - ◇ communicating to their team.
 - ◇ using gender analysis.
 - ◇ being a one health team member.



45 min

Team Evaluation



1. Have participants get back into their simulation groups and complete the team evaluation in their guidebook.
2. Tell participants that as a team, they need to come to consensus on how effective they were:
 - ◇ as a team.
 - ◇ using gender analysis.
 - ◇ using a One Health perspective.
 - ◇ Each team should be prepared to share their responses to the open-ended questions at the end of the team evaluation.
 - ◇ What the team did well in the response and areas that were challenging.
 - ◇ Anything as a team you would do differently the next time they are responding to an emerging pandemic threat?
 - ◇ How you might use the learnings from the simulation in your work.



Sharing the Learning

In plenary have the teams take three minutes to share:

1. what the team did well and what the team found challenging.
2. anything the team would do differently the next time they are responding to an emerging pandemic threat.

- How team members see using learnings from the simulation in their work.



15 min



Post Test



1. Handout post-test.
2. Tell participants they have 30 minutes to complete the post test.
3. If they finish early, ask them to remain quiet until everyone is done.



30 min



15 min

Closing Session and Course Evaluation



Have participants form a circle and ask each one of them to say in one or two words something they liked about the course and something they felt should have been included.

1. Pass out certificates.
2. Pass out OHCEA event evaluation.
3. Tell participants to place their completed evaluations in an envelope.
4. Seal the envelope and give the evaluations to the OHCEA course coordinator.

Summary Facilitator Notes

Background

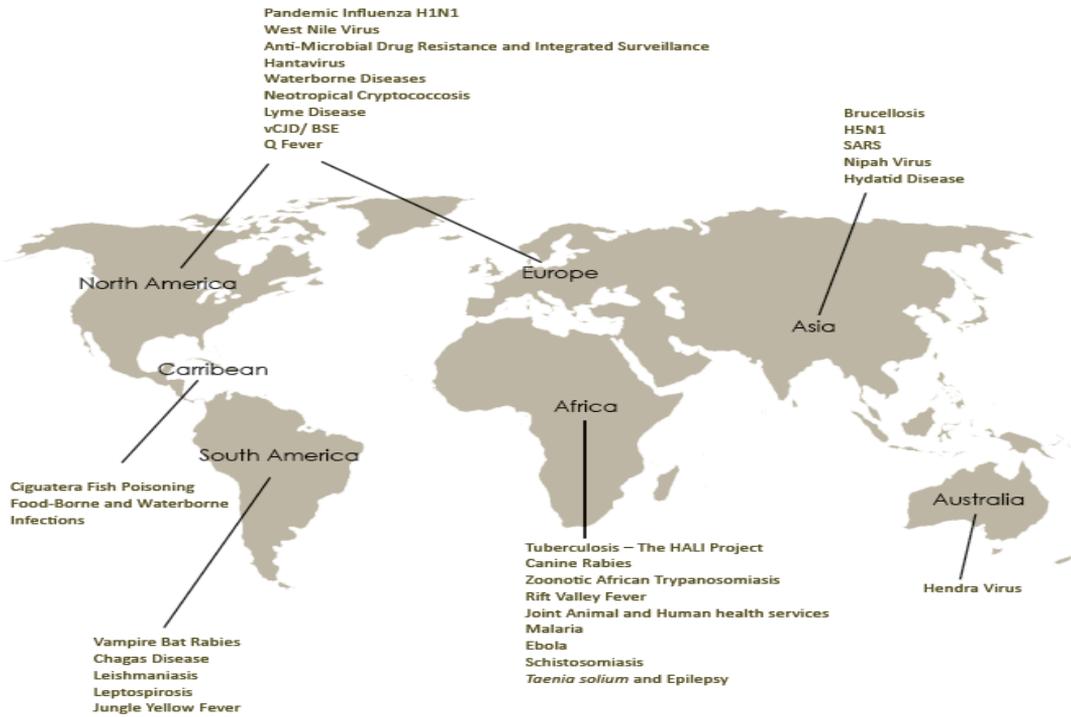
Infectious diseases of grave concern to human health are emerging from wildlife and livestock populations in regions of the world where boundaries between human, wildlife and livestock populations are undergoing rapid change. This occurs with greater frequency in tropical regions, areas with limited resources for disease prevention and control. Among recent examples, the Ebola outbreak in West Africa and avian influenza may have posed the greatest threat to public health, but recent outbreaks of Ebola in Uganda and DRC, monkey pox in the DRC, Yellow Fever in Uganda, and Nipah virus outbreaks in Southeast Asia are an indication that these are of global importance.

Most capacity building efforts to identify, investigate and respond to public health threats have focused on supporting public health agencies. However, responding effectively to these threats requires engagement of and coordination with a diversity of professions and stakeholders in both human and animal health, as well as social and environmental sciences.

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. Infectious diseases continue to threaten the well-being of the world, and there is an opportunity to more successfully counter these threats in the future through a more strategic cross- sectoral approach to global health preparedness. There is sufficient evidence and lessons learned that no single sector or department can sufficiently manage the challenges of public health in any country, region or continent. Lessons learned from the fight against highly pathogenic and pandemic influenza in the past few years demonstrated the effectiveness of multi-sectoral, multi-agency approaches that are not limited by national or regional borders in dealing with infectious disease epidemics and pandemic 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. There is need to advance the One Health agenda beyond the theoretical to the practical, bringing much needed attention to policy and operational issues that ultimately determine the impact and success of cross-sectoral efforts. This section will enable participants to acquire the knowledge, skills and transformation of attitudes to apply and promote the One Health (OH) approach in addressing health challenges at national and regional levels.

Aim of One Health

To improve health and well-being through the prevention of risks and the mitigation of effects of crises that originate at the interface between humans, animals and their various environments. For that purpose, there is need to promote a multi (cross) sectoral and collaborative approach as well as a “whole of society” approach to health hazards, as a systemic change of perspective in the management of risk. One Health is more of an approach than a new concept. It is rapidly becoming an international movement based on cross-sectoral collaborations.



The benefits of One Health

The benefits of a One Health approach include:

1. Improving animal and human health globally through collaboration among all the health sciences, especially between the veterinary and human medical professions to address critical needs
2. Meeting new global challenges head-on through collaboration among multiple professions—veterinary medicine, human medicine, environmental, wildlife and public health
3. Developing centers of excellence for education and training in specific areas through enhanced collaboration among colleges and schools of veterinary medicine, human medicine and public health
4. Increasing professional opportunities for multiple professionals as well as adding to our scientific knowledge to create innovative programs to improve health

INTERDISCIPLINARY APPROACH



Definition of one Health: Regardless of which of the many definitions of One Health is used, the common theme is collaboration across sectors. Collaborating across sectors that have a direct or indirect impact on health involves thinking and working across silos and optimizing resources and efforts while respecting the autonomy of the various sectors. To improve the effectiveness of the One Health approach, there is a need to establish a better sectoral balance among existing groups and networks, especially between veterinarians and physicians, and to increase the participation of environmental and wildlife health practitioners, as well as social scientists and development actors.

AVMA definition: One Health is the collaborative effort of multiple disciplines working locally, nationally, and globally to attain optimal health for people, animals, and the environment. The more recent use of One Health may be traced to a story about Ebola hemorrhagic fever on April 7, 2003, when Rick Weiss of the Washington Post quoted William Karesh, DVM as saying, “Human or livestock or wildlife health can’t be discussed in isolation anymore. There is just one health. And the solutions require everyone working together on all the different levels. The following year, Karesh and colleagues Robert Cook, VMD and Steve Osofsky, DVM launched a series of conferences around the world with the theme of One World - One Health.

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 balance 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. It is now a movement and it is moving fast. 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 five international One Health scientific congresses, the last of which took place in Saskatoon, Canada in June 2018.

Historical context: OH is a well-grounded and thought out process that has grown in recognition over time, from Hippocrates to the middle ages. The recognition that environmental factors can impact human health can be traced as far back as to the Greek physician Hippocrates (c. 460 BCE – c. 370 BCE) in his text “On Airs, Waters, and Places”. He promoted the concept that public health depended on a clean environment. In 1940’s the first VPH service established in USA. Initial concept forwarded Schwabe in 1960’s – One medicine. WCS – One World One Health in early 2000’s to involve wildlife and environment. 2005 HPAI pandemic lead to recognition of value of collaboration in health fields. Subsequent international meetings led to the adoption of One Health Concept, which have been further advanced into subsequent action plans by various organizations; WHO/OIE/FAO tripartite agreements.

One Health is a relatively new term, although the thinking behind it is not. Its global prominence has been growing in the past decade. For example, in 2007 representatives of 111 countries and 29 international organizations met for the International Ministerial Conference on Avian and Pandemic Influenza. During this meeting, governments were encouraged to further develop the One Health concept by building linkages between human and animal health systems for pandemic preparedness and human security.

In 2009 a One Health Office was established at The Centers for Disease Control (CDC). The CDC now uses a One Health approach by working with physicians, ecologists and veterinarians to monitor and control public health threats. Their focus is on learning about how diseases spread among people, animals and the environment.

In 2011 the first International One Health Congress was held in Australia. Delegates from 60 countries and a range of disciplines came together to discuss the benefits of working together to promote a One Health approach. In addition to understanding the interdependence of human, animal and environmental health, attendees agreed that it was important to include other disciplines such as economics, social behavior and food security and safety.

Although One Health is a new phrase, the concept extends back to ancient times. The recognition that environmental factors can impact human health can be traced as far back as to the Greek physician Hippocrates (c. 460 BCE – c. 370 BCE) in his text “On Airs, Waters, and Places” He promoted the concept that public health depended on a clean environment. The Italian physician Giovanni Maria Lancisi (1654–1720) was a pioneering epidemiologist, physician, and veterinarian, with a fascination in the role the physical environment played in the spread of disease in humans and animals. Lancisi may have been the first to advocate for the use of mosquito nets for prevention of malaria in humans [4] but was also a pioneer in the control of rinderpest in cattle. The idea that human, animal and environmental health is linked was further revived during the French Revolution by Louis-René Villerme (1782–1863) and Alexandre Parent-Duchâtelet[fr] (1790–1835) who developed the specialty of public hygiene.^[5]

In the late 19th century, German physician and pathologist Rudolf Virchow (1821–1902) coined the term “zoonosis”, and said “...between animal and human medicine there are no dividing lines – nor should there be”. Canadian physician William Osler (1849–1919) traveled to Germany to study with Virchow. He returned to Canada and held joint faculty appointments at the McGill University Medical School and the Montreal Veterinary College.^[6] Osler was active as a clinical

pathologist and internist at the Montreal General Hospital, but was also active in the promotion of veterinary health, and helped investigate a swine typhoid outbreak near Quebec City in 1878;^[7] he subsequently co-authored a monograph on parasites in Montreal's pork supply with A. W. Clement, a veterinary student at Montreal Veterinary College.^[8]

In 1947, veterinarian, James H. Steele, furthered the concept in the USA by establishing the field of veterinary public health at the CDC.^[9] The phrase "One Medicine" was developed and promoted by Calvin W. Schwabe (1927–2006), a veterinary epidemiologist and parasitologist in his textbook "Veterinary Medicine and Human Health". In 1996, Gary M. Tabor, Alonso Aguirre, Mary Pearl, David Sherman, Mark Pokras, Eric Chivian, Paul Epstein and Gretchen Kauffman launched the Conservation Medicine: Ecological Health in Practice effort (Consortium for Conservation Medicine) with the Cummings School of Veterinary Medicine at Tufts University, Harvard Medical School's Center for Health and the Global Environment and Eco Health Alliance (formerly Wildlife Trust), with an institutional focus linking human, animal and ecological health.^[11]

"One Health" was mentioned in a story about Ebola hemorrhagic fever on April 7, 2003, when Rick Weiss of the Washington Post quoted William Karesh as saying, "Human or livestock or wildlife health can't be discussed in isolation anymore. There is just one health. And the solutions require everyone working together on all the different levels".

Rationale for OH approach: Due to increasing globalization and interface between humans, livestock and wildlife, and increased global travel, the world has become one village. Many emerging health issues are linked to increasing contact between humans and wildlife, intensification and integration of food production, and the expansion of international travel. As the number of new infectious diseases emerged in the 20th century, scientists began to recognize the challenges societies face regarding these threats that largely come from animals. Of the 1,415 microbes that are known to infect humans, 61 percent come from animals. For example, rodents transmit plague and typhus to humans, and domestic livestock are the original source of crowd diseases such as measles, mumps, and pertussis. One important exception is *Mycobacteria tuberculosis*. Genetic evidence suggests that *Mycobacteria tuberculosis* originated in human populations and spread to animals. Chimpanzees were a reservoir host for the Human Immunodeficiency Virus.^[17] Global trade of wildlife exacerbates the problem of disease emergence. Pathogens are evolving and new ones are emerging. There is increasing food security and a limited access to safe food products. There is increasing habit loss and decreasing biodiversity. Therefore collaboration between sectors has been shown to be both successful and cost effective. Objective of OH approach is to create stronger more efficient integrated health systems with input from multiple stakeholders in addressing global health issues.

Scope of One Health: The scope of one health is very wide. It covers areas like Agro and bioterrorism, animal agriculture and animal science, combating existing and emerging diseases and zoonosis, biomedical research and clinical medicine, conservation medicine, diagnosis ,surveillance, control , response and recovery directed at natural and or intentional threats that are chemical , toxicological or radiological in nature, ethics, entomology food safety and security, global food and water systems, global trade and commerce, health of the environment and environmental conservation, implications of climate change, infectious disease ecology and integrated systems for disease detection, land use production systems and practice, mental and occupational health, public health , awareness and communication, support of biodiversity, wildlife promotion and conservation.

Principles of One Health: Use of a holistic systems approach in the management of health challenges. These would include: Multidisciplinary and/or inter-sectoral collaboration, sharing of resources: technical, information, structural, human, etc., promotion of transparent

communication and sharing of information between stakeholders, cooperation between the public and private sectors, unified and cooperative capacity building within the health sector.

Context of One Health in Africa: Contextual issues warranting One Health approach in Africa

Africa has a very visible human wildlife livestock interface that is linked up with its economic growth, as well as a wide utilization of wild products including bush meat. The agriculture industry and human population is expanding and encroaching on wildlife space. Climate change is impacting on the spread of infectious diseases but there is weakness in the preparedness and response across the continent. Widespread poverty and high population growth further exacerbate these issues. There is a shortage of trained professionals and inadequate political will and resources dedicated to combating health problems. There is therefore a need for increasing the focus to a One Health approach.

Definitions of Eco health, Ecosystem Health, Global Health, One Health and Environmental Health and Planetary Health

Retrieved from: The websites and organizations listed below.

Ecological Health (Eco Health)

- The 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 International Association for Ecology & Health (abbreviated as Eco Health) is a professional organization that promotes research, education and practice (including policy development) on the linkage between human health, conservation medicine and ecosystem sustainability. The specific objectives of Eco Health are to: serve a diverse international community including scientists, educators, policy makers, practitioners and the general public; provide mechanisms and forums to facilitate international and interdisciplinary discourse (e.g., through publication of the journal Eco Health and by holding biennial conferences); encourage development of trans-disciplinary teaching, research and problem-solving that cut across many fields of scholarship and draw upon multiple types of knowledge.
- 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. Eco Health Alliance specializes in saving biodiversity in human-dominated bioscapes where ecological health is most at risk because of habitat loss, species imbalance, pollution and other environmental issues caused by human-induced change. Work includes research into the discovery and causes of disease emergence such as SARS, AIDS, Lyme disease, West Nile virus, avian influenza and the deadly Nipah virus.

Eco Health Alliance researches ways for people and wildlife to share bioscapes for their mutual survival with an overall mission to empower local conservation scientists worldwide to protect nature and safeguard ecosystem and human health.

Environmental Health

- 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, as is 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.
- Environmental health is defined by the WHO as:
 - Those aspects of human health and disease that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health.
 - Environmental health, as used by the WHO Regional Office for Europe, includes both the direct pathological effects of chemicals, radiation and some biological agents, and the effects (often indirect) on health and wellbeing of the broad physical, psychological, social and cultural environment, which includes housing, urban development, land use and transport.

Global Health

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.

The major international agency for health is the World Health Organization (WHO). Other important agencies with impact on global health activities include UNICEF, World Food Programme (WFP), and the World Bank. A major initiative for improved global health is the United Nations Millennium Declaration and the globally endorsed Millennium Development Goals.

One Health

- One Health is the collaborative effort of multiple disciplines working locally, nationally and globally to attain optimal health for people, animals and our environment. (In: Barrett and Osofsky)
- One Health is the integrative effort of multiple disciplines working locally, nationally, and globally to attain optimal health for people, animals and the environment. (American Veterinary Medical Association)
- Together, the three make up the One Health triad, and the health of each is inextricably connected to the others in the triad. Understanding and addressing the health issues created at this intersection is the foundation for the concept of One Health. Recognizing that human health (including mental health via the human-animal bond), animal health, and ecosystem health are inextricably linked. One Health seeks to promote, improve and protect the health and wellbeing of all species by enhancing cooperation and collaboration between physicians, veterinarians, other scientific health and environmental professionals and by promoting strengths in leadership and management to achieve these goals.

The One Health concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans and animals. (<http://www.onehealthinitiative.com/news.php>)

One Health is a collaborative effort of multiple health science professions, together with their related disciplines and institutions—working locally, nationally and globally—to attain optimal health for people, domestic animals, wildlife, plants and our environment (One Health Commission). www.onehealthcommission.org

In 2008, four international organizations, FAO, OIE, WHO and UNICEF, along with the World Bank and UNSIC, joined forces to produce a strategic document entitled “Contributing to One World, One Health: A Strategic Framework for Reducing Risks of Infectious Diseases at the Animal–Human–Ecosystems Interface.” <http://www.oie.int/doc/ged/D6296.PDF>

Planetary Health

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 within which humanity can flourish. – Planetary Health Alliance

The One Health Approach

- i) Recognizes the interdependence of, and seeks to improve human, animal and environmental health.
- ii) Recognizes that communication, collaboration and trust between human and animal health practitioners are at the heart of the One Health concept.
- iii) Has a broad vision and includes other disciplines such as economics and social behavior that are essential to success.
- iv) Needs to promote the ‘doable,’ such as improving surveillance and response for emerging infectious diseases whilst developing the broader approach.
- v) Emphasizes community participation and development of community capacity, and especially, an open transparent dialogue.
- vi) Requires both ‘ground up’ and ‘top down’ action.
- vii) Recognizes that understanding ecosystems, including molecular ecobiology, are an essential part of One Health.
- viii) Recognizes that One Health is a major component of food security and safety.

The 12 Manhattan Principles

The document stems from a meeting held in Manhattan (New York, USA) in September 2004, hosted by the Wildlife Conservation Society, bringing together experts in various disciplines from around the world to discuss problems arising from the circulation of diseases between humans, domestic animals and wildlife. The product of the meeting was the formulation of 12 “Manhattan Principles.” These twelve principles seek to define a holistic approach to the prevention of epidemic/epizootic diseases, while maintaining the integrity of ecosystems for the benefit of mankind, our domestic animals and biodiversity,

The 12 Manhattan Principles were developed to “urge world leaders, civil society, the global health community, and institutions of science to holistically approach the prevention of epidemic/epizootic disease and the maintenance of ecosystem integrity by:

- i) Recognizing the link between human, domestic animal, and wildlife health, and the threat disease poses to people, their food supplies and economies, and the biodiversity essential to maintaining the healthy environments and functioning ecosystems we all require.

- ii) Recognizing that decisions regarding land and water use have real implications for health. Alterations in the resilience of ecosystems and shifts in patterns of disease emergence and spread manifest themselves when we fail to recognize this relationship.
- iii) Including wildlife health science as an essential component of global disease prevention, surveillance, monitoring, control, and mitigation.
- iv) Recognizing that human health programs can greatly contribute to conservation efforts.
- v) Devising adaptive, holistic, and forward-looking approaches to the prevention, surveillance, monitoring, control, and mitigation of emerging and resurging diseases that fully account for the complex interconnections among species.
- vi) Seeking opportunities to fully integrate biodiversity conservation perspectives and human needs (including those related to domestic animal health) when developing solutions to infectious disease threats.
- vii) Reducing demand for and better regulating the international live wildlife and bushmeat trade, not only to protect wildlife populations but to lessen the risks of disease movement, cross-species transmission, and the development of novel pathogen-host relationships. The costs of this worldwide trade in terms of impact on public health, agriculture, and conservation are enormous, and the global community must address this trade as the real threat it is to global socioeconomic security.
- viii) Restricting the mass culling of free-ranging wildlife species for disease control to situations where there is a multidisciplinary, international scientific consensus that a wildlife population poses an urgent, significant threat to human health, food security, or wildlife health more broadly.
- ix) Increasing investment in the global human and animal health infrastructure commensurate with the serious nature of emerging and resurging disease threats to people, domestic animals and wildlife. Enhanced capacity for global human and animal health surveillance and for clear, timely information-sharing (that takes language barriers into account) can only help improve coordination of responses among government and nongovernmental agencies, public and animal health institutions, vaccine / pharmaceutical manufacturers, and other stakeholders.
- x) Forming collaborative relationships among governments, local people, and the private and public (i.e., non-profit) sectors to meet the challenges of global health and biodiversity conservation.
- xi) Providing adequate resources and support for global wildlife health surveillance networks that exchange disease information with the public health and agricultural animal health communities as part of early warning systems for the emergence and resurgence of disease threats.
- xii) Investing in educating and raising awareness among the world's people and in influencing the policy process to increase recognition that we must better understand the relationships between health and ecosystem integrity to succeed in improving prospects for a healthier planet.

| Simulation Self-Evaluation | Not Effective | Partially Effective | Effective | Quite Effective | Very Effective | Comments |
|--|---------------|---------------------|-----------|-----------------|----------------|----------|
| Communication skills | | | | | | |
| Listened | | | | | | |
| Shared my point of view | | | | | | |
| Challenge appropriately | | | | | | |
| Ensured everyone contributed | | | | | | |
| Valued equally the opinion of men and women in my group | | | | | | |
| Gender analysis skills | | | | | | |
| Advocated for use of gender analysis/use of gender tools | | | | | | |
| Used gender-sensitive language | | | | | | |
| Ensure that women will be present and participate in the discussions/activities | | | | | | |
| One Health team member skills | | | | | | |
| Considered the interrelationships among men, women, domestic animals, wildlife and the environment | | | | | | |
| Brought to the discussion my disciplinary skills and knowledge | | | | | | |
| Solicited inter-disciplinary knowledge | | | | | | |

| Simulation Team Evaluation | Not Effective | Partially Effective | Effective | Quite Effective | Very Effective | Specific example of what they did well? | Specific example of what they did poorly? |
|---|---------------|---------------------|-----------|-----------------|----------------|---|---|
| Team Effectiveness | | | | | | | |
| Ensured everyone listen, contributed and opinions were valued | | | | | | | |
| Managed time so that reached we could create a response plan | | | | | | | |
| Utilized team member skills and strengths | | | | | | | |

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| Gender Analysis Skills | | | | | | | |
| Advocated gender tools | | | | | | | |
| Used gender-sensitive language | | | | | | | |
| Ensured that women will be present and participate in the discussions/ activities | | | | | | | |
| One Health Perspective | | | | | | | |
| Considered the interrelationships among men, women, domestic animals, wildlife and the environment | | | | | | | |
| Solicited inter-disciplinary knowledge | | | | | | | |
| Participatory including all stakeholders | | | | | | | |
| Included all relevant categories of staff | | | | | | | |
| Considered budget implications | | | | | | | |

As a team, summarize what your team did well in the response and areas that were challenging

1. Is there anything you, as a team, would do differently the next time responding to an emerging pandemic threat?
2. How can you use a simulation in your work?

Handouts

- i) Simulation scenarios for each team
 - Prepare Team
 - Detection Team
 - Respond Team
 - Evaluation Team
- ii) Post-test
- iii) OHCEA Event Evaluation

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Event Evaluation

Facilitators: _____

Dates: _____

OHCEA supported you to attend the **One Health Principles and Concepts** event. 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.
 - i) Strongly disagree
 - ii) Disagree
 - iii) Agree
 - iv) Strongly agree
 - v) Don't know
2. This event was relevant to my personal interests.
 - i) Strongly disagree
 - ii) Disagree
 - iii) Agree
 - iv) Strongly agree
 - v) Don't know
3. This event was relevant to my professional interests.
 - i) Strongly disagree
 - ii) Disagree
 - iii) Agree
 - iv) Strongly agree
 - v) Don't know
4. The information presented was new to me.
 - i) Strongly disagree
 - ii) Disagree
 - iii) Agree
 - iv) Strongly agree
 - v) Don't know
5. The amount of information provided was:
 - i) Not enough
 - ii) About right
 - iii) Too much
6. This event helped clarify my understanding of "One Health."
 - i) Strongly disagree
 - ii) Disagree

- iv) Agree
- v) Strongly agree
- vi) Don't know

7. The pre-event logistics were well organized.

- i) Strongly disagree
- ii) Disagree
- iii) Agree
- iv) Strongly agree
- v) Don't know

8. The event itself was well organized.

- i) Strongly disagree
- ii) Disagree
- iii) Agree
- iv) Strongly agree
- v) Don't know

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

- i) Strongly disagree
- ii) Disagree
- iii) Agree
- iv) Strongly agree
- v) Don't know

10. I intend to take actions in my work as a result of what I learned at this event.

- i) Strongly disagree
- ii) Disagree
- iii) Agree
- iv) Strongly agree
- v) Don't know

11. Describe what, if any, actions you will take in your work as a result 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?

- i) Yes
- ii) No

16a. If yes, what was the topic of your presentation?

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

- i) Nursing
- ii) Human Medicine
- iii) Veterinary medicine
- iv) Wildlife Medicine
- v) Public Human Health
- vi) Public Veterinary Health
- vii) Other (please specify): _____

18. Which sector do you represent?

- i) Government
- ii) Private sector
- iii) Education
- iv) Non-governmental organization (NGO)
- v) Research
- vi) Other (please specify): _____

19. What is your sex?

- i) Male
- ii) Female

20. Nationality: _____



Contact information: For any inquiries related to these One Health Modules, please contact Ms Winnie Bikaako; email wbikaako@ohcea.org or OneHealthModules@OHCEA.org