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This module is One of 16 One Health Training Modules developed by the One Health Central and Eastern Africa network (OHCEA), a network of 8 countries, 21 institutions of Public Health and Veterinary Medicine in Africa: Kenya, Uganda, Tanzania, Rwanda, Ethiopia, Democratic Republic of Congo, Cameroon and Senegal. 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 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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Overview:

With emerging and re-emerging diseases, development of antimicrobial resistance, globalization and climate change impacts, 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 of 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 base of 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 of 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 same for controlling 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 of human, animal and ecosystem health. This will be focused 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.

The main goals of this module are:

- To appreciate the distinction between information generated in research and that generated from other sources.
- To understand the wide variety of research designs and their appropriate applications in One Health research.
- To learn how to formulate One Health research problems.
- To learn how to execute research protocols in One Health research.
- To develop skills in communicating One Health research findings.
- To develop skills in participating in a One Health research team.
- To apply gender sensitive approaches in research that promotes gender equality and equity.

Learning Objectives of the Course

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

- 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.
- To identify different types of research designs.
- To determine appropriate designs for specific research problems
- To determine appropriate analytical tools for different designs
- To identify practical researchable problems
- To conduct literature search to identify gaps in knowledge
- 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 conduct critical research review of published articles
- To disseminate information to relevant stakeholders in a language they understand
- To publish for scientific fraternity
- To sensitize other disciplines expected to participate in research
- To schedule a programme of operations (modus operandi)
- To define and explain One Health concepts and illustrate the value of interdisciplinary and multidisciplinary approach.
- To identify gender issues that may influence the outcome of a research strategy.
- To recognize and incorporate gender sensitive data collecting tools and methodologies in research protocols.
- To 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’s professionals

**Programme/Agenda**

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Detailed Facilitator Notes

Registration (60 minutes)
- Sign the OHCEA attendance register

Welcome (60 minutes)
Facilitator welcoming remarks and introductions.

Participant introductions:
- In pairs, share your
  - Name
  - Where you are from
  - Type of work and position
  - The latest research you have been engaged in
- Prepare 1-minute introduction of your partner to the class
- Go around the room and have each pair present their partner to the class.

Expectations (30 minutes)
Two flipcharts have been set up in the front of the room: one titled “Expectations” and the other “Concerns.”

- You have been given two different colored Post Its® notes
- Write down their expectations for the short course on one of the Post Its® notes (specify color) and their concerns about the course on the second the Post Its® notes (specify color)
- Place your expectation Post It® notes on a flipchart titled “Expectations” and your concerns Post Its®notes on another flipchart titled “Concerns”
- Organize the Post Its per common themes

Goals of the Short-Course
- To appreciate the distinction between information generated in research and that generated from other sources.
- To understand the wide variety of research designs and their appropriate applications in One Health research.
- To learn how to formulate One Health research problems.
- To learn how to execute research protocols in One Health research
- To develop skills in communicating One Health research findings
- To develop skills in participating in a One Health research team
- To understand basic gender concepts and dynamics and how to perform gender analysis
- To learn how to apply gender sensitive approaches when formulating One Health data collecting tools.
- To learn how to develop gender responsive One Health research projects and their implementation.
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 and Veterinary schools with two US partners. The US partners are: Tufts University and the 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 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.

Pre-Test (15 minutes)
Complete the pre-test. A pre-test is used to gauge how much you 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.

Break

Please read the following two papers prior to the start of the training.

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

Discovery Activity; What is One Health?

Watch the following videos:

One Health: from concept to Action by CDC
https://www.youtube.com/watch?v=FG0pduAYESA

One Health: from Idea to action:
https://www.youtube.com/watch?v=gl9ybOumITg&t=4s

Briefly discuss the two videos

Take 5-7 minutes to think about and legibly write down on separate post it notes the answers to the following questions:

- Define what One Health approach means
- Identify two examples of One Health in practice
- Identify two to three advantages to multiple disciplines working together to promote one health

Display these post-it notes on the wall in the three separate sections. Then in a plenary review the following
- What are the common things identified?
- What are the differences?
- Is there anything that surprised anyone?

Come up with a group description of what One Health is

There are many similar definitions of One Health by health organizations, but for 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.

Overview of One Health Concepts
This presentation 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 and why now?

Discovery Activity: What is Research?

Write down three separate post it notes what you understand by the term Research, One Health Research and give two examples of what you consider One Health Research. Put the answers up on the wall

Discuss the various definitions and identify the concepts raised by each one. One Health research discusses research from an integrated perspective. This can include various topics at the human animal and environmental interface such 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.

In this session, the learners 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.

**Learning objectives:**
- 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

**Instructional activities:**
- Power point overview/presentation, Small group discussion, PBL.

**Timing:**
- 120 minutes

**Equipment and materials:**
- Computer, LCD
- Power point slides
- Flip charts

30 minutes

- Break into small groups
- Each group to brainstorm and list the various sources of information.
- Specifically identify what they would consider as sources of One Health related information.
- Come together and compare notes.
- What are the advantages and disadvantages of each source of knowledge.
- Divide 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: do they consider these sources authentic?
- How would you validate that information? What are the arguments for and against their source of information? How can they use there source to obtain holistic/One Health information?

**Power point presentation on sources of information** making comparisons with those identified by the learners. Ensure the discussion focuses on relevant sources for One Health information

90 minutes

- Divide into groups of 3 or 4. You have been provided with several published research articles from different disciplines such as those focused on human medicine, veterinary medicine, environmental science, agriculture.
• Briefly identify the message or the information generated by the author.
• Identify the different types of messages and link them with different disciplines.
• Do you notice a difference in the messages?
• As you review each article, can you begin to think of ways to include other disciplines in that particular research and to make it more integrated?
• Can you identify other influencing factors that can facilitate more informed intervention design?
• Jot this down and discuss it in the plenary session.

Newspaper articles
• Besides the published article provided above, you will be provided with newspaper and magazine excerpts including adverts.
• Identify the differences between the two categories of sources of information.
• Assess the credibility of each source of information.
• Make a power point presentation on the “objectivity” of research-generated information.

Notes
Notes
Session 2:
To understand the wide variety of research designs and their appropriate applications in one health research

The emphasis in this session will be to impress upon the learners 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. And subsequently the correct analysis should be applied for data generated in a particular design to be interpreted correctly.

Learning objectives:
- To identify different types of research designs
- To determine appropriate designs for specific research problems
- To determine appropriate analytical tools for different designs

Instructional activities:
- Power point overviews,
- Case studies, projects, PBL,
- Simulations and case studies.

Research designs
- Look at selected published papers representing different designs and identify them
- What is the significance of the lack of "comparison"?
- What is the meaning of "variables" and the significance of having a unit of measure for each variable?
- Practice making measurements of variables such as height, weight, time, volume, distance etc.
- How do you measure such abstract variables like depression, pain, skill retention etc.
- Discuss the distinction between “Experimental/interventional” and “Observational/cross-sectional” study designs
- 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).
- Power point presentation of the basic analytical study designs, namely Cross-sectional, Case-control and Cohort.

Focusing on One Health research design

Review the following articles with special focus on the research design


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

### High risk diseases research design activity:

In 2015, the World Health organization designated 11 diseases as high risk for severe outbreaks. 10 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

**Activity: Divide into pairs; Each group is assigned one of these diseases**

Review articles published on their specific disease and select one specific article that you think used a One Health design to study the disease. If you are not able to find one, analyze one that does not. Answer the following questions:

- 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)
- identify ways to integrate a One health approach in the design or in which One health has been integrated into the design,
- list what other information has been/ would be added to make it One health
- How that information has/ would better inform intervention and response
- What One Health competencies are visible or applicable in the design
- What collaborators have been/ they might add to the list?

Prepare a presentation of not more than 5 minutes. 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 at the end Table 1 in J. Lebov et al : A Framework for One Health Research)

### Conceptualization of a One Health research project

In this session participants, will begin to conceptualize what they consider as their one health research project.

- Working in pairs identify a topic or area of research you would want to focus on. You 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
All pairs should present their conceptual frameworks to the plenary for discussions.

**Demonstrate the links between the various study design 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.
- 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.

**Summary of the features of analytical study designs** (Adopted with slight modification from SEAOHUN Epidemiology and Risk Analysis Module)
### Introducing Participatory Research 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 that is integrated and holistic and listens to all the voices. Consequently, this means that the aim of the inquiry and the research questions develop out of the convergence of two perspectives—that of science and of practice. In the best case, both sides benefit from the research process. Everyday practices, which have long since established themselves as a subject of inquiry, introduce their own perspective, namely, 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 for each other.

Read the following article on participatory research.

*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*


<table>
<thead>
<tr>
<th>Criteria</th>
<th>Cross-sectional</th>
<th>Case-control</th>
<th>Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling</td>
<td>Random sample of study population</td>
<td>Separate samples of diseased and non-diseased individuals</td>
<td>Separate samples of exposed and non-exposed individuals</td>
</tr>
<tr>
<td>Time</td>
<td>Single point</td>
<td>Usually retrospective</td>
<td>Usually prospective (but may be retrospective)</td>
</tr>
<tr>
<td>Causality</td>
<td>Associated between disease and risk factor</td>
<td>Preliminary causal hypothesis</td>
<td>Causality through evidence of temporality</td>
</tr>
<tr>
<td>Risk</td>
<td>Prevalence</td>
<td>None</td>
<td>Incidence density, cumulative incidence</td>
</tr>
<tr>
<td>Comparison of risks</td>
<td>Relative risk, odds ratio</td>
<td>Odds ratio</td>
<td>Relative risk, odds ratio</td>
</tr>
</tbody>
</table>
You have been assigned one of the topics below. Prepare to discuss in a plenary.

Key topics that should be discussed should include:

- Fundamental Principles of Participatory Research
- Democracy as a precondition for participatory research
- The need for a "safe space"
- Who participates? How is "the community" defined?
- Different degrees of participation
- Distinctive Features of the Participatory Research Methodology
- Material prerequisites
- Challenges and tasks facing all the research partners
- The importance of reflection
- Distinctive features of the production and analysis of the "data"
- Distinctive features of the representation of findings
- Academic requirements and funding conditions for participatory research
- Justification of participatory research projects
- Ethical aspects of participatory research

Participatory research promotes One Health allowing for different voices to be heard and for qualitative data to be collected.

**Using case studies**

Divide into groups. You are provided with the following topics:

In groups, discuss the following scenarios, and decide which type of study is best suited for the investigation of:

- 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 new born 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.

Consider both participatory methodologies as well as observational and descriptive designs. Explain the reasons for your answers and discuss how the studies could be carried out integrating One Health research approaches.

**Identifying collaborators and stakeholders in your study**

To be successful in One health research, building multi-disciplinary teams is crucial. Given the diversity of topics covered in the OH 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 needs to be involved in the early stages of the planning to encourage broader thinking and consolidation of resources. Researchers may also consider involvement of community members who have on-the-ground experience with the issue in question, such as farmers, fisherman, park rangers, scuba divers, wildfire firefighters plant workers, women leaders, medicine men, 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.

Read the case study below
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 antimalarials in Northern Uganda. This prompted the ministry of health to investigate the cause of this increased consumption of antimalarials.

Think through this case study and keeping the following questions in mind 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 bed nets?
2) How would you be able to know that Indoor Residual Spraying worked?
3) How could a multidisciplinary team have detected the outbreak earlier?
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?

Group Activity

- Utilizing the cases listed above identify and make a list of the different collaborators you would involve in each of the cases and what their roles would be.
- Identify the different stakeholders in their studies

Homework assignment

- Review your notes in statistics overnight and focus on topic on hypothesis, types of statistical tests, significance testing and inference, association between variables, comparison of means and proportions.
- Break into discussion groups and discuss what you understand by data analysis – process of looking at data, summarizing it with intent of extracting useful information and draw conclusions.
• You have been provided with a data set:
  o Identifying the study type – establish main analysis framework
  o Identifying main variables – outcomes, exposures, potential confounders
  o Identifying characteristics of the study population – demographics, clinical features
  o Examine exposure/outcome associations – hypothesis, prior knowledge, study objectives.
  o Examine comparisons among means and among proportions. Tests of significance and confidence intervals
  o Creating 2x2 tables on the basis of findings to do second line analysis.
  o Identifying confounding – Stratified analysis to moderate confounding effects.
  o Multivariate analysis where necessary
  o Interpret accordingly.

• For further practice do 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:
What kind of data would you look for?
How would you ensure that the data is integrating various aspects of One Health?

Notes
Session 3:
To learn how to formulate One Health research problems.

In this session, the learners 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:
- To recognize researchable problems in practice
- To demonstrate the missing information to address the problem
- To formulate One Health specific activities to bridge the gap in knowledge

Instructional activities:
- Small group discussions,
- Seminars
- PBL.

You will utilize the case scenarios/study topics listed above that you have previously used. Review your case based on the following:
- The importance of the problem locally, regionally and globally.
- Availability of funds, time and equipment
- Availability of expertise from different disciplines
- Innovativeness of investigators trying different ways of solving a problem
- Being creative, open-minded and observant of the surrounding environment and its problems crying for solutions.
- Research interest of funding agencies
- Research priorities as defined by OHCEA Research Innovations Project (ORIP)

Literature review
- Brainstorm on what you perceive as the significance of literature review.
- Compare your 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:
o Decide on the topic
o Identify literature you want to review from the online data bases eg. UMD library, Google scholar and Furl account
o Analyze this literature – overview the articles, categorize them into groups and take notes on each group
o Summarize the literature in concept map format.
o Synthesize the literature
o Write the review
o Develop coherent essay
o Draw list of references

• Give a power point presentation 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, if possible some abstracts of relevant articles can be added to this collection.
Session 4:
To learn how to execute research protocols in One Health Research

Research is an area that requires very strict adherence to laid down protocols to avoid breaches in ethical operations and standing regulations. And at the same time 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 learner will be expected to develop skills that will enable him/her to identify the key stakeholders and the right protocols to follow to avoid ethical pitfalls pertaining to the handling of his/her research subjects. It is advisable to start by appreciating the underlying principles in One health

Learning objectives

- 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

Instructional activities

- Field visit
- Small group discussion
- Role plays
- Poems
- Power point overview

A range of Participatory methodologies will be reviewed

Read the article below on participatory methodologies

Methods used in Participatory Epidemiology (Adapted from Saito and Spurling, 1992: 10; Catley, Alders & Woods, 2012; Ahlers et al., 2009:157)

Informal interviews
Visualization methods
Ranking and scoring

Identify which methodologies you can use in your specific cases and why those methods provide you with relevant One Health data?
Try to use methods that are inclusive, culturally and gender sensitive and provide qualitative as well as quantitative information.

Introduction to focus group discussions

Focus groups are commonly used in participatory research at community level
A focus group is a group comprising of 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 interviews\(^1\). Groups should be

\(^1\) http://www.fao.org/docrep/x5307e/x5307e08.htm
homogeneous in term of sex, age and activity. Discussions should last between one and two hours.

Focus group are often combined with visualization, ranking and scoring methods. They can be also 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)

Participatory mapping
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 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
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.
**Group activity**

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

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**Reviewing the roles of Institutional review boards**

Power point overview presentation of the role of Research Institutional Boards (IRBs) in regulating research. After this presentation, discuss the following:

- Identify local IRBs and their jurisdiction and their 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

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

**Pre-work:**

- 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.

**Ethical violations in research**

- Focusing on the occurrences in both the Nuremberg and the Tuskegee scenarios, highlight the ethical violation in each situation.
- In small groups, discuss the following:
  - Importance of research ethics
  - The core principles which must be considered by researchers
  - How these principles must be addressed into the research proposal and research implementing
  - Benefits and risks in research and balancing between the two
  - Progress and drivers of establishment of ethical regulations in human research
  - Vulnerable populations and their protection
  - Violations of ethical regulations
  - Applying research ethics:
    - Principle of respect of persons
    - Principle of beneficence
    - Principle of justice

- **Cultural traditions in research**
  - Cultural beliefs, myths and local norms
  - Gender – inequality, productivity and poverty
  - Behavioral changes

**Debrief:** Present similar cases you have seen or witnessed in your lives related to ethical violations. How did you resolve these issues?
Session 5: To develop skills in communicating One Health research findings

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

Learning objectives:
- To conduct critical research review of published articles
- To disseminate information to relevant stakeholders in a language they understand
- To publish for scientific fraternity.

Instructional activities:
- Power point presentations
- Reviews of published works in small groups
- Seminars
- Field visits, public speaking, poems, dance, drama
- Writing tasks in small groups

Presentation of information:
- You are presented with different kinds of published information – newspaper articles, magazine articles, annual reports, progress reports, scientific journal articles etc.
- Identify different formats used in different publications
- In small groups, you are presented with one journal article. Critically appraise it along the following guidelines:
  a) Does the title reflect the contents of the paper adequately? Explain
  b) What are the study objectives? Are they SMART? Elaborate
  c) What is the study design used and is it appropriate for the stated objectives?
  d) How was the sample selected? Was this appropriate?
  e) How can it be made to be more holistic and to integrate One health
  f) Comment on ethical issues in this study.
  g) What statistical tests were used in the analysis of data? Comment on their appropriateness?
  h) What are the conclusions of the study? Are they relevant to the study objectives? Explain.

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
- Identify your audiences – community, government agency, scientific fraternity, school children etc.
• Based on the identified audience, craft reports, drama, poems, power point presentations in a language that their audiences can understand.

• Make mock presentation to the class and solicit for critical appraisal along the following criteria:
  o Quality of slides – clear or too crowded
  o Mannerism of the presenter
  o Clarity of intended message
  o Sticking to allocated amount of time

• Make a field visit and conduct real information dissemination in practice.

60 minutes:

• Listen to 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:
  o Different formats for different journals and different disciplines
  o Submission of articles – information to authors
  o Solicited articles
  o Review process and feedback to author
  o Publication types – print or electronic
  o Publication fees where applicable
Session 6:
To develop skills in working as a One Health research team

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 learner 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:
- To sensitize other disciplines expected to participate in research
- To schedule a programme of operations (modus operandi)

In the beginning you identified what you considered to be your own one health research topic. At this time, work on your specific research topic to
  ▪ Specify the nature of One Health research
  ▪ Determine the different types of expertise/disciplines involved
  ▪ Provide a strategy for approaching the individuals with this type of expertise to solicit for their participation
  ▪ Provide them with full information about the research project.
  ▪ 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
  ▪ Develop an abstract for their topic that they can specifically submit to the One health congress

Power point presentation on publications including the following sections contractual agreement between authors.
Session 7:
Learning how to develop gender responsive One Health research projects and their implementation

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 and women's roles, experiences and perspectives and gives equal value to each. 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.

In this session learners, will be exposed to gender concepts and dynamics and how to perform a gender analysis. They will also learn how to formulate a gender sensitive research methodologies, it will be impressed upon the learners that gender is a pertinent and integral component of research that should be given its rightful place for well-rounded research environment.

Learning objectives:

● Explain basic gender concepts
● Utilize gender analysis tools in one health research
● Develop gender sensitive research projects to address gender gaps in OH research

Group activity
Divide into three groups and discuss the following to demonstrate gender sensitive research projects to address gender gaps in OH research, gender roles.

- what is a gender sensitive one health research?
- How would you ensure gender sensitivity when collecting research data?
- How would you consider gender sensitivity when reporting and communicating research data
- what are the benefits of engendered one health research?
- Varying involvements by men and women on daily activities, for example:
  - Family health
  - Caring for children and the sick
  - Household chores
  - Finances and property ownership
  - Family authority
  - Animal health issues

Power point presentation and brief discussion on gender concepts and analysis tools.
Working on your specific One Health research topics/themes, can you identify gender issues in your research topic and how would they deal with it. Describe how the varying gender engagements affect conducting of research and generating valid information. 

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

**60 minutes:**

### 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 predominantly 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? Why do you think the cases of women later outnumbered the cases of men in this outbreak?

2. 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? Explain why in the outbreak of 1976 in Sudan, there were more men cases than women.

3. In the 1979 outbreak in Nzara and Yambio, and Sudan, why is it that a large proportion of those infected were women? What is the significance in research of the statistics observed in these outbreak scenarios?
4. How do you ensure that the scenarios portrayed in this case study are avoided?

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 from men on their attitudes, concerns and aspirations instead of relying solely on women’s perceptions.

**Group Activity**

**Developing gender sensitive One Health research projects and their implementation.**

Learners 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:**

1. To learn how to develop gender sensitive One Health research projects and their implementation.
2. To recognize gender gaps in One Health and emerging pandemics threat and identify resources to address those gaps

**3 hours: Simulation Exercise.**

Divide 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.

You 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. 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:**

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

**Debrief, reflection and conclusion of work shop**

Reflect on the training.

Fill out the post-test and OHCEA evaluation form.