

## **Outside the Box: Addressing the Sustainable Development Goal Through a One Health Approach**

Presenters: Dr. Zhengxia Dou, Dr. Nancy Glass, Dr. Woutrina Smith, Dr. Guy Palmer, Dr. Yalace Yamba KABORET, Dr. Olivier Lepage, Dr. Noelle Noyes

Moderators: Dr. Bonnie Jenkins, Dr. Judith Wasserheit

Notes taken by Gregory Chang and Kalifa Wright

The One Health approach is a concept that expands interdisciplinary collaboration across all aspects of global health for humans, animals, and the environment. The goal of this session is to learn how to use the One Health approach to achieve the Sustainable Development Goals (SDGs), increase knowledge and awareness of One Health successes and challenges, and to further develop a network of peers and experts using the One Health approach. The One Health approach heavily focuses on using livestock to not only empower women to escape poverty, but also to serve as a tool to build up local economies. However, challenges in the field such as the increase in the livestock carbon footprint, emergence of antimicrobial resistance, severe shortage of veterinarians in W. Africa, and finally issues of developing optimal metrics, have hindered the progress of using the One Health approach. This 2018 CUGH satellite session brought together experts in the field who have come up with solutions to these complex challenges and encouraged fellow researchers to continue to use “out of the box” research methods to accomplish the SDGs using the One Health approach.

### 1) **Global Health Problem:** Studying the Antimicrobial Resistome

**Presenter:** Dr. Noyes

**Problem:** This session will address the extent to which antimicrobial use in livestock contributes to or cause antimicrobial resistant infections in humans. Antimicrobials are found in a variety of forms (eg. cleaners, cosmetics, aquaculture, industrial production). Research and surveillance is currently largely culture-based, but in reality samples are much

#### **Key Recommendations and Solutions:**

- A metagenomics study looked at beef production from cattle on ranches to packaging for retail. After conducting DNA to identify resistance genes in the samples (feces, soil, and water), the study found that there were no resistance genes in the slaughter test. In the US this is a highly regulated process in order to kill bacteria and pathogens.
  - Predicted that the microbiome shifted during the slaughter process, allowing some bacteria surviving at high heat levels

- Need to further understand the entire lifecycle of the animal, and create a baseline for understanding development overtime
- Important to bring different sectors together to fully understand the big system
  - There is a lot of distrust to overcome between sectors (eg. government, corporations, academia)
  - Involves bringing in people with competing views in true working groups

## 2) **Global Health Problem:** Building veterinary capacity in Africa to achieve SDGs

**Presenters:** Dr. Kaboret and Dr. Lepage

**Problem #1:** Veterinarians are in the frontline of reducing poverty, improving food and nutritional security, market access, protecting animal health and protecting public health, animal production and welfare, as well as important to building the national economy. However, with the limited number of human resources and vet services, limited access to continued education, and insufficient communication and collaboration it is difficult to achieve One Health.

- Three additional Challenges to achieving One Health include:
  - Control of emerging & re-emerging and zoonotic disease
  - Burden of endemic zoonosis
  - Control Emerging Antimicrobial Resistance (AMR)

### **Key Recommendations and Solutions**

- Vet Education: Develop practical skills in clinical and animal disease control
  - Promote one health approach through multidisciplinary research, training and community services
  - Develop skill in communication and leadership
  - Develop skill in FETPV (Field Epidemiology Training Program for Veterinarians)
  - Promote supervision of para-veterinarians by courses and training
  - Increase laboratory capacities
  - Example: Interstate School of Veterinary Science and Medicine (EISMV), Dakar
- Strategies to achieve before 2026, to achieve One Health
- § Increase vet graduates
  - § Develop professional training in animal clinical
  - § Develop FETPV program
  - § Improve network and diagnostic capacities
  - § Develop intersectoral for AMR
  - § Introduce one health module in masters and undergraduate

**Problem #2:** Building vet capacity in Africa a mean to evaluate socioeconomic status and address health disparities. In Western Africa, women and children bear the burden of water

and food collections, as well as trash collection. Improving animal health provides an opportunity to reduce disparities. For example, young girls are required to go to the well for water collection multiple times a day, particularly in animals (donkeys) that are incapable. This leads to deterioration of health, and reduces opportunities for education. Education and health intervention can help to reduce disparities and poverty.

### **Key Recommendations and Solutions:**

- In an effort to reach francophone SSA, EISMV currently supports 15 African countries. And wants to expand program in the next few years. This includes expanding financial support for students, and creating distant learning for undergraduate programs and continuing education programs.
- Global health international is also working to build an African Veterinary capacity
- Next generation students should be able to establish clinical skills including, animal health and welfare, control infectious disease and prevention, and global health programs to increase microbility with animals
- Move from one directional teaching platform, to a bi-directional network for animal health, one health and global health.
- Improve distribution of veterinary human resources
- Donkey carts can be used to address the lack of time women have to spend with children because of time spent on waste collection. Donkey carts reduce back problems, and increase opportunity for schooling. The opportunity for schooling is particularly imperative for girls who often bear the greatest burden.
- Upgrade financially actors of animal health
- Physician/Vet Collaboration increases integration of students during education.
  - For example, training paravets and vets in the same institution
- Increasing national and political support for collaboration

### **3) Wrap UP Topic: Determining Metrics for Success**

#### · N. Glass

- There are a large body of nurses but nurses have missed opportunities to integrate One Health. There is a need to further educate nurses by integrating one health into curriculum, and building of interdisciplinary networks and job opportunities

#### · O. Lepage

- Further investment in veterinary education. In terms of metrics: increasing the number of students and applicants as a short term goal. And as a long term goal, joining networks of e-health to put data on a single e-health network to allow for collaborative access. As well, increasing overall collaboration between those involved in health.

- Y. Kaboret
  - Making practical education available to give vets the skills they need to do their job
- G. Palmer
  - Engage universities working in global health to increase active engagement within the field (eg. pharmacy, vets, economists, anthropologists). Students from all disciplines need to be able to talk about health disparities, gender inequity, etc.
- N. Noyes
  - Nationwide increase in information literacy among livestock production
- B. Jenkins
  - ghsagenda.org – Includes a list of action packages in contributing to infectious disease security by different countries
  - Integration of government and NGOs working together to address issues
- Z. Dou
  - Consumer education on topics such as food waste reduction, environmental sustainability, food security
  - Working with vets to address biosecurity issues, eliminating harmful bacteria to improve animal health and human safety
- W. Smith
  - There needs to be new models of metrics and integration of health disciplines

### **Important Links/Reports**

<http://www.eismv.org/>

Ghsagenda.org

<http://www.pigsforpeace.org/>