

ONE HEALTH APPROACH TO RESEARCH



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).

Published by OHCEA

Unit 16A, Elizabeth Avenue Kololo, P.O Box 35270, Kampala - Uganda

www.ochea.co.org

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First Edition

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Course Developed by

Dr Peter Gatongi
Professor of Epidemiology,
Moi University School of Public Health,
Eldoret, Kenya

Prof. Jemimah Oduma
Associate Professor
Faculty of Veterinary Medicine,
University of Nairobi, Kenya.

Dr Brigitte Bagnol
Adjunct Research Assistant Professor
Tufts Cummings School of Veterinary
medicine
Adjunct Senior Lecturer, Faculty of
Veterinary Science and Charles Perkins
Centre,
The University of Sydney, Australia

Dr Yohannes Tsegabirhan Kifle
Gender focal person
Associate Professor
College of veterinary medicine
Mekelle University, Ethiopia

Prof. Nkiama Numbi Konde,
Associate Professor
School of public health
University of Kinshasa
P.O. Box 11850 Kinshasa I
Kinshasa, Democratic Republic of Congo

Prof. Hellen Amuguni
Associate Professor
Department of Infectious Disease and
Global Health
Tufts Cummings School of Veterinary
Medicine
North Grafton, Massachusetts, USA



OHCEA
8 Countries
16 Universities
24 Institutions



Contents

<i>Preface</i>	<i>vi</i>
<i>Acknowledgements</i>	<i>vii</i>
<i>Introduction to the One Health Central and Eastern Africa (OHCEA)</i>	
<i>One Health Course Modules</i>	<i>ix</i>
<i>Module Developers and Reviewers</i>	<i>xi</i>
<i>Overview</i>	<i>xiii</i>
<i>Learning Objectives of the Course</i>	<i>xiii</i>
<i>Target Audience</i>	<i>xiv</i>
<i>Program/Agenda</i>	<i>xiv</i>
1. Session 1: Appreciating the difference between research findings and other sources of information in One Health research	1
2. Session 2: Understanding the wide variety of research designs and their appropriate applications in One Health research	3
3. Session 3: Formulating One Health research problems	14
4. Session 4: Executing research protocols in One Health research	16
5. Session 5: Developing skills in communicating One Health research findings	25
6. Session 6: Skills in working as a One Health research team	27
7. Session 7: Developing gender responsive One Health research projects and their implementation	29
OHCEA Event Evaluation – System Thinking Training.....	34

Preface

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

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

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

Acknowledgements

This module was made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the One Health Central and Eastern Africa (OHCEA) university network under the Emerging Pandemic Threats 2 One Health Workforce Project and do not necessarily reflect the views of USAID or the United States Government. USAID reserves a royalty-free nonexclusive and irrevocable right to reproduce, publish, or otherwise use, and to authorize others to use the work for Government purposes.

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/>

The modules are intended to:

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

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

Each module contains a Facilitator Guide, Student 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 over 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.

Module Developers and Reviewers

<i>Dr Richard Mugambe, Makerere University, SPH</i>	<i>Dr Hellen Amuguni, Tufts University</i>
<i>Dr Christine Mubumuza, Makerere University, SPH</i>	<i>Dr Diafuka Saila Ngita, Tufts University</i>
<i>Professor Anthony Mugisha, Makerere University, COVAB</i>	<i>Dr Innocent Rwego, University of Minnesota</i>
<i>Professor Elizabeth Kyewalabye, Makerere University, COVAB</i>	<i>Dr Larissa Minicucci, University of Minnesota</i>
<i>Dr Terence Odoch, Makerere University, COVAB</i>	<i>Dr Japhret Kitaa, University of Nairobi</i>
<i>Dr Lawrence Mugisha, Makerere University COVAB</i>	<i>Dr Omer Njajou, Universite de Montagne</i>
<i>Ms Juliana Bbuye, Makerere University School of Education</i>	<i>Dr Jemimah Oduma, University of Nairobi, VET</i>
<i>Professor Peter Gatongi, Moi University, SPH</i>	<i>Dr Gaymary George Bakari, Sokoine University, VET</i>
<i>Professor James Mbaria, University of Nairobi, VET</i>	<i>Ms Agnes Yawe, OHCEA Secretariat</i>
<i>Professor Andrew Thaiyab, University of Nairobi, VET</i>	<i>Dr Tsegabirhan Kifleyohannes, Mekelle University, VET</i>
<i>Dr Charles Nkuranga, University of Rwanda, VET</i>	<i>Mr Timothy Wakabi, OHCEA Secretariat</i>
<i>Professor Mannaseh Nzayimanirab, University of Rwanda, SPH</i>	<i>Dr Irene Naigaga, OHCEA Secretariat</i>
<i>Dr Theoneste Ntakirutimana, University of Rwanda, Em. Sciences</i>	<i>Dr Gilbert Kirui, University of Nairobi, VET</i>
<i>Dr Etienne Rugigana, University of Rwanda, SPH</i>	<i>Ms Jackline Sitienei, Moi University, SPH</i>
<i>Professor Hailu Degefu, Jimma University, VET</i>	<i>Dr Endale Balcha, Jimma University, SPH</i>
<i>Professor Abebaw Asfaw, Mekelle University, VET</i>	<i>Dr Joanne Kisaka, Makerere University, SPH</i>
<i>Dr Fesahaye Alemseged Tesfamichael, Jimma University, SPH</i>	<i>Professor Joel Nkiama Konde, University of Kinshasa, SPH</i>
<i>Dr Asfaw Yohannes Tekle, Jimma University, VET</i>	<i>Professor Justin Masumu, University of Lubumbashi VET</i>
<i>Professor Justin Masum, University of Lubumbashi, Vet</i>	<i>Professor Kimpanga Diangs, University of Kinshasa, SPH</i>
<i>Dr Yosseff Deneke, Mekelle University, SPH</i>	<i>Professor Idi Ngona, University of Lubumbashi, VET</i>
<i>Dr Samuel Mamuya, Muhimbili University, SPH</i>	<i>Dr Peninah Nsamba, Makerere University, COVAB</i>
<i>Professor Emmanuel Batamuzi, Sokoine University, VET</i>	<i>Professor Kiyombo Mbela, University of Kinshasa, SPH</i>
<i>Professor Donath Tarimo, Muhimbili University, SPH</i>	<i>Professor Tona Lutete, University of Kinshasa, SPH</i>
<i>Professor Mahangaiko, University of Lubumbashi, VET</i>	<i>Ms Winnie Bikaako, OHCEA Secretariat</i>
<i>Professor Brigitte Bagnol, Tufts University</i>	<i>Niyati Shab, USAID Washington</i>
<i>Professor Malangu Mposhy, University of Lubumbashi, VET</i>	<i>Mr Musa Sekammate, Ministry of Health, Uganda</i>
<i>Professor Amuli Jive, Insititue Demedical Techniques, Kinshasa</i>	<i>Dr Patrick Ntantu, Public Health Expert</i>
	<i>Dr Fred Monje, Field Epidemiologist</i>

Professor Mariano Lusakibanza, University of Kinshasa, Pharmacy

Dr Sarah Ssali, Makerere University, Gender Studies

Mr Richardson Mafigiri, Infectious Disease Specialist, Ministry of Health, Uganda

Mr Sam Wanjohi,

Dr Deo Ndumu, Ministry of Agriculture, Animal Industry and Fisheries, Uganda

Ms Rebecca Racheal Apolot, Field Epidemiologist

Dr Angella Musewa, OHCEA Fellow

Ms Milly Nattimba, OHCEA Secretariat

Ms Elizabeth Alunguru, OHCEA Secretariat

Dr Juvenal Kagarama, OHCEA Secretariat

Dr Monica Musenero, EpiTeam International, Uganda

Dr Charles Muchunguzi, Mbarara University of Science and Technology

Mr Sam Wanjohi, Environmental Health Specialist

Editors

Dr Hellen Amuguni DVM, MA, PhD
Infectious Disease and Global Health
Cummings School of Veterinary Medicine
Tufts University, USA

Winnie Bikaako, BA(SS), MPAM
Head Training and Research
OHCEA Secretariat, Kampala, Uganda

Dr Irene Naigaga BVM, Msc, PhD
Regional Program Manager
OHCEA Secretariat, Kampala, Uganda

Professor William Bazeyo, MBChB, MMed (OM), PhD
Deputy Vice Chancellor Finance and Administration,
Makerere University and OHCEA CEO, OHCEA
Network, Kampala, Uganda



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Overview

With emerging and re-emerging diseases, development of antimicrobial resistance, globalization and climate change impact, the need for multidisciplinary research to address complex health and environmental challenges is greater than before. The One Health approach to research ensures that research questions address challenges at the human, animal and environmental interface including zoonotic diseases, animals as sentinels for environmental health hazards, occupational health for animal workers, antimicrobial resistance, food safety and clinical collaboration between human and animal health workers using an integrated approach.

Research is a process which involves generating information to make evidence-based decisions. There is a wide array of other sources of information that individuals rely on to make decisions, such as cultural norms, media, expert opinions and even mentors' counsel. However, research-generated information differs significantly from information generated from these other sources in that, research information is objective and reproducible with fairly similar results under similar circumstances. And this is what underpins the evidence based on research-generated information. Such evidence is a product of a multiplicity of factors and consequently, there is no one profession or discipline that can claim dominance or sole ownership of such a domain.

It is for this reason that the One Health approach to embracing a wide cross-section of disciplines is the only plausible way of conducting research that will bring forth evidence of the true and reliable situation on the ground. This module is therefore designed to introduce the principles of conducting multi-disciplinary research to generate information about disease outbreaks, monitoring the outbreaks to control them, and at the same time, design predictive measures to prevent new occurrences. All this will be done in the context of collaboration among multiple disciplines in a complex environment comprising the health of human, animal and ecosystem. This will focus on how to generate relevant information for practical application in One Health, how to disseminate research outputs and how to develop writing skills to attract research grants.

This module also recognizes the fact that men and women have different roles and perspectives that may impact differently on research outcomes. Therefore, the module aims at integrating a gender perspective that will not only improve the relevance, coverage and quality of the research but also promote gender equality and equity. This will require developing gender-sensitive and responsive research methodologies that fully integrate gender into research design, implementation and evaluation.

Learning Objectives of the Course

By the end of the training, the participants should be able to:

- i) describe different sources of information.
- ii) describe research as a means of generating information.
- iii) determine appropriate designs and analytic tools for specific research problems.
- iv) create rapport with relevant stakeholders.
- v) consider the role of gender, culture and ethics in conducting research.
- vi) conduct critical research review of published articles.
- vii) disseminate information to relevant stakeholders in a language they understand.
- viii) sensitize other disciplines expected to participate in research.
- ix) define and explain One Health concepts and illustrate the value of interdisciplinary and multidisciplinary approach.






- x) identify gender issues that may influence the outcome of a research strategy.
- xi) recognize/identify gender gaps and issues in One Health and emerging pandemics threat and develop gender responsive research projects to address those gaps.

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, NGOs and civil society). This module can also be adopted for continuous professional development by health professional organizations such as medical, veterinary, pharmaceutical, nursing, public health, environmentalists and technologist professionals.

Program/Agenda

Session 1	Session 3	Session 5
Appreciating the difference between research findings and other sources of information in One Health research	Formulating One Health research problems	Developing skills in communicating One Health research findings
Session 2	Session 4	Session 6
Understanding the wide variety of research designs and their appropriate applications in One Health research	Executing research protocols in One Health research	Skills in working as a One Health research team
Session 7		
Developing gender responsive One Health Research projects and their implementation		

Time	Activity/ Policy	Facilitator Instructions
 15 min	Registration 	Have participants sign the OHCEA attendance register <ol style="list-style-type: none"> i) Explain logistics (e.g, breaks, meals, etc.) ii) Issue per diem iii) If the short course is residential, check on housing accommodations
 30 min	Welcome 	Facilitator welcoming remarks and introductions. Participants' introductions: <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 • The latest research they have been engaged in ii) Let them prepare a 1-minute introduction of their partner to the class. iii) Go around the room and have each pair present their partner to the class.
	Expectations 	Set up: Have two flipcharts in the front of the room: one titled “Expectations” and the other “Concerns.” <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 note (specify color). iii) Have participants place their expectation sticky notes on a flipchart titled “Expectations” and their concerns sticky notes on another flipchart titled “Concerns”. iv) Organize the sticky notes per common themes. v) Explain the agenda for the week and the goals of the short course, highlighting those that will be met over the week and the expectations that will not be met. Comment on and address concerns.

Goals of the Module

The main goals of this module are to enable participants:

- i) appreciate the distinction between information generated in research and that generated from other sources.
- ii) understand the wide variety of research designs and their appropriate applications in One Health research.
- iii) learn how to formulate One Health research problems.
- iv) learn how to execute research protocols in One Health research.
- v) develop skills in communicating One Health research findings.
- vi) develop skills in participating in a One Health research team.
- vii) understand basic gender concepts and dynamics, and how to perform gender analysis.
- viii) apply gender-sensitive approaches when formulating One Health data collecting tools.
- ix) develop gender responsive One Health research projects and their implementation.

Explain that this course is sponsored by the One Health Central and Eastern Africa (OHCEA) network. OHCEA is comprised of 24 academic institutions from eight African countries, schools of public health and veterinary schools with two US partner universities: Tufts University and University of Minnesota. This project is funded through the USAID-Emerging Pandemics Threat 2 grant.

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



30 min

Guest Speaker and Pre-Test



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

- Introduce the invited Guest Speaker to “officially open the course.”

Distribute 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 will have learned over the week; 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.



105 min



Prior Workshop Reading Material:



Break

Prior workshop reading material: Send out the following 2 documents to participants to read before they come to the training:

A Framework for One Health Research by J Lebov et al, *One Health Journal*. *One Health* 3(2017) 44-50

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5454183/>

One Health: Interdependence of people, other species and the planet by Meredith A. Barret and Steven. A. Osofsky

<https://rmportal.net/groups/one-health-students-online-platform/one-health-interdependence-of-people-other-species-and-the-planet/view>



15 min

Discovery Activity: What is One Health?

Begin the session by having the participants watch the following videos:

One Health: from Concept to Action by CDC

<https://www.youtube.com/watch?v=TG0pduAYESA>

One Health: from Idea to Action:

<https://www.youtube.com/watch?v=gJ9ybOumITg&t=4s>



20 min



Briefly discuss the two videos with the participants

- i) Have each participant take 5-7 minutes to think about and write down on separate sticky notes the answers to the following questions:
 1. Give the meaning of One Health approach.
 2. Identify two examples of One Health in practice.
 3. Identify two to three advantages of multiple disciplines working together to promote One Health.
- ii) Have them display the sticky notes on the wall in the three separate sections. Then in a plenary, review the following:
 1. What are the common things identified?
 2. What are the differences?
 3. Is there anything that surprised anyone?
- iii) Let participants come up with a group description of what One Health is.

There are many different definitions of One Health by different health organizations, but for purposes of this 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 together locally, nationally, and globally to attain optimal health for people, animals, and the environment. Together, the three make up the One Health triad, and the health of each is inextricably connected to the others in the triad.

The common theme of One Health is multiple disciplines working together to solve problems at the human, animal and environmental interface. Collaborating across sectors that have a direct or indirect impact on health involves thinking and working across silos and enhancing resources and efforts while valuing the role each different sector plays. To improve the effectiveness of the One Health approach, there is a need to create a 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 fast growing movement. The approach has been formally endorsed by the European Commission, the US Department of State, US Department of Agriculture, US Centers for Disease Control and Prevention (CDC), World Bank, World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO), World Organization for Animal Health (OIE), United Nations System Influenza Coordination (UNSIC), various universities, NGOs and many others.

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



20 min

Overview of One Health Concepts



PowerPoint presentation (PP No. 1) introduces One Health, the interdependence between humans, animals and the environment and why disciplines need to work together, and One Health core competencies. It also answers the questions: Why One Health? 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.

As part of this presentation, discuss the One Health core competencies, and how Research is a key competency required to be effective One Health change makers.



15 min

Discovery Activity: What is Research?







Ask participants to put it in their own words, and on three separate sticky notes, what they understand by the term research and One Health research. Let them also give two examples of what they consider One Health research is. Then ask them to stick these on two separate walls.

Have the participants discuss the various definitions and identify the concepts raised by each one. Ensure that in the discussion on One Health research, they are discussing research from an integrated perspective. This can include various topics at the human, animal and environmental interface such as research on zoonotic disease, animals as sentinels for environmental health hazards, occupational health of animal workers, food safety, toxicological impacts, antimicrobial resistance in humans and animals, and clinical collaboration between human and animal care providers.



Debrief this session by stating that the One Health approach to research ensures that human, animal and environmental health questions are evaluated in an integrated and holistic manner.

Session 1: Appreciating the difference between research findings and other sources of information in One Health research

Time	Activity/Topic	Facilitator Instructions
 10 min	Introduction 	<p>In this session, the participants will be guided to appreciate the key differences between the information generated from research and that which is available from other sources. They will take some time to discuss among themselves what they understand by these differences.</p> <p>Learning Objectives</p> <ol style="list-style-type: none"> To describe different sources of information. To describe research as a source of generating information. To discuss the distinct position of research as a source of information <p>Instructional Activities</p> <ul style="list-style-type: none"> PowerPoint overview/presentation, small group discussion, PBL. <p>Timing</p> <ul style="list-style-type: none"> 120 minutes <p>Equipment and Materials</p> <ul style="list-style-type: none"> Computer, LCD PowerPoint slides Flipcharts
 30 min	Sources of Information  Group Activity	<ol style="list-style-type: none"> Break the class into small groups and ask each group to brainstorm and list the various sources of information. They should specifically identify what they would consider as sources of One Health related information. Bring the groups together and ask them to compare notes. Ask them to come up with advantages and disadvantages of each source of knowledge. They should have on their lists: experience, authority, intuition, tradition, research, etc. Divide the class into six groups – each group should be given one of the sources to prepare on - they should do a quick research and answer the following questions: <ol style="list-style-type: none"> Do they consider these sources authentic? How would they validate that information? What are the arguments for and against their source of information? How can they use their source to obtain holistic/One Health information?

PowerPoint on Sources of Information



30 min

Reviewing Siloed Articles



- Make an overview PowerPoint presentation (PP No. 2 slides No. 1-4) on sources of information making comparisons with those identified by the learners. Ensure the discussion focuses on relevant sources for One Health information.

- i) Break participants into groups of 3 or 4. Provide them with several published research articles from different disciplines such as those focused on human medicine, veterinary medicine, environmental science, agriculture, etc. and ask them to briefly identify the message or the information generated by the author.
- ii) Encourage the participants to identify the different types of messages and link them with different disciplines.
 1. Do they notice a difference in the messages?
 2. As they review each article, can they begin to think of ways to include other disciplines in that particular research and to make it more integrated?
 3. Can they begin to notice other influencing factors that can facilitate more informed intervention design?
- iii) They should jot this down and discuss it in the plenary session.



30 min

Newspaper Articles Review



Besides the published articles provided above, also provide newspaper and magazine excerpts including adverts.

- i) Ask the participants to identify the differences between the two categories of sources of information.
- ii) Ask the participants to assess the credibility of each source of information.
- iii) Make a PowerPoint presentation (PPP No. 2) on the “objectivity” of research-generated information.
- iv) Explain to the participants the reasons why researchers should record observations “*as they are*” not “*as they should be*”.



Session 2: Understanding the wide variety of research designs and their appropriate applications in One Health research

Time



5 min

Activity/Topic

Introduction



Facilitator Instructions

The emphasis in this session will be to impress on the participants and to bring to their attention that there is a wide variety of designs by which research can be conducted depending on the objectives of the respective investigations. Furthermore, let them appreciate the fact that the correct analysis should be applied for data generated in a particular design to be interpreted correctly.

Learning Objectives

- i) To identify different types of research designs.
- ii) To determine appropriate designs for specific research problems.
- iii) To determine appropriate analytical tools for different designs.

Instructional Activities

- PowerPoint overviews
- Case studies, projects, PBL
- Simulations and case studies



20 min

Research Designs



- i) Look at selected published papers representing different designs and ask the participants to identify them.
- ii) Emphasize the key role of case studies and case series in study designs and explain the significance of the lack of “*comparison*”.
- iii) Explain the meaning of “*variables*” and the significance of having a *unit of measure* for each variable.
- iv) Have the participants practice making measurements of variables such as height, weight, time, volume, distance, etc.
- v) Juggle the minds of the participants on how to measure such abstract variables like depression, pain, skill retention, etc.
- vi) Discuss the distinction between “experimental/interventional” and “observational/cross-sectional” study designs.
- vii) Within the “observational” studies, explore the distinction between “descriptive/case study/case series” studies (Who, Which, What, When, Where and How much—No comparison groups) and “Analytical” studies (Why and How—comparison groups necessary).

Basic Analytical Study Designs



Make PowerPoint presentation (PPP No. 2 slides 91-127) of the basic analytical study designs, namely: Cross-sectional, Case-control and Cohort.



45 min

Focusing on One Health Research Design



Have the participants look up and review the following articles with special focus on the research design.

Ezenwa V.O., Prieur-Richard A.-H., Roche B., Bailly X., Becquart P., García-Peña G.E. Interdisciplinarity and infectious diseases: an Ebola case study. *PLoS Pathog.* 2015;11(8) [PMC free article] [PubMed]

Anderson B.D., Ma M., Xia Y., Wang T., Shu B., Lednicky J.A. Bioaerosol sampling in modern agriculture: a novel approach for emerging pathogen surveillance? *J. Infect. Dis.* 2016;214(4):537–545. [PubMed]

Can they see an integrated approach in the design of these studies?



45 min

High Risk Diseases Research Design Activity



- i) In 2015, the World Health Organization designated 11 diseases as high risk for severe outbreaks. Ten of these diseases are of zoonotic origin. This list includes the following: Arenaviral hemorrhagic fevers (including Lassa Fever, Crimean Congo Hemorrhagic Fever (CCHF), Filoviral diseases (including Ebola and Marburg), Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Other highly pathogenic coronaviral diseases, such as Severe Acute Respiratory Syndrome, (SARS), Nipah and related henipaviral diseases, Rift Valley Fever (RVF), Severe Fever with Thrombocytopenia Syndrome (SFTS), Zika.
- ii) Put the participants in pairs and assign each group one of these diseases.
- iii) Have the participants review articles published on the specific disease assigned to them and select one specific article that they think used a One Health design to study the disease. If they are not able to find out, they should analyze one that does not. All participants should answer the following questions:

1. In relation to their assigned disease, they should identify the health threat, the environmental component, the animal component (vector or reservoir), the human component as well as other One Health competencies that intersect with these three (could be risk, related to behavior, social economic status, gender roles, political impact, ecosystem health).
2. Identify ways to integrate a One Health approach in the design, or ways in which One Health has been integrated into the design.
3. List what other information has been/would be added to make it One Health.
4. Indicate how that information has informed/ would better inform intervention and response.
5. Point out the visible or applicable One Health competencies in the design.
6. What collaborators have been/might they add to the list?

Let the participants prepare a presentation of not more than 5 minutes. They should keep in mind that the ultimate goal of One Health Research is to identify opportunities for health improvement and optimize risk simultaneously across humans, animals and environment.

(Utilize Table 1 in J. Lebov et al : A Framework for One Health Research at the end)



90 mins

Conceptualization of a One Health Research Project

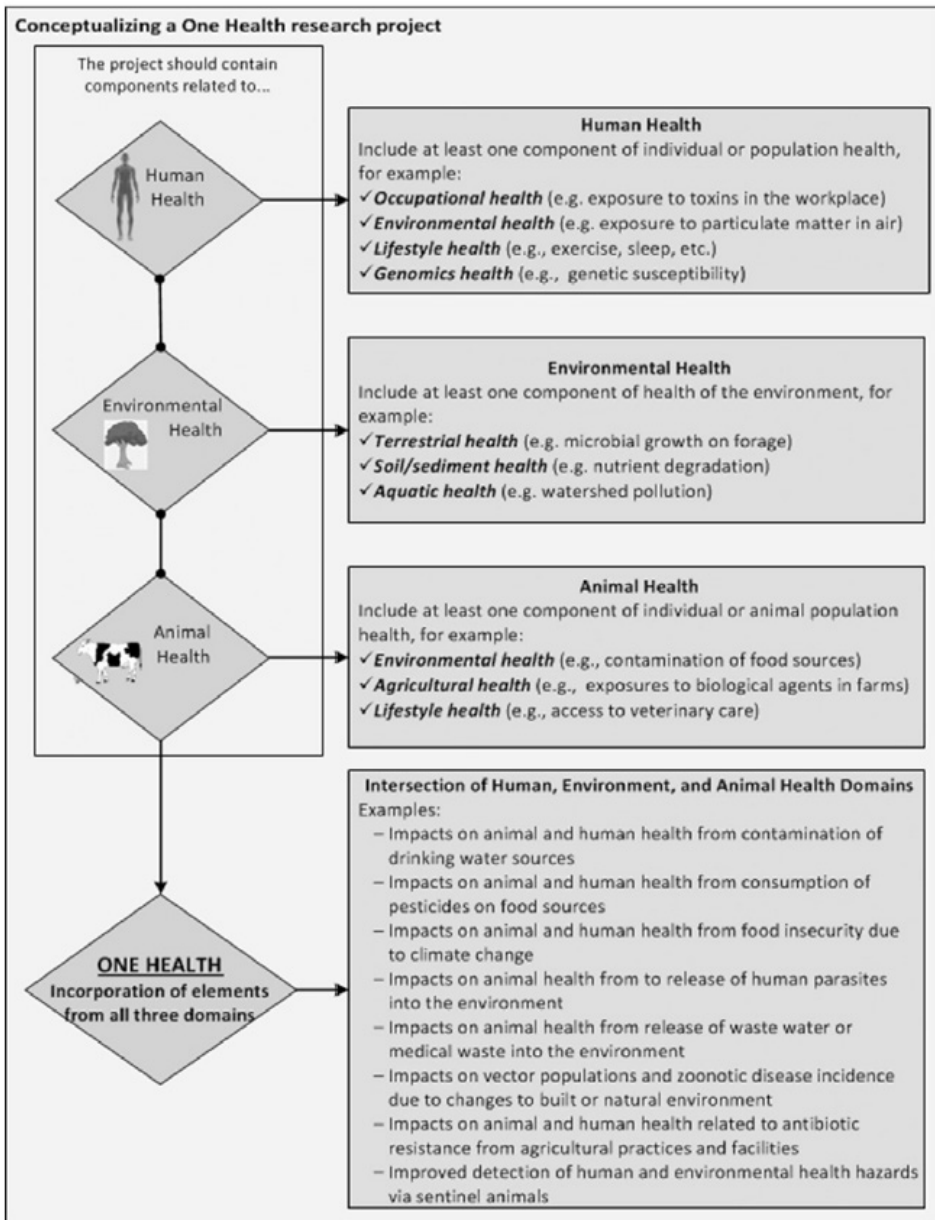


In this session, the participants will begin to conceptualize what they consider as their One Health research project. Have them work in pairs to identify a topic or area of research they would want to focus on. They will be using this topic for the rest of the week to discuss various aspects of One Health design.

Use the framework presented from J. Lebov et al.

A framework for One Health Research by J. Lebov et al, One Health Journal. One Health 3(2017) 44-50

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5454183/>



Each pair of participants should present their conceptual frameworks to the plenary for discussions.



40 min

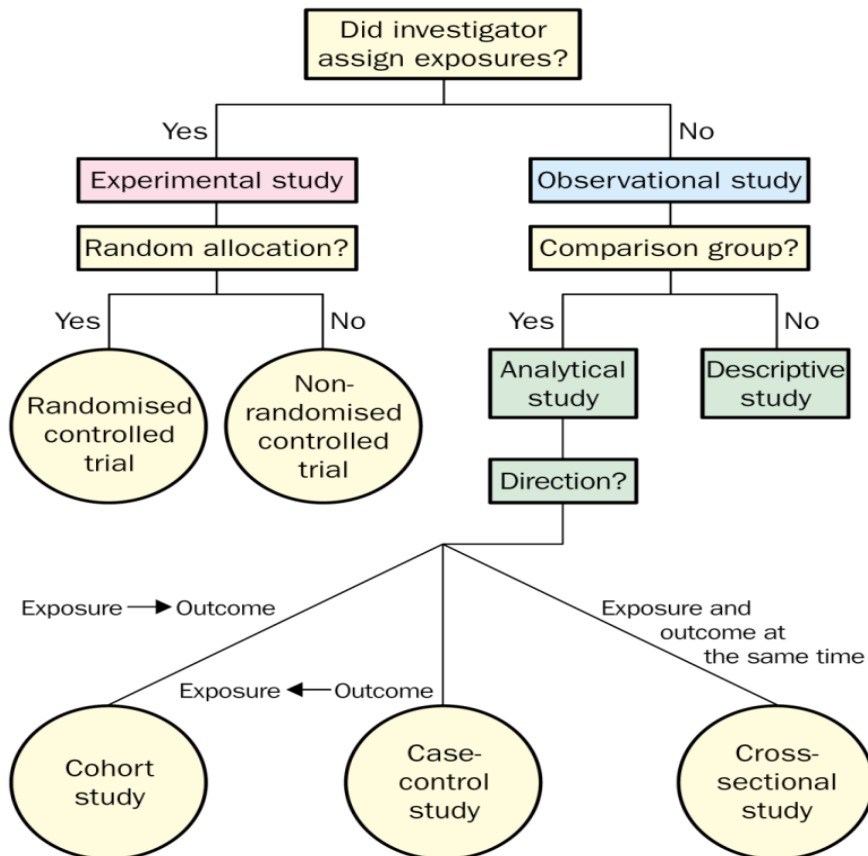
Links between the Various Study Designs



Demonstrate the links between the various study designs as in the chart below.

The OH approach may draw from a range of study designs which are utilized in multiple disciplines, including, for example, prospective and retrospective cohort, case-control, genome-wide association, randomized control trial, case series, natural experiments, twin studies, risk assessment or risk analyses, experimental studies, participatory impact assessments and ecological studies.

This chart was adopted from the **SEAOHUN Epidemiology and Risk Analysis Module**
<https://seahunonehealth.wordpress.com/epidemiology-and-risk-analysis/>



- i) Ask the participants to identify the key features of each study design from the chart above that will make each design unique for application in addressing specific research problems.
- ii) Ask the participants to compare their findings with the text below (Adopted with slight modification from SEAOHUN Epidemiology and Risk Analysis Module):

1. Case Studies

Descriptive, detailed study of a limited number of cases, good for rare diseases, no control (i.e., comparison) group, not usually representative of the general population, may help to generate hypotheses about causation of disease. An example would be a description of a rare disease such as humans with illness (“case”) due to highly pathogenic avian influenza (HPAI), describing the case and the factors associated with the case in detail.

2. Cross-sectional Studies

Groups of animals or humans are selected at one point in time as a (random) cross-section of the population. Prevalence of disease is recorded from data collected during surveys.

- **Advantages:** Cross-sectional studies are relatively quick to conduct and their cost is moderate compared with other study designs. This type of study is good for high prevalence diseases, and the findings are generally designed to be representative of the population being studied.
- **Disadvantages:** Cross-sectional studies can only estimate prevalence of disease, not incidence. They provide little information on cause and effect, or the outcome of disease control programs.

3. Case-control Studies (retrospective)

Animals or humans are selected and grouped according to the presence (case) or absence (control) of disease, which may be “clinical” disease, or may also be confirmed by laboratory diagnostics. Data about exposure to risk factors are acquired retrospectively (records, memory) after selection, usually by using standardized questionnaires, and exposures are compared in the two groups.

- **Advantages:** This method is good for studying rare diseases or diseases with a long incubation period. They can be quicker and cheaper to run than the other study types.
- **Disadvantages:** They do not provide information about incidence or prevalence of disease. The study relies on collected data, and bias is often a problem.

NB: Explain that case-control can also be prospective.

4. Cohort Studies (longitudinal—prospective or retrospective)

Animals or humans are followed over time, grouped per exposure to a risk factor. The outcome of interest (Disease: Yes or No) is noted, and the rate of disease is compared in the two groups (exposed vs. unexposed).

- **Advantages:** Cohort studies measure disease incidence and may be useful for determining the outcome of disease control programs, as well as estimating rates of disease based on exposure.
- **Disadvantages:** Unfortunately, they are expensive and may require a long follow-up period. Large groups are necessary for investigating rare diseases. Losses to follow-up can become an important problem.

NB: From the above, ask the participants to explain how both case-control and cohort study designs can be “Bi-directional” in nature.

- Divide the participants into small groups and have each group closely study the summary table below. Let them use it to discuss the following case study and present their findings with justifications in a plenary session.

Summary of the features of analytical study designs (Adopted with slight modification from SEAOHUN Epidemiology and Risk Analysis Module)

Criteria	Cross-sectional	Case-control	Cohort
Sampling	Random sample of study population	Separate samples of diseased and non-diseased individuals	Separate samples of exposed and non-exposed individuals
Time	Single point	Usually retrospective	Usually prospective (but may be retrospective)
Causality	Associated between disease and risk factor	Preliminary causal hypothesis	Causality through evidence of temporality
Risk	Prevalence	None	Incidence density, cumulative incidence
Comparison of risks	Relative risk, odds ratio	Odds ratio	Relative risk, odds ratio



45 min

Introducing Participatory Research Design



Participatory Design

It is important to introduce the concept of participatory research. Participatory research methods are geared towards planning and conducting the research process with those people whose life-world and meaningful actions are under study. This is part of the One Health research approach which is integrated and holistic and listens to all the voices. Consequently, the aim of the inquiry and the research questions develop out of the convergence of two perspectives—that of science and of practice. In this case, both sides benefit from the research process.

Every day practices which have since established themselves as a subject of inquiry, introduce their own perspective, such as the way people deal with the existential challenges of everyday life. The participatory research process enables co-researchers to step back cognitively from familiar routines (forms of interaction, and power relationships) to fundamentally question and rethink established interpretations of situations and strategies.

However, the convergence of the perspectives of science and practice does not come about simply by deciding to conduct participatory research. Rather, it is a very demanding process that evolves when two spheres of action—science and practice—meet, interact, and develop an understanding of each other.

Have the participants read the following article on participatory research. Assign them this article the night before so that they can read it and become conversant with participatory methodologies.

Participatory research methods: a methodological approach in motion by Jerg Bergold and Stefan Thomas. Forum, qualitative social research Volume 13 (2012): no 1 article 30

<http://www.qualitative-research.net/index.php/fqs/article/view/1801/3334>

Assign topics or sections of the paper to different participants and have them discuss these in a plenary.

Key topics that should be discussed should include:

- i) Fundamental principles of participatory research
- ii) Democracy as a precondition for participatory research
- iii) The need for a “safe space”
- iv) Who participates? How is “the community” defined?
- v) Different degrees of participation
- vi) Distinctive features of the participatory research methodology
- vii) Material prerequisites
- viii) Challenges and tasks facing all the research partners

- ix) The importance of reflection
- x) Distinctive features of the production and analysis of the “data”
- xi) Distinctive features of the representation of findings
- xii) Academic requirements and funding conditions for participatory research
- xiii) Justification of participatory research projects
- xiv) Ethical aspects of participatory research

Debrief this session by stressing that participatory research promotes One Health, allowing for different voices to be heard and for qualitative data to be collected.

Divide the participants into groups and ask them to discuss and decide which type of study is best suited for the investigation of the following scenarios:

- An unprecedented condition of swelling of the knees among newborns in a city slum.
- Cancer of the lip among senior citizens in a pastoralist community in Kenya.
- Respiratory diseases among workers in an asbestos factory.
- Determinants of jigger infestation in rural schools in Western Kenya.
- Pesticide detection in newborn babies and mothers’ milk in Karatu district in Tanzania
- Heavy metal poisoning of miners, their families and animals through food and water contamination in the Democratic Republic of Congo.
- An outbreak of tuberculosis of bovine origin in Ethiopia.

They should consider both participatory methodologies as well as observational and descriptive designs. They should explain the reasons for their answers and discuss how the studies could be carried out integrating One Health research approaches.

To be successful in One Health research, building multi-disciplinary teams is crucial. Given the diversity of topics covered in the One Health approach, study teams may benefit from involvement of various disciplines and sectors including epidemiologists, veterinarians, gender specialists, ecologists, urban planners, social scientists, structural and environmental engineers, water engineers, entomologists, geologists, hydrologists, climatologists, geospatial scientists, botanists, parasitologists and microbiologists, among others. These need to be involved in the early stages of the planning to encourage broader thinking and consolidation of resources.



40 min

Using Case Studies



25 min

Identifying Collaborators and Stakeholders in a Study



Researchers may also consider involvement of community members who have on-the-ground experience with the issue in question. These members include farmers, fisherman, park rangers, scuba divers, wildfire firefighters, plant workers, women leaders, medicine men and women, religious leaders, and community members who live near potential exposure sites. Involvement of community members is likely to enhance the research team's ability to collect new data and to understand the context of the study. This also means using participatory techniques in the design of the study.



30 mins

Malaria Case Study



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 antimalarial drugs in northern Uganda. This prompted the Ministry of Health to investigate the cause of this increased consumption of antimalarial drugs.

Think through this case study while keeping the following questions in mind, as you make a list of the collaborators and stakeholders that can be engaged if you were to develop a case study on this topic.

1. What do you think prompted the communities to stop using mosquito nets?
2. How would you be able to know that Indoor Residual Spraying worked?
3. How could a multidisciplinary team have detected the outbreak early?
4. 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.
5. 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?



20 min

Group Activity



Utilizing the cases listed above, the participants should identify and make a list of the different collaborators they would involve in each of the cases and what their roles would be.

They should also identify the different stakeholders in their studies.



60 min

Homework Assignment



- i) Ask the participants to review their notes in statistics overnight and focus on topic hypothesis, types of statistical tests, significance testing and inference, association between variables, comparison of means and proportions.
- ii) Break the participants into discussion groups and have them discuss what they understand by data analysis—process of looking at data, summarizing it with intent of extracting useful information and drawing conclusions.
- iii) Provide the groups with a data set and direct them to concentrate on the following aspects:
 - Identifying the study type—establish main analysis framework
 - Identifying main variables—outcomes, exposures, potential confounders
 - Identifying characteristics of the study population—demographics, clinical features
 - Examining exposure/outcome associations—hypothesis, prior knowledge, study objectives
 - Examining comparisons among means and among proportions. Tests of significance and confidence intervals
 - Creating 2x2 tables on the basis of findings to do second line analysis
 - Identifying confounding—stratified analysis to moderate confounding effects
 - Multivariate analysis where necessary
 - Interpret accordingly
- iv) For further practice, give the following assignment:

A new expectorant drug has been introduced into the market for the last three years and you have recently started using it at your clinic. You suspect that in pregnant women, the drug may increase the risk of abortion so you are required to design a study to test your hypothesis.

You design a study based on a One Health framework—it could be case controlled.

1. What kind of data would you look for?
2. How would you ensure that the data is integrating various aspects of One Health?

Session 3: Formulating One Health research problems

Time



20 min

Activity/Topic

Introduction



Facilitator Instructions

In this session, the participants are expected to develop skills in identifying important and relevant One Health problems and formulate appropriate integrated methods for addressing them. They will be required to learn how to do basic literature search using search engines like Google Scholar and PubMed. They should be able to gauge the importance of a health problem on the basis of global, regional and local magnitudes; the human, animal and environmental components; the feasibility in terms of time and resources (including human resources) and the investigator's background.

Learning Objectives

- i) To recognize researchable problems in practice.
- ii) To demonstrate the missing information to address the problem.
- iii) To formulate One Health specific activities to bridge the gap in knowledge.

Instructional Activities

- Small group discussions
 - Seminars
 - PBL
-
- The participants should utilize the case scenarios/study topics that they have previously used. Let them get engaged in their groups on the feasibility of this study based on:
 - i) the importance of the problem locally, regionally and globally.
 - ii) the availability of funds, time and equipment.
 - iii) the availability of expertise from different disciplines.
 - iv) the innovativeness of investigators trying different ways of solving a problem.
 - v) being creative, open-minded and observant of the surrounding environment and its problems crying for solutions.
 - vi) the research interest of funding agencies.
 - vii) the research priorities as defined by OHCEA Research Innovations Project (ORIP).



30 min





120 min

Literature Review



- i) Let the participants brainstorm what they perceive as the significance of literature review.
- ii) Have them compare their perception with the following suggestions:
 - Identifying where you are before embarking on research
 - Making a summary of published work
 - Synthesizing published information
 - Avenue for choosing a worthwhile area of study
 - Keeping abreast with:
 - Online literature data bases
 - Completed research studies
 - Current methodologies
 - On-going research
 - Gaps in research

Steps towards writing literature review:

- i) Decide on the topic.
- ii) Identify literature you want to review from the online data bases e.g. UMD library, Google scholar and Furl account.
- iii) Analyze this literature—overview the articles, categorize them into groups and take notes on each group.
- iv) Summarize the literature in concept map format.
- v) Synthesize the literature.
- vi) Write the review.
- vii) Develop coherent essay.
- viii) Draw list of references.





PowerPoint on Literature Review



Give a PowerPoint presentation (PPP No. 2 slide 44-52) on literature review.

With the above in mind, the participants should then prepare One Health relevant summary of the literature on their case scenario. This should include list of references, as well as web links, and if possible, some abstracts of relevant articles can be added to this collection.

Session 4: Executing research protocols in One Health research

Time	Activity/Topic	Facilitator Notes
 15 min	Introduction 	<p>Research is an area that requires very strict adherence to laid down protocols to avoid breaches in ethical operations and standing regulations, yet the investigator must learn how to establish good rapport with the community where he/she will be conducting his/her research; otherwise, it will be practically impossible to carry out any research operations in a closed community. In this session, the participants will be expected to develop skills that will enable them to identify the key stakeholders and the right protocols to follow to avoid ethical pitfalls pertaining to the handling of their research subjects. It is advisable to start by appreciating the underlying principles in One Health.</p> <p>Learning Objectives</p> <ol style="list-style-type: none">To create rapport with relevant stakeholders.To consult with the relevant institutional research boards for clearance to conduct research.To consider the role of gender, culture and ethics in conducting research.To identify funding opportunities for research. <p>Instructional Activities</p> <ul style="list-style-type: none">Field visitSmall group discussionRole playsPoemsPowerPoint overview
 60 min	A Range of Participatory Methodologies 	<p>Briefly review the following participatory methodologies that can be used to establish rapport with stakeholders. The participatory research typically combines a different set of methods in a certain order to allow for exploration of different issues with different level of depth. A combination of participatory methods can be used as a baseline and to regularly assess the impact of the project.</p> <p>Methods used in Participatory Epidemiology (Adapted from Saito and Spurling, 1992: 10; Catley, Alders & Woods, 2012; Ahlers et al., 2009:157)</p>

Informal Interviews

- **Semi-structured interviews and focus groups:** Combined with visualization, ranking and scoring methods. Also, used as a stand-alone method. Same sex focus groups are used to identify specific needs of men and women
- **Timelines:** History and timing of disease events
- **Walking tour:** Used by interdisciplinary team of technicians and male and female farmers to develop maps locating main infrastructures, scavenging areas, biosecurity issues and to understand the farming systems
- **Family roles and access, control and benefits:** Identify ownership, control over benefits of poultry production and activities carried out by male and female adults and children in relation to breeding specific species
- **Dreams realized or visioning:** To identify indicators and to discuss how to measure the benefits and changes expected by men and women

Visualization methods

- **Participatory mapping:** Look at each of the specific agro-ecological and social situation and discuss the implication of these situations for biosecurity
- **Seasonal calendars:** Seasonal variation in disease incidence; seasonal variation in human livelihoods e.g. consumption of livestock products and livestock trade; seasonal variation in contact with disease vectors, neighboring livestock and wildlife; seasonal variation in vector populations
- **Radar diagrams:** Analysis of disease control strategies
- **Venn diagrams:** Well-being stratification exercise and analysis of community structures. Helps to understand who will be affected by proposed development activities

Ranking and Scoring

- **Counting:** Identification of consumption and sale
- **Simple ranking:** Analysis of disease control strategies; ranking of activities per their contribution to household income
- **Simple scoring:** Prioritization of livestock diseases or impact of project activity per defined indicators
- **Matrix scoring:** Analysis of disease control options

- **Before and after scoring:** Local characterization of the clinical signs and causes of disease; local characterization of disease vectors; comparison of clinical diagnoses of livestock keepers and veterinarians; analysis of veterinary service providers

In reference to their case studies, the participants should identify which methodologies they can use in their specific cases and why those methods provide them with relevant One Health data. The participants should try to use methods that are inclusive, culturally and gender sensitive and provide qualitative as well as quantitative information.



20 min

Introduction to Focus Group Discussions



Give the following information on focus groups:

- Focus groups are commonly used in participatory research at community level
- A focus group is a group comprising between 8 to 12 people brought together for an open-ended discussion about one issue. A person trained will facilitate the group following the guidelines for semi-structured interviews¹. Focus groups should be homogeneous in term of sex, age and activity. Discussions should last between one and two hours.
- Focus group methods are effective in stimulating dialogue between respondents and understanding people's thoughts. This is also an efficient way to get a sense of how people rationalize their thoughts.

The purpose of focus group discussion is to:

- serve as a forum for addressing an issue or to highlight various concerns, conflicting interests and common ground among different groups.
- provide an opportunity to cross-check information collected using other techniques.
- obtain a variety of reactions to hypothetical, planned or actual interventions.

Focus groups are often combined with visualization, ranking and scoring methods. They can also be used as a stand-alone method. Same sex focus groups are used to identify specific needs of men and women.



***Focus group in Mutumbisha, Chongwe district, Zambia
(Picture by B. Bagnol)***

- **Giving a voice**

The moderator of the group should be able to give a voice to all the participants even the ones who are shy and silent. It is necessary to keep eye-contact with all participants in order to grasp unvoiced opinion and encourage contribution. It is important to listen to all comments especially to divergent opinions. Try to calm down dominant participants stating that you would like to listen to everybody and that all opinions are important and need to be expressed.

- **Gender issues**

Make sure that when working with a mixed group, both men and women are heard. Usually same sex groups are preferred in order to avoid women being silent or just confirming men's opinions due to prevalent social norms.

- **Open-ended questions**

Formulate open-ended questions such as, "What do you think about the idea of establishing a community committee?" instead of, "Do you think that establishing a community committee is a good idea?" Open-ended questions oblige people to develop an argument, while closed questions lead participants to answer yes or no. As the aim of the evaluation is to have people developing and clarifying their reasoning, the participants should be encouraged to expand their explanation.

- **Probe and clarify**

To maintain the flow of the discussion and to try to bring out trends or discordant opinions, the facilitator should rephrase opinions expressed by the participants. For example: “If I understand you correctly, you are saying that the problem in establishing a community committee is that people are not interested? What do other people think about this?” This helps to verify that the information given by someone is accurate, or that opinions expressed by one participant are shared with the other group members.

- **Taking notes and recording**

It is fundamental to take notes on the discussion to allow for the analysis of the data. Do not postpone taking notes. When more than one interview or focus group is done in a day, or when you plan to write notes at the end of the day, the facilitator is often tired, or the information from one meeting can get confused with the other. Furthermore, the depth of the information and the richness of the comments can be lost. Always try to take verbatim notes during meetings. Note down who speaks, the gender and age of the person and all the comments and observations made.

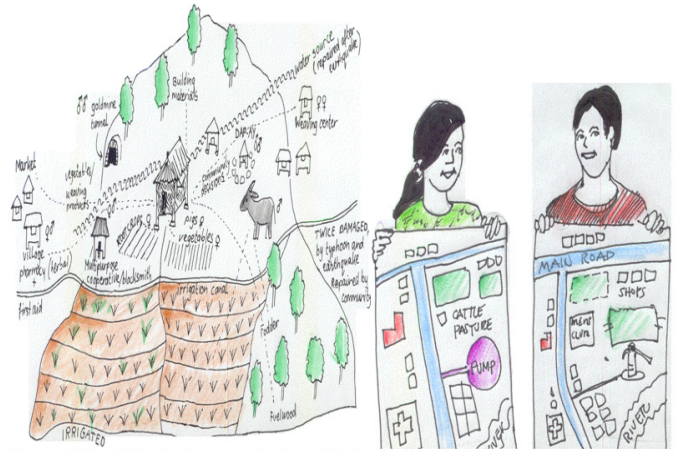
When possible, register the information in an excel sheet using columns and lines to refer to themes discussed and the location and characteristics of each participant of the focus group. One excel sheet can be developed for the individual interviews and another for the focus group. Notes can be taken on paper or directly on the computer. It is recommended that one person should lead the discussion and another take notes to allow for fluidity in the discussion and eye-contact between the facilitator and the participants. This exercise consists of developing a map of the area with a group of people. Participatory mapping is often complemented with a transect walk. Developing a map with men and women in the same sex groups can help in understanding their different perspectives. Men and women use different resources and different spaces, or they may use the same resources or spaces with a different purpose and thus have a different perspective and different solutions. Participatory mapping is useful when identifying One Health issues. For example, a map can be developed to look at each of the specific agro-ecological and social situations and to discuss the implications of these situations for disease surveillance.



45 min

Participatory Mapping





Source: Citizens' Disaster Response Center and Center for Disaster Preparedness Training Materials



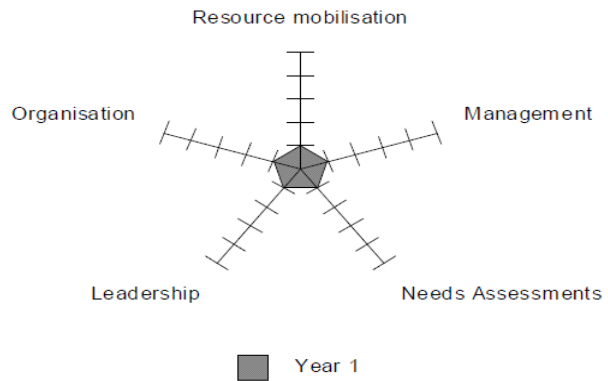
25 min

Use of Radar Diagrams

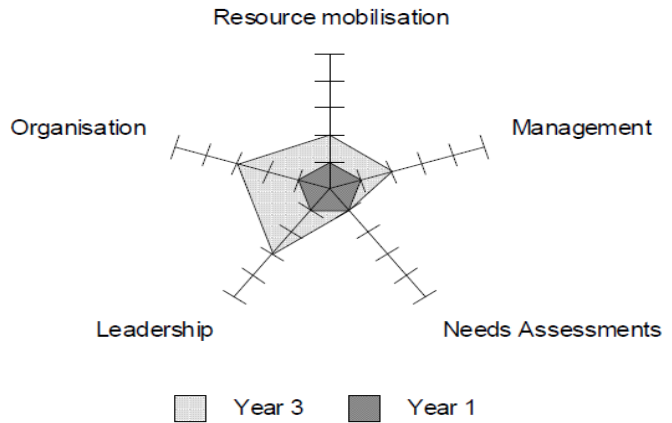


Radar diagrams are drawings in the shape of a radar. Radar diagrams can be developed each time several elements are compared, and people are asked to value these elements according to a defined scale.

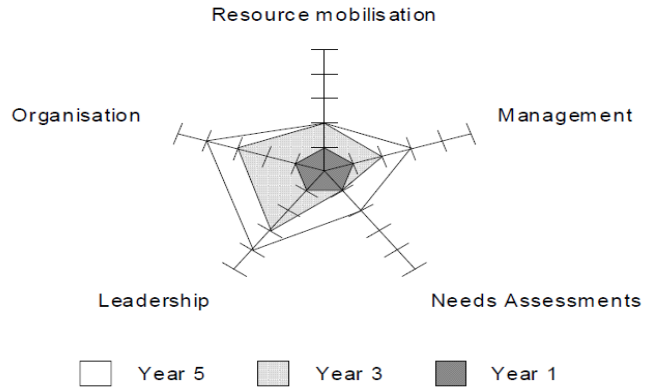
In this example from Catley burns Abebe and Suji: 2007 *Participatory impact assessment. A guide for practitioners*. Boston: Tufts University. Feinstein International Center sites.tufts.edu/feinstein/2008/participatory-impact-assessment



Levels of participation are measured against five components of the project cycle. This would be done by asking participants to gauge their own level of participation in each of the activities identified on a scale of 0-5; each level being represented by the spokes on the radar diagram. The results show increasing level of participation over time.



Source: Rifkin, S. B., Muller, F. and Bichmann, W. (1988). Primary healthcare: on measuring participation. *Social Science and medicine* 26 (9), 931-940



20 min

Group Activity



60 min

Reviewing the Roles of Institutional Review Boards and IACUC



The three methods of obtaining information presented allow the participants to engage in a very fulfilling One Health research and obtain data and information that can help develop broad based interventions. With this in mind, the participants in their groups should pick one of the above and practice how to do it, keeping their case study in mind.

Give a PowerPoint overview presentation of the role of Research Institutional Boards (IRBs) in regulating research.

- Then ask the participants to discuss the following in small groups:
 - Identify local IRBs, their jurisdiction and links with the national body mandated with research engagement in the country
 - The submission of research protocols to the IRBs
 - The review process of the submitted research protocols
 - Clearance to conduct research and the expiry of the approval

- Regular progress reports by the Principal Investigator (PI)
- The process of amendment of the protocol during the progress of the research
- Handling of unexpected adverse effects on the research subjects
- Conditional termination of research

PowerPoint overview presentation on how to get research funding which is available through various institutions/agencies/organizations

At the end of the session, have the participants review the role of IACUC (Institutional Animal Care and Use Committee) and identify relevant review bodies in environmental health.



Homework Assignment

Pre-work:

- i) Ask the participants to read the history of the development of ethics in human subjects' research, specifically the Nuremberg Code, Declaration of Helsinki, Beecher article, the Belmont report and the Tuskegee Syphilis project.
- ii) As part of pre-work, ask the participants to do the CITI ethics research certification. It is free and available on line.

Citiprogram.org/index.cfm?pageID=14&message=64#view

Have the participants focus on the occurrences in both the Nuremberg and the Tuskegee scenarios, and highlight the ethical violation in each situation.

- In small groups, have the participants discuss the following:
 - i) Importance of research ethics
 - ii) The core principles which must be considered by researchers
 - iii) How these principles must be addressed in the research proposal and research implementation
 - iv) Benefits and risks in research and balancing between the two
 - v) Progress and drivers of establishment of ethical regulations in human research
 - vi) Vulnerable populations and their protection
 - vii) Violations of ethical regulations
 - viii) Applying research ethics:
 - Principle of respect of persons
 - Principle of beneficence
 - Principle of justice



45 min

Ethical Violations in Research



- **Cultural traditions in research**

- Cultural beliefs, myths and local norms
- Gender – inequality, productivity and poverty
- Behavioral changes

Debrief: Have the participants present similar cases they have seen or witnessed in their lives that are related to ethical violations. How did they resolve these issues?

Session 5: Developing skills in communicating One Health research findings

Time



Activity/Topic

Introduction



Facilitator Instructions

The purpose of doing research is to generate new information and share it with the relevant stakeholders. Research information stockpiled in personal bookshelves is of no value if not communicated to potential consumers. The participant in this session will be expected to develop communication skills to enable him/her to share the new information in diverse form like journals, bulletins, conferences and community feedbacks.

Learning Objectives

- i) To conduct critical research reviews of published articles.
- ii) To disseminate information to relevant stakeholders in a language they understand.
- iii) To publish for scientific fraternity.

Instructional Activities

- PowerPoint presentations
- Reviews of published works in small groups
- Seminars
- Field visits, public speaking, poems, dance, drama
- Writing tasks in small groups

Presentation of Information

- i) Present different kinds of published information— newspaper articles, magazine articles, annual reports, progress reports, scientific journal articles etc.
- ii) Ask the participants to identify different formats used in different publications.
- iii) Present an overview of the format for published journal articles highlighting the key contents expected for each of the sections.
- iv) Break the participants into small groups and present each group with one journal article and ask them to critically appraise it along the following guidelines:
 1. Does the title reflect the contents of the paper adequately? Explain your response.
 2. What are the study objectives? Are they SMART? Elaborate your answer.
 3. What is the study design used, and is it appropriate for the stated objectives?
 4. How was the sample selected? Was this appropriate?
 5. How can it be made to be more holistic and to integrate One Health?



120 min

Presentation of Information



6. Comment on ethical issues in this study.
7. What statistical tests were used in the analysis of data? Comment on their appropriateness.
8. What are the conclusions of the study? Are they relevant to the study objectives? Explain your answer.

Each group should come up with a presentation to respond to these questions.

The following activities can be done to solidify this session:

12 Hours

- i) Let the participants identify their audiences—community, government agency, scientific fraternity, school children, etc.
- ii) Based on the identified audience, have the participants craft reports, drama, poems, and PowerPoint presentations in a language that their audiences can understand.
- iii) Have the participants make mock presentations to the class and solicit for critical appraisal along the following criteria:
 - Quality of slides—clear or too crowded
 - Mannerism of the presenter
 - Clarity of intended message
 - Sticking to allocated amount of time
- iv) Make a field visit and conduct real information dissemination in practice.

60 minutes

- Invite a guest speaker who is conversant with One Health—a writer or editor of a local journal to highlight the process of writing along the following:
 - Different formats for different journals and different disciplines
 - Submission of articles—information to authors
 - Solicited articles
 - Review process and feedback to author
 - Publication types—print or electronic
 - Publication fees where applicable

Session 6: Skills in working as a One Health research team

Time

Activity/Topic

Facilitator Instructions



15 min

Introduction



Participants have been working to identify different components of an effective One Health research. This session provides an opportunity for them to bring all the elements together. One Health is an integrated system that involves well-coordinated working strategies that require seasoned leadership. This involves bringing together diverse disciplines to a common ground where they are expected to operate in a cohesive manner irrespective of their different professional approaches to issues of health. Consequently, the participants in this session will be expected to develop leadership skills to be able to coordinate research activities or be an accommodative team player.

Learning Objectives

- i) To sensitize other disciplines expected to participate in research.
- ii) To schedule a program of operations (modus operandi).



30 min

Project Development



In the beginning, each participant identified what he/she considered to be his/her own One Health research topic. At this time, each participant should work on his/her specific research topic to:

- i) specify the nature of One Health research.
- ii) determine the different types of expertise/disciplines involved.
- iii) provide a strategy for approaching the individuals with this type of expertise to solicit for their participation.
- iv) provide them with full information about the research project.
- v) prepare a presentation on their research topics that is not more than 10 minutes to cover the different aspects of One Health, study design, the stakeholders and collaborator, potential funding resources.
- vi) develop an abstract for their topic that they can specifically submit to One Health congress.



15 min

Publications Sections





Give a PowerPoint presentation on publications including the following contractual agreement between authors:

- i) The Principal Investigators and the co-investigators
- ii) Specific roles of each party in executing the research protocol
- iii) Specific roles in preparation of publications
- iv) The reporting channels
- v) The timelines of scheduled activities

The sharing of benefits of the findings of the study in case of commercial viable innovations/patents.

Session 7: Developing gender responsive One Health research projects and their implementation

Time	Activity/Topic	Facilitator Instructions
 45 min	Introduction 	<p>Gender is a key determinant of successful research. Consequently, it should intrinsically be integrated in a research setup to effectively wrap up the technical component. A gender sensitive research is not research on men and women but rather a research approach that considers gender as a significant variable in any research, especially those that address One Health issues. A gender sensitive research pays attention to the differences and similarities between men's and women's roles, experiences and perspectives and gives equal value to each.</p> <p>One Health research can involve gender bias by assuming that women's and men's health situation and risks are similar, when in fact they are not.</p> <p>In this session, the participants will be exposed to gender concepts and dynamics and how to perform a gender analysis. They will also learn how to formulate gender sensitive research methodologies. It will be impressed upon them that gender is a pertinent and integral component of research that should be given its rightful place for well-rounded research environment.</p> <p>Learning Objectives</p> <ol style="list-style-type: none"> i) To explain basic gender concepts. ii) To utilize gender analysis tools in One Health research. iii) To develop gender-sensitive research projects to address gender gaps in One Health research. <p>Group Activity</p> <p>Divide the participants into three groups and have them discuss the following to demonstrate gender-sensitive research projects to address gender gaps in One Health research and gender roles.</p> <ol style="list-style-type: none"> 1. What is a gender-sensitive One Health research? 2. How would you ensure gender sensitivity when collecting data? 3. How would you consider gender sensitivity when reporting and communicating data? 4. What are the benefits of engendered One Health research? 5. Varying involvements by men and women on daily activities, for example: <ul style="list-style-type: none"> • Family health • Caring for children and the sick

- Household chores
- Finances and property ownership
- Family authority
- Animal health issues



15 min

Gender Concepts and Analysis Tools



Give a 15-minute PowerPoint presentation (PPP No.) and brief discussion on gender concepts and analysis tools.



20 min

Implication of Gender in Research



Working on their specific One Health research topics/themes, can they identify gender issues in their research topic and how would they deal with it?

Ask them to describe how the varying gender engagements affect conducting of research and generating valid information.

To understand the implications of gender in research, have the participants address the following case study and identify the roles of men and women in directing research designs.

60 minutes

To understand the implications of gender in research, have the participants address the following case study and identify the roles of men and women that should have been investigated and addressed for effective intervention.



20 min

Ebola Epidemiology and Gender



Case Study: Ebola Epidemiology and Gender Issues

In the 2001–2002 Ebola outbreak that occurred in the Congo and Gabon, more men than women were infected during the early stages of the outbreak, a situation that was reversed during the later stages of the outbreak. In contrast, the number of female cases exceeded the number of male cases for the duration of the outbreak of 2000–2001 in Gulu, Uganda. During an outbreak, health officials usually compare the cumulative distributions of male and female cases. Cumulative distributions can sometimes mask potentially informative fluctuations in numbers of cases over the course of an outbreak. For the outbreak in Gulu, for example, the cumulative distribution was greater in females throughout; whereas in the outbreak in Gabon, it switched from predominantly male to predominately female.

If only the cumulative distribution had been plotted for the outbreak in Gabon, the switch in incidence from an excess of male cases to an excess of female cases would not have been seen until later in the outbreak when the total number of females infected was greater than the total number of males infected. Interestingly, the outbreaks in Sudan are notable exceptions. Although no published data are available on the proportion of female cases in a relatively large outbreak that occurred in 1976, it has been reported that males predominated. The 1979 outbreak in Nzara and Yambio, Sudan, was also unusual in that despite its small size, a large proportion of those infected were female (69%).

Questions

1. Why do you think in the 2001 – 2002 outbreak of Ebola in Congo and Gabon more men than women were infected in the early stages of the outbreak?

Men encountered the infection first as the hunters

2. Why do you think the cases of women later outnumbered the cases of men in this outbreak?

Women's role in caring for the sick

3. Why is it that the female cases exceeded the number of male cases for the duration of the outbreak of 2000 – 2001 in Gulu, Uganda?

Women's daily chores predisposed them to infections

4. Explain why there were more male cases than female in the outbreak of 1976 in Sudan.

*By virtue of their gender roles they were **more** exposed*

5. In the 1979 outbreak in Nzara and Yambio, Sudan, why is it that a large proportion of those infected were women?

Gender roles

6. What is the significance in research of the statistics observed in these outbreak scenarios?

Gender roles constitute key risk factors for investigation

7. How do you ensure that the scenarios portrayed in this case study are avoided?

Intervening against the spread of the infection along gender considerations



15 min

NB: Data should be gathered from both men and women. Often, our knowledge about gender norms and practices are drawn from responses from women. In formative research, data should also be collected on the attitudes, concerns and aspirations of men instead of relying solely on women's perceptions.



60 min

Developing Gender Sensitive One Health Research Projects and their Implementation



Group Activity

Participants will be exposed to the influence of gender on research/study outcomes especially of One Health investigations through a systematic use of gender research methodologies and data collection tools.

Learning Objectives

- i) To develop gender-sensitive One Health research projects and their implementation.
- ii) To recognize gender gaps in One Health and emerging pandemics threat, and identify resources to address those gaps.

3 Hours

Simulation Exercise

Divide the participants into three groups

Group A: A Rift Valley Fever outbreak in the North-Eastern Province of Kenya

Group B: Highly Pathogenic Avian Influenza in Northern Province of Cameroon

Group C: Ebola outbreak in Western Uganda

They are the research team. The research team is to design a research study to effectively investigate each case and outcome by applying data collecting tools and methodologies that will bring out gender roles, issues and risk factors and their influence on the research outcome. The research design should have strategies for mitigating gender issues based on lessons learned from the case study.

The participants should formulate questionnaires that promote gender responsiveness and empower women and men to participate fully in the research project.

Checklist for gender responsive One Health research:

1. Identify the human, animal and environmental component of the research
2. Perform a gender analysis
3. Develop a gender-sensitive methodology
4. Build a gender balanced research team
5. Pick a gender balanced sample
6. Give equal value to men's and women's experiences
7. Use gender-sensitive language
8. Anticipate impacts of research outcome on men and women
9. Identify appropriate gender responsive solutions to address the outcomes especially if negative



60 min

Group Presentation



The three groups have 15 minutes to present their research and discuss in a plenary.



30 min

Debrief, Reflection and Conclusion of Workshop



Debrief, reflection and conclusion of workshop

Conclude the workshop by allowing the participants time to reflect on the training.

Give them time to fill out the post-test and OHCEA evaluation form. If a guest speaker is invited to close the ceremony and give out certificates, then that should conclude the workshop. Any logistical issues should also be dealt with.

(Footnotes)

1 <http://www.fao.org/docrep/x5307e/x5307e08.htm>

OHCEA Event Evaluation – One Health Approach To Research Training

Facilitators: _____

Dates: _____

OHCEA supported you to attend the One Health Approach To Research Training. Please take a few minutes to fill out the following confidential questionnaire. Your responses will help us better understand the value of this event and improve future programs. Thank you!

Please circle your response to each of the following

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

- (c) Agree
 - (g) Strongly agree
 - (h) Don't know
7. The pre-event logistics were well organized.
- (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know
8. The event itself was well organized.
- (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know
9. Overall, I found this event to be worthwhile.
- (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know
10. I intend to take actions in my work because of what I have learned at this event.
- (a) Strongly disagree
 - (b) Disagree
 - (c) Agree
 - (d) Strongly agree
 - (e) Don't know

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

12. What were the strengths of this event?

13. What can be done to improve this event?

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

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

16. Did you present at this event?

(a) Yes

(b) No

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

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

s) Nursing

t) Human Medicine

u) Veterinary Medicine

v) Wildlife Medicine

w) Public Human Health

x) Public Veterinary Health

y) Other (please specify): _____

26. Which sector do you represent?

aa) Government

ab) Private sector

ac) Education

ad) Non-governmental organization (NGO)

ae) Research

af) Other (please specify): _____

33. What is your sex?

ah) Male

ai) Female

36. 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