Welcome to Issue 1 of the 3rd Volume of our Newsletter; OHCEA News. We thank you for walking with us this far.

In this Issue, we share with you exciting developments within the network.

Seven of the eight countries where OHCEA has membership have conducted workforce assessments and have conducted validation processes. We had a regional meeting to compare notes on the exercise and how it unfolded across the network (it was a new area for us). Most importantly, we took note of the emerging themes across the countries and strategies were designed on how to address the gaps therein. Key among these were communication across sectors and collaboration. Read about our extensive article on this meeting.

Risk analysis is a key area of training for many of the countries in OHCEA; in-service professionals are a key target for these training sessions. In Kenya and Ethiopia, trainings were conducted for academics and public sector professionals, pushing up the number of professionals with necessary knowledge and skills in the region. Apart from the numbers, strategies to institutionalise the trainings and make them sustainable have also emerged.

Our Students One Health Innovations Clubs (SOHIC) are growing bigger and stronger. With just a little help from faculty, the clubs have been able to organise impactful community outreach activities; rabies vaccination to mark World Rabies Day, community education and clean up for One Health day, among others. In Rwanda, SOHIC activities are now being modelled along the UMUGANDA (community action) to ensure that the student’s activities fit within national schemes and aspirations.

Participation in outbreak responses is a major training approach that provides opportunity and exposes students to real life outbreak response scenarios that build practical knowledge and skills among the students. Students in Uganda were able to participate in the Marburg Virus Disease outbreak in the Eastern part of the country. They participated in a range of activities and in this article we share their experiences.

This and a lot more stories in OHCEA News!

Happy reading!

Professor William Bazeyo, Chief Executive Officer, OHCEA
Diseases that move between humans and animals require a workforce that can efficiently and effectively coordinate and collaborate across human, animal, environment health sectors for better detection, prevention and response. This “One Health Workforce” requires sector-specific technical competencies that meet international standards and requirements, multi-sectoral competencies that give personnel the skills, knowledge and right mindset to work across sectors and supportive operational capacity within institutions that foster multi-sectoral work. OHCEA/One Health Workforce (OHW) set out a five-year vision of “One Health Workforce education and training for in-service and pre-service that is informed by needs derived from government driven needs assessments”.

To better understand nationally defined workforce capacities and gaps/needs, OHCEA/OHW fast-tracked a standardized three-step approach (i) Review of existing country assessments (international and local) to produce a synthesis of government defined needs (Consultancy) (ii) Cross-sectoral 3-4 days systems mapping stakeholder workshop involving government technocrats using OH SMART™ (iii) High level validation workshop with key decision makers from across sectors to confirm workforce needs/gaps and workforce development action plans) to define workforce needs in all its operational countries between January and September 2017. The steps included 1). Document review of existing assessments by consultant(s) to develop a synthesis of national workforce capacity gaps, 2). Stakeholder meeting with technical experts to enrich the synthesized document and 3). Validation meeting with high level representatives from different sectors. Country syntheses were preceded by a regional workshop that leveled understanding of the workforce assessment process and built skills in OH SMART™, a tool that...
was used to map cross-sectoral workforce gaps. OH SMART™ provides a standardized process for creating systems-based mapping of agency and stakeholder interactions across sectors around One Health (OH) challenges. The tool was tailored to better capture cross-sectoral workforce needs.

A regional approach has become apparent to undertake a deeper analysis of what has been generated at the country level to develop a workforce development roadmap and workforce packages for selected priority diseases in response to identified national capacity gaps. The workforce packages will be implemented by OHCEA and partners in the coming years.

The rich information generated during country assessments called for a common approach on the next steps. Key players were convened to develop a roadmap that will serve as a guide to countries for the next steps on workforce planning and policy communication. During the meeting, OHCEA developed practical workforce development interventions capable of addressing specific gaps so as to offer capacity building solutions that governments together with academia can deliver to address identified gaps in the medium to long term. The regional meeting also served to map activities that OHCEA/OHW have delivered over the years and how they align to national needs.

A 5-day working meeting was planned for December 4th - 8th, 2017 in Kampala, Uganda. It brought together participants that have been actively involved in the country-specific processes, plus regional partners in health.

The goal of the regional harmonization workshop was to synthesize findings into a regional road map for workforce planning and policy communication with very clear action steps, models for workforce development with clear strategies for mobilizing resources to broaden implementation, and publication outlines.

The 46 participants included consultants that undertook the workforce assessment synthesis, faculty from OHCEA member institutions in eight countries that actively coordinated the synthesis exercise, EPT2/GHSA implementing partners, OHCEA secretariat staff, USA One Health Workforce implementing University institutions and regional development partners in health.

Seven country (Cameroon, DRC, Ethiopia, Rwanda, Senegal, Tanzania and Uganda) report-outs of synthesized workforce needs were presented and shared during the workshop. This enabled participants to appreciate the approach used, the key findings and lessons learned. All power point presentations have been made available.

The results from country presentations were categorized into a regional workforce needs matrix with broad themes including: communication, coordination and collaboration, human resource, policy and regulations, education and training (technical), education and training (cross-sectoral), data management, leadership, management, institutional (resource/funding), laboratory, surveillance, gender, biosecurity, monitoring and evaluation, Anti-Microbial Resistance (AMR),
case reporting, emergency preparedness, disaster management, diagnostics, others (e.g. trade).

A review of OHW/OHCEA year 2, 3 & 4 activities were mapped against the themes, and results indicated that most activities were aligned to both technical and cross sectoral education and training themes.

The workshop exposed how the OHW/OHCEA workforce synthesis and workforce development feeds into and complements GHSA and IHR/ JEE efforts. By identifying Education and Training Needs and developing relevant training programs, we are contributing to enabling nations to move forward their core capacities. The findings have exposed the need for additional skills and competencies beyond field epidemiologists. Additionally, the findings provide valuable details necessary for One Health to be operationalized at different phases (preparedness, response, after action).

This is valuable information for targeted areas of work for OHCEA in year 5 and beyond.

For One Health to become a mainstream response, there is need to break the operational barriers. This requires high level buy-in from different sectors of government as well as negotiation at the mid-technical level to understand one health and support its implementation in the day to day activities. The meeting initiated a process of developing plausible workforce development interventions that can be strategically implemented in order to cross the current One Health operational barriers. This is intended to demonstrate practical interventions that can break down these barriers.

The workshop developed country and regional publication outlines including titles, possible journals and an action plan on how to further develop the publications. For each country, a list of faculty to write up the publication was generated and are being followed up with.
These publications will enable the wider global public to access the results of the synthesis. Online reports (dashboards) were generated and will be further developed to enable easy access.

The workshop also created awareness among participants about working in partnership and its advantages. A list of country network contacts were generated and will form the basis for exploring partnership opportunities within countries. Information relevant for developing an OHCEA resource mobilization (RM) strategy was generated and will be used by OHCEA in reviewing its RM strategy, this included value proposition for networks to its member institutions and individual faculty, to donors. Draft project ideas out of the workforce development process were generated and a regional working group named. This will further spear the development of the OHCEA workforce development roadmap.

Other opportunities

- Some partnership opportunities from P&R (regional manager East Africa) were highlighted including some joint publication.
- Country action plans and costed plan are on-going, for those countries that have not yet concluded their national action plans, the information generated from country processes and regional synthesis provide valuable data to make input into country action planning processes. It was indicated that some countries are requesting this value addition through their OH platform fora, Uganda is one such case though its 5-year action plan and costed plans have been concluded.
In the recent past, Kenya has had outbreaks of emerging and re-emerging infectious diseases like Rift Valley Fever (RVF), Highly Pathogenic Avian Influenza (HPAI) and common endemic diseases like rabies and anthrax. This calls for a workforce that is able to identify, manage, prevent and communicate risk using the One Health approach. Risk analysis training for government officers responsible for disease control and prevention will build capacity for prevention, detection and response to public health threats.

In November 2017, OHCEA-Kenya conducted a Training of Trainers risk analysis training for Kenya government officers to be later cascaded to the lowest levels (sub-counties) in high risk regions of the country. The training was conducted in Machakos Kenya. The training was designed with the objective of; equipping officers with skills to prioritize risks, focus resources in areas with highest risk and provide evidence based and timely decision making that informs policies and practices for risk management at community and national levels.

Officers that attended the training were equipped with skills to prioritize risks, focus resources in areas with highest risk and provide evidence-based and timely decision-making that informs policies and practices for risk management at community and national levels. The training was based on the Global Health Security Agenda (GHSA) focus areas such as the top five priority zoonotic diseases and AMR for Kenya.

Ten (10) out of 56 Government officers trained in risk analysis in Year Three of the One Health Workforce project underwent the TOT on risk analysis. Thirty sub-county government officers were also trained. This included animal, human and wildlife health officers responsible for disease control and prevention in high-risk counties. These are the risk managers in the counties and the first line in the detection and response to disease outbreaks. This training will therefore help them to prioritize risk in their counties so as to ensure resources are utilized efficiently.

Participants were taken through the different components of risk management and risk prioritization, risk-based inspection and surveillance and rapid assessments, risk communication and project management.

The results of this training are; ten TOTs were trained on the delivery of risk analysis modules; 30 county officers (risk managers) from high risk counties were trained on risk analysis; the level of knowledge of 30 county officers during the risk analysis training in Nakuru increased by 29% from 53% to 82%.
From the two student debates that had been conducted in February and June 2017, it became apparent that many students have long regarded microbes as undesirable creatures because the presence of some is associated with diseases in humans. However, the truth is that microbes shouldn’t be regarded as such anymore; microbes are actually partners for life and naturally found in association with humans, animals, plants; intervening in large numbers of vital activities in all forms of life. What should be of concern is rather the type of association which is highly regulated by human activities and behaviors; especially in connection with hygiene (evidenced by the discussion on the recent avian flu in Cameroon and Ebola epidemics in several West Africa countries) and exacerbated by resistance to antimicrobial agents. Most human conditions in developing countries are associated with infectious diseases in connection with poor hygiene practices. Accordingly, good hygiene can help in the control of infectious disease. Infectious disease agents can also come from animals and/or from animal-derived products.

The November 24th debate on tuberculosis further strengthened students’ knowledge on infectious diseases and antimicrobial resistance. This knowledge provided a basis for planning the community outreach expected to involve students from different fields of studies at the UdM. Based on that and on students’ expectations, tools for training on zoonotic diseases were developed. Emphasis was laid on exposure to harmful microorganisms and their transmission that represent the major engines for endemicity, favored by asymptomatic carriage. Rabies and Anthrax were used as the training topics; listed in the top ten priority zoonoses in Cameroon alongside tuberculosis, Ebola fever and Avian Influenza. Upon completion of the training, the attendees were equipped with tools that would allow better understanding of the government systems, policies and priorities; in connection with management of epidemic-prone diseases in the country, the core competency needs for International Health Regulation (IHR), the World Health Organization for Animal Health (OIE), Performance of Veterinary Services (PVS) and One Health (OH). The students needed this knowledge to fit in and interact efficiently in identifying, preventing and controlling infectious diseases trend in the multidisciplinary framework imposed by the current trend of globalization.

The training objectives were; 1) using the right vocabulary while communicating with community members on threats of zoonotic infectious diseases; 2) using multidisciplinary approaches in preventing and responding to outbreaks; 3) introducing aspects related to Biosafety and Biosecurity in the control of IDs (vaccine, clean washing etc.); 4) understanding government policy in preventing and controlling outbreaks of zoonotic diseases; 5) using leadership management skills to involve stakeholders in preventing and controlling outbreaks of zoonotic diseases.

One hundred and thirteen (113) students attended the training. They came from different disciplines including Pharmacy, Human Medicine, Biomedical Sciences, Nursing, Physiotherapy, Veterinary Medicine, Dentistry, Sciences and Technology.

The Focal Person Professor, Faustin Facho Balaam welcomed participants and stressed the need for collaboration for the management of IDs that represent major challenges for human, animal and environmental health at a globe scale. He briefly elaborated the connection between human and animal health and disease conditions and the role of ignorance, low education and multiple hosts in maintaining endemicity of zoonotic diseases. He reminded participants that tuberculosis was discussed a week earlier as typical zoonotic condition for which the etiologic agents could be detected in several animal species and humans with different health status. He concluded that collaboration of resources from different fields (multidisciplinary approach) is the key for any initiative against zoonotic diseases.

Dr. Pierre Fotsing introduced anthrax and rabies, going from the description of the etiologic agents through the fatality rates, epidemiology, clinical findings and disease prevention. Several
questions were asked after and the resource persons including the government representative and the veterinarian faculty representative provided more information for better understanding of the issues.

The students were taken through the first case study on rabies after which a test was administered. The group work was followed by dramatized presentations that all groups performed (four in total). From these drama skits, economic impact of rabies in a community was raised in connection with potentially high morbidity and mortality rates. It also came out clearly that herdsmen and pet animal owners were good channels to use to pass on the anti-rabies message in the community. Community leaders were also identified as the first people to contact for the successful implementation of the sensitization.

The Ministry of Fisheries and Animal Industry resource person Mme Nyock Rose educated students on policy used by the government to prevent and respond to zoonotic disease outbreaks. It came out that, different kinds of prevention measures were put in place by the government for this purpose. He gave examples of set of actions taken to control the spread of bird flu in 2017.

The students strongly believe that they can effectively create awareness on ID threats through the use of social networks, radio, and text messages on mobile telephones. They also observed that communication with classmates could be effective during student parties and informal discussion in classrooms. There were also suggestions of installing video players in buses that carry students and personnel from one campus to the other with the messages. All groups identified the roles of stakeholders in managing and controlling infectious disease crises. Most importantly, it was observed that poverty typically exacerbates infectious disease threats. Globalization is another key engine in the spreading of zoonotic IDs etiologies.

Two videos were presented on anthrax from which students learnt contamination, prevention, control measures, disease symptom and physiopathology. The members of the student's club were also taught how to search for reliable information from the internet for self-training.

The real challenge ahead is how to amass the critical numbers necessary to relay the OH message to students from all fields of study at the UdM.

A quick survey among students after the training indicated that this was a training that met the students' knowledge needs.

### Participant survey/evaluation results

<table>
<thead>
<tr>
<th>Items tested</th>
<th>Pre-test</th>
<th>Post-test</th>
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<tbody>
<tr>
<td>Etiology of rabies</td>
<td>92.5%</td>
<td>97.5%</td>
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<tr>
<td>Rabies prevention</td>
<td>47.5%</td>
<td>63.34%</td>
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<tr>
<td>Mode of transmission</td>
<td>77.5%</td>
<td>97.5%</td>
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<td>Etiology of anthrax</td>
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<tr>
<td>Types of anthrax</td>
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<tr>
<td>Contamination with anthrax</td>
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<td>36.58%</td>
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<tr>
<td>Means of preventing anthrax</td>
<td>35%</td>
<td>58.53%</td>
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<td>Student’s appreciation of the training activities</td>
<td></td>
<td>4: 80.48%</td>
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<tr>
<td>4: very good; 3: good; 2: average</td>
<td></td>
<td>3: 17.07%</td>
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<tr>
<td>e.i. 37% of student’s participation recognized that the training was good.</td>
<td></td>
<td>2: 2.45%</td>
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Integration of One Health Modules into existing Curricula: Jimma and Mekelle Universities orient staff and sensitise University leadership on Integration

Jimma University staff Orientation on Integration of One Health Modules into Existing PG/UG Courses and Sensitization of University Management

The integration of One Health core competence into existing courses of both undergraduate and postgraduate programs was conducted in Year III of One Health Workforce project. During the integration, only a small number of staff participated while many others who deliver the same courses were not able to attend. It was however considered worth bringing all faculty who deliver integrated courses to have the same understanding of One Health core competencies. In Year 4, all faculty involved in the delivery of the courses were oriented to sustain OH and to reach a wide OH future generation.

The objectives of the orientation were; 1) to build the capacity of the faculty to ensure the delivery of the integrated courses, 2) to have common understanding among faculty about delivery of OH integrated courses and sustain OH in the teaching and learning processes in the university, 3) to support the institutionalization and sustainability of OH training in the system.

All the 36 staff who attended the orientation briefly presented their own courses integrated with OH core competencies. Below is the list of courses integrated with OH core competencies:

1. Advanced Ecology course beneficiaries a staff who delivers...
department head and the dean take responsibility to follow up the implementation of the integrated courses.

Common understanding was developed about those specific courses integrated by OH core competency and their mode of delivery was thoroughly discussed.

The Focal Persons promised faculty to share the OH modules to use for further reference.

**Mekelle University Faculty Orientated in One Health Curriculum Integration**

Mekelle University conducted a one-day workshop to orient faculty of the College of Health Sciences and College of Veterinary Medicine in One Health curriculum integration. The orientation workshop conducted December 17th, 2017, is the continuation of the training of trainers (ToT) training in One Health curriculum integration held at Wukro in August, 2017. Thirty two (32) faculty from veterinary medicine, environmental health, Public health, nursing, pharmacy, medicine and midwifery participated, working together on various One Health-related curricula to develop content that can enable them train students that can solve the challenges at the human-animal and environment interfaces. The workshop was facilitated by Dr. Getachew Redae from Environmental Health, Dr. Abreha Tesfay and Berihun Afera from College of Veterinary Medicine.

The discussion was very lively and many questions was raised and addressed by focal persons. Each course with OH competencies integrated was presented by the course custodians and the mode of delivery briefly discussed. Participants raised a lot of concerns (what effort was being done at ministry level?, does the integration affect load/credit and time of the course?, How can we integrate OH with community based education, does OH core competency need specialization? The Jimma University OHCEA Focal Persons agreed to continue orientating staff on the same page in integrated course delivery.

- Interest of the staff was highly rewarding to in accepting the integrated courses and in OH concept in making difference in our ecosystem.
- It was agreed that each
Ethiopia institutions Intensify Capacity Building efforts for Risk Analysis

Training for risk analysis is a flagship program in Ethiopia under the One Health Workforce project. To date, a considerable number has been trained in the country addressing a need that has been identified and expressed by the Government of Ethiopia. In this period, another set of in-service professionals, including academics were trained at Jimma University and Mekelle University to contribute to the growing pool of professionals competent in risk analysis.

Jimma University conducts Risk analysis training for professionals from different government institutions

Jimma University, Ethiopia conducted a risk analysis training workshop for twenty-seven (27) public sector professionals. These included professionals from government sector departments and eight academic staff from Faculty of Public Health and School of Veterinary Medicine (four from each).

The workshop conducted December 22nd-26th at Dololo Hotel, aimed at training people working in the university and government sector in One Health risk analysis. Risk Analysis is a tool used by intergovernmental organizations (such as WHO, OIE and FAO) to assess disease risk in a cost-effective manner.

The training was organized to ensure that academic staff and government sector professionals attending this training acquired the knowledge and tools in risk management and risk communication to be able to:

1. Describe the concepts and framework of risk analysis applied to zoonotic diseases and food safety
2. Identify the roles and interactions among the risk assessors, risk managers, and stakeholders
3. Apply risk prioritization tools to identify the priorities in zoonotic diseases and food safety in the country or region
4. Apply rapid risk assessment tools for the importation of live animals, biological and agricultural products
5. Design a surveillance and inspection program in zoonotic diseases and food safety in the country or region
6. Communicate effectively risk analysis with the stakeholders

The beneficiary institutions included: Jimma University School of Veterinary Medicine, Jimma University Food Science and Postharvest Technology, Jimma University Crop Protection, Jimma University Natural Resource Management, Jimma University Animal Science, Jimma University Faculty of Public Health, Environment and Forestry and Climatic Change Center, Shenen Gibe Hospital, Jimma Town Food Security and Job Creation, Jimma Referral Hospital.
Healthcare Institutions, Red Cross, Disaster Prevention and Preparedness, Livestock & Fishery Development from Jimma zone.

In his opening remarks, Prof. KifleWeldemichael, School of Public Health OHCEA Focal Person, emphasized the importance of connecting academia and sector offices in controlling outbreaks and risks. He therefore called on participants to participate fully and actively in the training so as to derive the maximum benefit from it and realize the training objectives.

Dr. Dechassa Tegegne briefly explained the one health concept and historical developments. He also took participants through the OHCEA vision and mission and partner countries and major activities conducted in Ethiopia. Some of the participants mentioned that they were involved in the management of Anthrax, rabies and diarheal disease outbreaks. The participants also mentioned that lack of integration and discipline-based complexity were the major challenges they faced during the management of one health risks.

Case scenarios were used as a training tool. Chicken market as source of zoonotic infection in Addis Ababa was one of them. Using this case scenario, participants were able to identify potential stakeholders and classify them based on their influence and importance.

Participants were also taken through risk management framework, risk management steps and risk prioritization in food safety and they were trained in how to prioritize risk and how to use risk prioritization tools (decision trees and decision matrix) to rank the pathogens in food.

One of the most interesting presentations demonstrated the use of risk ranger software in Microsoft excel.

Some important tools for risk estimation and assessment currently in use for animal diseases and food safety were also discussed. Some highlights of this session are:

- Use of WHO food borne tool
- Risk prioritization in Zoonotic Diseases in Ethiopia
- Steps of the Risk Assessment
- Risk-based surveillance and inspection
- Use of rapid tools for import-export

Risk communication issues in the context of OIE and FAO (food safety) were also addressed.

Towards the end of the workshop, participants were briefly exposed to the concepts of collaboration and partnership. The presentation by Dr. Dechassa Tegegne (OHCEA Vet Medicine Focal Person) emphasized that the platform created in the workshop needs to be sustained in the future. Trainees identified priority project areas and drafted concept notes in the area of zoonotic diseases, food safety and environmental health.
Ethiopia institutions Intensify Capacity Building efforts for Risk Analysis

Mekelle University Conducts Training in Risk Analysis for professionals in the Tigray Region of Ethiopia

Mekelle University provided a training on Risk Analysis from December 28/2017 to January 1/2018. Thirty seven (37) professionals from Mekelle University College of Health Sciences, College of Veterinary Medicine, Tigray Agricultural and Rural Development Bureau, Tigray Health Bureau, Mekelle Zonal Health Office, Tigray Health Research Institute, Veterinary Drugs and Feed Control Authority, Tigray Science and Technology Bureau, Tigray Agricultural Research Institute, Abridgele International Abattoir and Mekelle Zone Agriculture Bureau participated. The Training was facilitated by faculty of Mekelle University namely Dr. Yohannes Tekle (College of Veterinary medicine) and Dejen Yemane (College of Health Sciences) who participated in the Risk Analysis module development and Training of Trainers conducted earlier. From the training, participants gained knowledge and skill of one health, risk assessment, risk management and risk analysis principles and applications.
Student One Health Innovations Club Established at Mekelle University

Mekelle University conducted a one day workshop to establish the Student One Health Innovations Club at College of Health Sciences and College of Veterinary Medicine on December 10th 2017. During the workshop, presentations were made on the historical development of one health approach and One Health Central and Eastern Africa (OHCEA) network. The workshop objective was to establish strong and vibrant clubs that will be responsible in disseminating knowledge to wider communities through various community outreach programs and sensitization of the public about zoonotic diseases. One hundred (100) students from veterinary medicine, public health, environmental health, nursing and medicine participated in the workshop and committed themselves to work together to address the health challenges at the human-animal and environment interface. The workshop was facilitated by Dr. Berihun Afera One Health Focal Person and Knowledge and Technology Transfer Officer at the College of Veterinary Medicine and Dr. Gebrehiwot Tadesse, OHCEA Board Member who is also Research and Postgraduate Director at Mekelle University.

Photo Credit: Dr. Berihun Afera

A cross section of students who participated in the workshop
In November 2016, a team of six students from the School of Public Health, College of Health Sciences and College of Veterinary Medicine Animal Resources and Biosecurity who are members of the Makerere University One Health Students Club, carried out a sensitization seminar on rabies in St Noa’s Girls Senior Secondary School in Wakiso District, about 15km from the Makerere University in commemoration of the One Health day. Building on this success, of this previous event, the One Health students club in 2017 decided to continue the sensitization. On this occasion, it was to be done as a community outreach, as a door-to-door exercise, with vaccination of household pets coupled with sensitization on the dangers of rabies. A common vaccine point was to be maintained in case some members of the community preferred the latter.

The objectives of the outreach were:

- A multidisciplinary team of Makerere University students to participate in vaccination of dogs and cats against rabies disease.
- A multidisciplinary team of Makerere University students to participate in community sensitization and awareness on rabies and its impact.

A total of 115 pets were vaccinated against canine rabies during an outreach carried out by the multidisciplinary Makerere University Students One Health Innovations Club from the 28th to 30th September 2017. The pet owners were from Kawaala (30 homes), Kabowa (15 homes) and Kanyanya (15 homes). Doses of canine vaccine were obtained from Ministry of Agriculture, Animal Industry and Fisheries through the Uganda Veterinary Association. In partnership with the Veterinary Office in KCCA and the District Veterinary Office as well as the area Local Council leadership, it was possible to access the community. There was a total of 72 students who participated in the community outreach: from College of Health Sciences, College of Veterinary Medicine, Animal Resources and Biosecurity, College of Engineering, Design, Art and Technology, College of Agricultural and Environmental Sciences, College of Humanities and Social Sciences and School of Law. Each student had a role and competence from their discipline to bring onboard to the team. A total of 72 students participated, with an average of 40 per day.

For the community outreach, a total of 40 students participated. While in the field, the students were divided into two groups each consisting of 20 students. One of the groups pitched camp at a common vaccination point station selected by the community. The second group was mobile and moved door-to-door with the local community leader to bring the service to the households who found it difficult to leave their homes or move with their pets. This was also to enable the households who got the information at short notice to participate.

The veterinary medicine students in 4th year and 5th years did the vaccinations on the dogs and cats under the supervision of Dr. Paul Ssuuna and Dr. Gabriel Tumwine.

Students offering Public Health, Environmental Health Science and Social Sciences participated in the sensitization exercise. The students from Law were to examine the by-laws surrounding vaccination for rabies. The lists of pet owners whose pets were vaccinated were submitted to the Local Government Veterinary Office.

Pet owners having their pets vaccinated by the students under close supervision of faculty and local government staff.
Issues arising from the vaccination included:

- Many locals believed that killing of stray dogs was the only way to address rabies prevalence in their area.
- Some locals showed lack of trust and resistance to the rabies vaccinations citing “Dog killings by KCCA disguised as vaccinations”, arguing that the dogs offered protection in their area marred by petty crime.
- The locals loved the exercise and credited the club for its initiative.
- A few of the locals also believed that euthanisation of the stray dogs and cats would be helpful in safe guarding themselves from dog bites.

Some of these issues point to strengthened sensitization of the public about rabies by the Veterinary and Public Health Office in Ministry of Agriculture Animal Industry and Fisheries and Ministry of Health.

For the students, learning outcomes included:

- Team building
- Community engagement
- Confidence in speaking in the community
- Importance and roles of different disciplines on the team
- Students from College of Engineering Design Art and Technology got inspired to build suitable kennels for the pets
- Building partnerships with Uganda Veterinary Association, Kampala Local Government Veterinary Office and LC Rabbies Vaccination Point outside Kawaala Health Center III.

Group Photo of the Multidisciplinary Students’ Team with Dr. Ssuna Paul in the Center at St. Kizito Church Vaccination Point in Kabowa, Lubaga Division
Marburg Virus Disease (MVD) is an acute form of haemorrhagic fever that is often fatal. It is caused by a filovirus (Marburg virus) of which the *Rousettus aegyptiacus*, fruit bats of the *Pteropodidae* family, are considered to be natural hosts. Classic symptoms of a case include high fever, severe headache, severe malaise, muscle aches and pains, watery diarrhoea, abdominal pain and cramping, nausea and vomiting. Haemorrhagic symptoms (bleeding from multiple areas) appear between 5 to 7 days after onset of the disease. Human-to-human disease transmission occurs upon contact with infected body fluids.

The Uganda Ministry of Health (MoH) notified WHO (World Health Organization) of a confirmed outbreak of Marburg Virus Disease (MVD) in Kween district on 17/10/2017. A young male of about 35 years of age with history of hunting bats in the nearby caves had been referred to Kapchorwa hospital from a local Health Centre, on 25/09/2017, where he died on the same day. He had presented with symptoms of high fever, vomiting and diarrhoea. A cultural burial was performed on 27/09/2017, which was attended by close to 200 people. The sister of the deceased, a 50 year old female (confirmed case), who had nursed him and participated in the burial rituals subsequently fell sick. She was referred to the same referral hospital on 10/10/2017 where she passed away three days later. She too was given a traditional burial. Posthumous samples were collected and sent to the Uganda Virus Research Institute (UVRI) by RT-PCR on 17/10/2017 and the Ministry of Health immediately notified.

To coordinate the response, the National Task Force convened, an Incident Management System (IMS) framework. A District Task Force headed by the CAO of Kween District was also established and an emergency rapid response plan were developed. The immediate response was a Rapid Response Field (RRT) team deployed to Kween and Kapchorwa, the two affected districts within 24 hours of the confirmation.

The response included; surveillance, active case search, contact tracing and follow-up, social mobilization and sensitization, community psychosocial support within affected communities, and case management within healthcare centres.

Training university students Masters Students and undergraduate in their final year of study in Risk Management (in real-time experiential learning) during an ongoing outbreak with a multi-sectoral approach, is one of the activities that OHCEA Uganda has implemented. OHCEA builds outbreak investigation and rapid response skills through attachment of students to outbreaks in collaboration with the Government of Uganda.

The respective Deans at the College of Health Sciences and the College of Veterinary Medicine, Animal Resources and Biosecurity sourced for a multidisciplinary team of ten students under the mentorship of a Teaching Assistant from the Department of Biosecurity, Ecosystems and Public Health (BEP) in School of Biosecurity, Biotechnical and Bio-laboratory Sciences (SBLS), COVAB.

Request was granted for the team from Makerere University to join the Rapid Responders in Kween by the National Task Force through the Commissioner National Disease Control.

The learning objectives of engaging students in this investigation were to:

- Engage multidisciplinary teams of students to mentor them in team building, teamwork and collaboration, leadership skills
- Give students a real-time experience of multi-sectoral collaboration during zoonosis disease outbreaks.
- Equip students with on-hands knowledge about Marburg Virus Disease prevention and management
- Equip students with epidemiological skills like data collection, data management and data entry that take place during a disease outbreak.
- To equip students with practical skills in contact tracing
- To equip students with biosecurity and Biorisk measures that undertaken in case of Hemorrhagic fevers (PPE use, regular hand washing and keeping a safe distance from the suspected cases, disinfection, etc.)

To realise these learning objectives, students engaged in;
• Active case search for MVD cases in health facilities in Moyok subcounty

• Community case search among traditional healers in Kwanyi sub-county

• Updating daily situational reports

• Cross border surveillance coordination meeting with the Republic of Kenya, with both WHO-country officers so as to enhance MVD cross border surveillance

• Community sensitization using a film van in Kaproron and Kaptum subcounties

• Receiving and responding to alerts of MVD suspected cases in Seretyo-Ngenge Subcounty

• Record review (passive surveillance) in Benet, Binyiny, Kwanyiny, Teremboy, Kaptuyoy clinic and Kaptum Health 11

• Assessment of water sanitation & hygiene (WASH), infection control & prevention (IPC) standards in health facilities to prevent spread of MVD.

• Data entry and management of the active case search logs and contacts listed

• Disinfection of formits of MVD confirmed cases in Kaptum

• Engagement of traditional healers as a key social and belief structure of the affected communities

• Designing active case search tool and systematic case finding using the pre-designed active case search tools

• Selected aspects of Biosecurity and Biosafety e.g. disinfection, Donning and Doffing PPE

• Basic infection prevention and control (IPC) drills for field surveillance teams.

Case management team was led by the Medicines’ San Frontiers (MSF) and was in charge of management of suspected cases, infection control and prevention. An isolation unit was put up with the red and green zones depending on the cases under management. This presented an opportunity to students to observe and appreciate the set-up of a case management and isolation unit.

Surveillance committee was in charge of overall Rapid Response Coordination of the multi-sectoral response team. The surveillance team was led by WHO and students from Makerere University were attached to the sub committees. During this, students developed an active case tool to aid the process and participated in contact tracing.

Students also participated in disinfecting the home, bedding and formits that were soiled by the cases. They later on participated in incineration of the all formits. During this activity, the participants faced challenges from the hostile communities that did not want the activity to take place. The students observed and appreciated the negotiation skills of the local leaders and health workers that enabled the activity to commence. The Village Health

Students participate in wet Disinfection of formites at the home of a confirmed case
Teams educated the community about the dangers of keeping bedding and drained formites of the deceased in the house.

During this outbreak, the two confirmed cases and the suspected case who all died occurred in one family. When the first case died, CJ who had developed similar symptoms visited different villages travelling approximately 300 km seeking cure from traditional healers. This increased the risk of disease spread to all the contacts with whom he got into contact with. Additionally, the brother to CJ had had sexual relations with different women before he succumbed to the sickness.

Makerere University students worked together with epidemiologists from WHO to conduct active case search in the different health centres both private and public to establish a line list for the probable and suspected cases who were seeking medical care from those facilities.

With support from the Ministry of Health, students were trained in donning and doffing PPE.

Additionally, they were taken through a training manual for EVD and MVD on symptoms, sample collection and handling during outbreaks. They were also provided with copies of these manuals to read and get basic knowledge on the disease before they engaged in the field activities.

Contact tracing was done to enable the epidemiologist and other investigators be in position to list all contacts and follow them so that the outbreak is contained with the available resources. Contacts for confirmed cases and probable cases were traced and followed for 21 days which is the recommended incubation period for Marburg Virus Disease. One of the students was engaged in this activity, which involved analyzing the medical cases recorded at the health centers for symptoms that fit a case of Marburg Viral Disease and obtain details that could be used to locate the suspect, like name/ address, telephone numbers, next of kin, etc. The students on this team got to appreciate the limitation that the community would sometime hide contacts.

Health education and promotion was performed in different communities led by the district health team working with Environmental Health graduates and students of Social Sciences.

The students got to understand and appreciate the cultural beliefs associated with the disease including the fact that MVD had never been seen before – is not real, it was related to witchcraft. This was particularly because it seemed to be associated with only one family (with all the dead coming from the same family).
The World Health Organization trained health workers and the Makerere University responders on case management, IPC while UNICEF supported the WASH team with supply of tippy taps at the different health centres and schools in Kaproron and Kaptum subcounties.

The students who attended daily briefing meeting had a real-time experience and appreciated the multiple stakeholders involved, their roles, systems thinking, and decision making under pressure, with limited resources, among other things. One key meeting that was interesting to the students that attended was the cross border meeting with local administrative government in TransNzoia County, Kenya and the leaders from Eastern Uganda to discuss and appreciate the transboundary nature of the disease. Contact tracing on either side of the border was among the key issues discussed in this meeting.

Students got basic insights into skills on information sharing during multi-sectoral Task Force Meetings; Disease Reporting, Risk Communication and Community Sensitization; Layout of an Isolation unit, Contact Tracing, Stakeholder Identification, Selected aspects of Biosafety, Basics of Data and Information management by surveillance teams during Outbreaks, among other skills.

The University acknowledges and appreciates the training, personal efforts, time and dedication that National and District Task Force and Rapid Response Teams undertook to give the students a Real-Time Risk Management experience and for the mentorship. It is hoped that this foci of students trained will join the District Technical persons with added advantage of basic skills in risk management.

Mentorship was further provided by officials from the National One Health Platform (NOHP), Zoonosis Disease Coordination unit (ZDCO), National Task Force (NTF), together with the Ministry of Health (MoH), World Health Organization (WHO), Medicines San Frontiers (MSF), and the Local Government from Kapchorwa and Kween District.

At the end of the attachment, students made recommendations to the Government that included:

- Strengthen laboratory capacity and involvement
- Increase involvement of clinicians
- Emphasize community participation in detection and response
- Emphasize early detection mechanisms,
- Implement effective and early public health response

Case tracing at the isolation unit at Binyiny HC III by a Student of MVPM Mr. Yasin Ndidde (He had to don gloves to minimize chances of infection at Bwiyiny HC III)

Disinfection of Boots at by MSF staff member at the end of the tour of the Isolation Unit
Worldwide, health challenges are drastically increasing either in human, animal and environment health. These result into economic losses, trade implications, effects of climate change and other hindrances showing the need to counteract all those challenges before they become overwhelming. The best way to overcome these is to apply one health concept that calls for all disciplines to work in multidiscipline manner to sustain and handle health challenges in a perspective of animal, human and environment health. On 3rd November, the world celebrated one of the best solutions to global health challenges namely One Health Day. In Rwanda this activity was cerebrated in three campuses of University of Rwanda (UR-Nyagatare, UR-Remera and UR-Huye). During this special day, the surrounding communities gained knowledge and information on the One Health approach with the aid of different activities carried out by multidisciplinary teams of students. This increased the visibility of OHCEA – Rwanda to the University of Rwanda and other communities using the Students’ One Health Innovations Club (SOHIC) – Rwanda as a vehicle.

SOHIC- Rwanda is now operating at different campuses of University of Rwanda involving all interested students irrespective of their disciplines. Therefore, during the One Health day, cerebrations took place at three campuses and students performed different activities based on their innovative ideas chosen by members of the club.

Students of One Health Innovative Club (SOHIC), based at Nyagatare campus, visited Nyagatare abattoir where they were able to identify the; 1) Lack of a fence at the abattoir which makes the abattoir accessible to stray dogs, wild birds, which can act as vehicles of disease transmission, 2) Poor drainage system for the abattoir waste water which results into stagnation of waste water thereby attracting flies and other disease vectors like rodents, 3) High risk of meat contamination during slaughtering and transportation process, 4) No incineration of un-wanted carcasses. SOHIC members had opportunity to suggest and discuss possible solutions to these problems. SOHIC members then demonstrated to the abattoir workers how to create a long and deep canal for easy drainage of waste water. This was to prevent bad smell and the swarms of flies attracted to the waste water around the abattoir.

Abattoir workers at risk of acquiring zoonosis and causing meat contamination
At UR- Remera campus, the cerebrations were separated into two parts: a) One Health Evening and b) One Health UMUGANDA. One Health Evening took place on November 3rd on One Health Day; the main focus was to learn more about the One Health Day and why it matters for SOHIC Club to celebrate.

In their presentations, Dr. Theoneste Ntakutirimana and Mr. Adolph Ndikubwimana emphasized the link between humans, animals and the environment and the concept of One Health. Students were exposed to the importance of a multidisciplinary approach as the best model to solve world health challenges. The evening was also an opportunity for students to get together for the first time since they were coming to a new campus from other different campuses. It was a good time to get to know each other and also introduce the One Health concept to those who were coming from other campuses that were not part of SOHIC.

Faculty members present included Dr. Theoneste Ntakirutimana (Environmental Health), Dr. Etienne Rugigana (Public Health), Mr. Adolphe Ndikubwimana (Environmental Health) and Mrs. Alice Nyirazigama (Nursing). Students who participated came from the disciplines of medicine and surgery, clinical medicine, environmental health, laboratory and education.

For the One Health UMUGANDA, students cleaned the campus grounds to improve the cleanliness of the environment. The activity was a double success: SOHIC was marked as the first club to initiate this voluntary work at the campus. The Director of Career Guidance and the Guild President -who were present that day- congratulated the students on the initiative and requested that it should be sustained. Close to 70 students actively participated in marking the day and many more got to know about One Health and the SOHIC club.
After the rationalization of the University of Rwanda in 2017, which saw all first year students move to Huye Campus, the SOHIC organized a general meeting a day before the One Health day to bring together all students irrespective of the discipline, to welcome and expose them to the One Health concept as early as their first year of study.
The University of Nairobi Students One Health Innovations Club (SOHIC) commemorated this year’s One Health day by sensitizing the local community living near their campus on the interconnection between a healthy environment, healthy animals and healthy humans.

This activity was designed to;
- Introduce a multidisciplinary group of students to the One Health approach, Zoonoses, disease mapping, antimicrobial resistance, systems thinking, and community engagement.
- Engage the students from various disciplines on care of the environment by conducting a cleanup in the local trading centre (Ndumbui) and planting of trees.
- Create One Health awareness amongst the locals
- Equip the locals with the necessary skills to identify potential hazards in animals or environment.

The activity was designed to equip about 95 members of the SOHIC drawn from veterinary medicine, agriculture, leather science, wildlife management and fisheries with knowledge and skills required to successfully sensitize the community on One Health concepts.

The activity also targeted to sensitize the local community on One Health so as to reduce the risks associated with contact with identified hazards in the environment.

In terms of results from this activity;
- There was an improvement for 95 students in the level of understanding of the One Health
approach, zoonoses, disease mapping, antimicrobial resistance, systems thinking, and community engagement.

- Forty (40) trees were planted in a community church compound as part of environmental sustainability.
- The community involved got information on the connection between environmental health, animal health and human health.
- The trainers networked and carried out joint training in line with OH good practices.
- The trainers involved in the activity included university faculty, one from FAO, and another from PREDICT which also provided partnership and collaboration opportunities.

The training was successful in drawing students and faculty from various disciplines and the community appreciated the good work carried out by the OneHealth club.

The students are expected to participate in One Health interventions and initiatives and community extension services arising from this exposure. There is need to monitor and evaluate the impact of the activity on the community needs.

The Moi University Students One Health Innovations Club is composed of a multidisciplinary group of students in Public Health, Medicine, Nursing, Dentistry, Physiotherapy, medical Psychology, Medical Lab and Community Education.

The Club hosted the One Health week from 4th to 7th December 2017. The week is part of the club’s initiatives to train its members on emerging global issues. The theme was, ‘Tackling Anti-microbial Resistance.’

Moi University students engage in a community clean up exercise as part of One Health day activities.

Other issues discussed over the three day training sessions included; emerging pandemic threats, planetary health, gender and infectious disease, one health concept and One Health leadership and Risk analysis for Antimicrobial resistance. The fourth day was dedicated to outreach activities within Eldoret town that involved a clean-up exercise around the Eldoret market and sensitization on Antimicrobial Resistance.
The One Health Central and Eastern Africa (OHCEA) - International Development Research Council (IDRC)-Ecohealth project has been conducting research in and around Queen Elizabeth National Park (QENP), Western Uganda for the past few years. In addition, the project has been engaging with the community to identify interventions that would benefit the communities within the project area. IDRC is at a point of documenting its success stories and conducting interventions at community level.

The project organized a four-day workshop January 8th – 11th at Esella Country Hotel to discuss how to implement the identified interventions. The workshop also discussed the findings from the students and current studies that have been conducted by the project. The workshop brought together all the project students and staff, with a team of 13 PhD and masters students with different topics relating to Ecohealth. Working together for a period of four days helped the students improve their work with the help of the 4 facilitators and helped the project stakeholders discuss and refine the suggested community interventions.

The final list of community interventions includes:
1. Bwambala and Rwenshama: the team agreed to work on the ECOSUN toilet. It was however noted that the project
is expensive but options of making it manageable like working in partnership with other agencies should be explored. A capacity building issue that was identified is training the community users to maintain and unblock the toilets once they are set up.

2. Project to conduct training on zoonoses and financial management with peer educators and cultural performers, through the use of video clips and drama skits. The idea is to have teachers train with cultural leaders from nearby primary schools and later organise drama in their schools on Eco health and zoonoses.

3. For Katunguru SC and Kichwamba S/C, the project chose to implement a VHT health kit. The project also suggested a National park boundary fencing. The workshop was then informed that this could be possible through a bee keeping kind of fencing that would act as a fence or boundary between the communities and the national park.

4. For the Hima/ Nyakakindo communities, the project selected a water pump and a communal crush. The implementation of these two projects is subject to agreement by the Town Council.

5. For the Nyakatonzi community, it was decided that this community be given a spray race to control the spread of diseases. Once this is approved and done, the project needs to write a MoU with the Local Government, DVO and the community that access to the spray race is for all and they should be committed to managing it and even lobby for more. The need for co-sharing and management of the intervention should be passed by the LG as a by-law.

6. The Katwe- Kabatoro community is engaged in fishing, pastoralism and salt mining and the project selected sensitisation of political leaders, health workers and the community on health risks like zoonotic diseases.

7. Other projects selected are testing and training of health workers (Kirugu Sub County) and a water tank at the health facility and a laboratory table with Formica for the Kahendero fishing and pastoralist community.