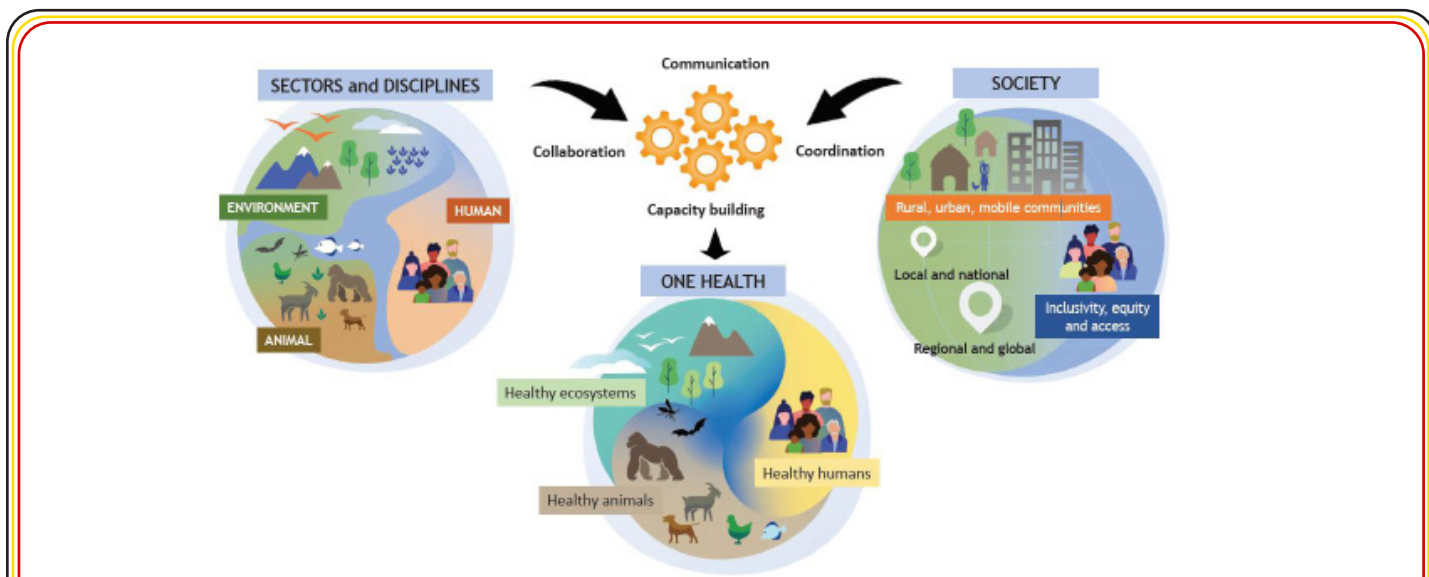


Uganda One Health Epidemiological Bulletin

Volume 1, Issue 4, July - September, 2022



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Dear Reader,

We are pleased to introduce to you the fourth Issue of the Uganda One Health Epidemiological Bulletin. The bulletin is a product of the Ministries of Water and Environment (MWE), Health (MoH), Agriculture, Animal Industry and Fisheries (MAAIF), and Uganda Wildlife Authority (UWA) under the National One Health Platform (NOHP) umbrella.

This bulletin aims to inform One Health (OH) practitioners at district, national, and global levels on interventions undertaken in detecting, preventing and responding to OH events in Uganda and beyond.

We hope you enjoy reading this Issue,

John Makombo
FOR EXECUTIVE DIRECTOR, UWA / CHAIR NOHP

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Public Awareness on Rabies during the World Rabies Day, 2022

Editor

The 16th World Rabies Day was marked on 28 September under the theme, "Rabies: One Health, Zero Deaths". The international community called upon countries to utilize collaborations between humans, animals and the environment to control rabies. In Uganda, the commemoration was held in Tororo District by the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF), Ministry of Health, Uganda Veterinary Association and other stakeholders. During the event, all stakeholders and the community were encouraged to work together to address barriers to rabies control.

Specifically, control will emphasize mass vaccination of dogs and cats, and veterinary and health professionals at risk of rabies. In addition, public awareness on rabies and its prevention through animal vaccination and post-exposure prophylaxis for humans will strengthen control. Avenues for public education include print media, social media, television and radio talk shows:

Zero deaths from Rabies through One Health

Rabies is one of the most dangerous infections known to man. The virus can be spread from the saliva of a rabid dog to one through a bite, broken skin being scratched or a scratch with spores that the dog has previously licked or exhaled on. Wild dogs are most frequently spread rabies to people, while unvaccinated animals can spread the disease. Once the virus enters the body, it travels through the nerves to get to the brain, where the virus causes brain damage. A victim does not get immediate treatment after exposure to the virus, but proper early diagnosis, post-exposure prophylaxis, and vaccination appear there is usually no chance of surviving the disease.

With support from the United States Centers for Disease Control and Prevention, the Infectious Diseases Institute at Makerere University is working with various partners to control rabies. Over the last few years, the institute has been successful in the 16th World Rabies Day activities from the Ministry of Agriculture, Animal Industries and Fisheries, the project conducted community sensitization and dog vaccination activities within communities in Mt. Chaka, Tororo and Adu City resulting in the vaccination of over 1000 dogs. However, much more needs to be done to identify the most effective and efficient ways to reduce human rabies in Uganda.

Another project, in Rabies, backs as a long-standing collaboration between Makerere University and Makerere Health, established that started in 2012. These structures are working to identify animal reservoirs that will lead to rabies elimination in Uganda by working across human and animal health sectors. The strategies proposed include improvement of local laboratory capacity, optimization of dog vaccination and the introduction of immunovigilance to monitor rabies prevalence in various animal reservoirs.

In Uganda, rabies has been identified as a major zoonotic disease that spreads from animals to humans. The government has introduced an animal health strategy to control rabies. However, a perspective prophylaxis is often not accessed by dog bite victims. In addition, more cooperation between human and veterinary medicine, known as the One Health approach is required to reduce rabies in Uganda. Animal owners and keepers, children and teachers play an important role in rabies control. They can play their part to stop rabies in Uganda by knowing more about the disease. The Global Alliance for Rabies Control is calling for more people to get vaccinated against rabies. Rabies is a preventable disease. Rabies education and vaccine a certificate must be given to the dog owner who is vaccinated. If all these steps are taken together, we can contribute to ensuring that by 2030, rabies would have been achieved the global target of zero deaths in humans.

Most human rabies infections happen in developing countries in wealthier countries, human rabies has been eliminated through vaccination, public health strategies, including vaccination campaigns for dogs. This is the single most important intervention to stop rabies in humans. Vaccination can stop the spread of rabies in the dog population before rabies get into a contact. Killing dogs is not effective as a control measure for rabies because those dogs that are not killed will already spread the disease.

Our communities must be educated about rabies and how to prevent it. One possible encounter an animal suspected of having rabies, they should take precautions. They should stay away from the animal and get veterinary assistance to assess the situation. Children must be taught how to protect themselves from dog bites. They should avoid provoking or walking up dogs and if confronted by a dog, they should be taught to stand still like a tree or call into a wall like a rock. If they are on the floor, Children should not shout or run as this could cause the dog to attack. Most importantly, if they get bitten, they should be taught to report immediately so they can get medical care. The bite wound should be washed for at least 15 minutes with soap.

Dog owners can play a major role in stopping rabies by ensuring their dogs are up to date with their rabies vaccination. Local and national authorities should put in place measures to ensure that all dogs are vaccinated.

A newspaper article authored by the Infectious Diseases Institute was published in the New Vision on World Rabies Day, 2022

Infectious Diseases Institute, Makerere University
@IDIMakerere

Rabies-related deaths are preventable; simple, low-cost tools and strategies for rabies control and prevention exist.

- 100% of human rabies deaths can be prevented.

Protecting dogs against rabies helps protect you and your family too. #WorldRabiesDay

You can save their lives

- Rabies is a deadly disease that affects the lives of many people and animals.
- The main cause of rabies is the bite of a rabid dog.
- Half of all dog bites and human rabies deaths occur in children.
- Although rabies is almost 100% fatal, it is also 100% preventable.

Post on Twitter published by the Infectious Diseases Institute on World Rabies Day, 2022

ANTI-RABIES DAY

PUBLIC AWARENESS KEY IN RABIES FIGHT

PRESENTLY, PEP IS INACCESSIBLE AND COSTLY, ESPECIALLY FOR PEOPLE IN THE FAR COUNTRYSIDE.



Effective prevention and control of rabies disease is through a multisectoral approach and vaccination

Rabies is a zoonotic, fatal and progressive neurological infection caused by Rabies virus, and affects all warm-blooded animals except birds. The disease is prevalent worldwide and endemic with highest risk in developing countries including Uganda. Although Uganda is increasing on the list of global-mediated human rabies deaths, rabies prevention and control continues to be under-prioritized in public health interventions. It being a major zoonosis with invariable outcome, precise and rapid diagnosis is important for early management of cases, effective prevention and control measures. Effective prevention and control of rabies disease is through a multisectoral approach in the context of human-domestic and animal health sectors. Population control measures are appropriate domestic environmental interface birth control, such as spaying or castrations can be deployed to check the rapid growing population of dogs and cats which many get exposed to the virus during breeding periods. Equally, the environmental health personnel could reduce wildlife and domestic animal interactions. Furthermore, educate the public on proper waste management and consistently vaccinated. Responsible management of pets by owners is equally important to ensure animal welfare is provided. The Government has a duty to provide Legislation required to govern pet owners on animal identification, pet vaccinations and animal welfare, as well as adequate

A newspaper article authored by Dr William Blatter Ssendaula of the MAAIF was published in the New Vision on World Rabies Day, 2022

Where?
Uganda Veterinary Association, Plot 88 Buganda Road, Kampala, Uganda

When?
20 September 2022 to 27 September 2022

Contact
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Uganda Veterinary Association is an umbrella organization that promotes and protects the interests of veterinarians in Uganda. It boasts of a big membership of more than 1200 veterinarians distributed widely throughout the country with some of them holding key decision-making positions in government and other institutions.

The Uganda Veterinary Association together with various partners such as Ministry of Agriculture, Animal Industry and Fisheries, National Drug Authority, Uganda Wildlife Authority, Ministry of Health, Ministry of Water and Environment, Food and Agriculture Organization of United Nations Uganda, Red Cross Uganda, College of Veterinary Medicine Animal Resources and Biosecurity, Makerere University, Veterinarians Sans Frontiers Germany, United States Agency for International Development, World Organisation for Animal Health and Global Alliance for Rabies Control have organized this year's World Rabies Day celebrations in Tororo district under the theme "Rabies: One Health, Zero Deaths". Tororo district is located in eastern part of Uganda. It has been noted as a hot spot for dog-mediated rabies. In order to

An article authored by the Uganda Veterinary Association was published on the Rabies Alliance website on World Rabies Day, 2022



Front-line In-service Applied Veterinary Epidemiology Training (ISAVET) in Uganda, 2018 - 2022

Food and Agriculture Organization of the United Nations (FAO)

Introduction

The Food and Agriculture Organization (FAO) introduced the front-line In-Service Applied Veterinary Epidemiology Training (ISAVET) in Uganda in 2018. The ISAVET develops transferable, critical-thinking skills among the veterinary workforce to strengthen frontline preparedness, early detection, and rapid, effective and efficient response to zoonotic diseases, transboundary animal diseases, emerging infectious diseases, and antimicrobial resistance within an integrative One Health approach.

The four-month programme was developed to address field epidemiology capacity gaps identified among the animal health workforce to complement the field epidemiology capacity in the human health sector. ISAVET trains through service to meet the critical need for veterinary field epidemiologists who can describe epidemiological events for animal-specific and zoonotic disease events.

ISAVET is hosted by MAAIF and funded by the USAID. FAO, the Institute for Infectious Animal Diseases (IIAD) of Texas A&M University, MoH and MAAIF provide technical support.

Summary of ISAVET trainees by category, Cohorts 1-3, 2018 - 2022

Trainee Category	No.
Females	22
Veterinarians trained	29
Para veterinary professionals	58
Private sector trainees	7
Laboratory technologists	8
Wildlife professionals	4
Total Trainees	87

ISAVET Success Stories

ISAVET was piloted on 2018 with six trainees during a Regional Pilot Training Program for Africa. Since then, ISAVET has trained three Cohorts of 87 trainees from Central (22), East (23), North East (7), South West (12), and West (12) and West Nile (5) Regions. Trainings were held in the districts of Luwero (2020 - 2021) and Jinja (2022). In addition, 40 trainers and mentors were trained in Luwero and Mbarara Districts in 2020 and 2022 respectively.

Over the five years of trainings, ISAVET has produced a skilled workforce, professionals that have taken positions in Local Government, MAAIF, Ugand Wildlife Authority and other reputable organisations. Following ISAVET, the six pilot trainees were given unique responsibilities:

- Robert is a wildlife conservationist in Kenya
- Margaret completed her PhD and is a board member of the Wildlife Research and Training Institution. She led the control of an anthrax outbreak among wildlife at Queen Elizabeth National Park in 2020
- Emmanuel completed his Masters, set up a veterinary laboratory in Busia and is currently a Senior Veterinary Officer at the National Animal Diseases Diagnostics and Epidemiology Centre at MAAIF
- Julian completed her Masters and was assigned new roles at the District Local Government
- Ronald established a District Laboratory that has successfully contributed to control of tick borne diseases, brucellosis and Anti-Microbial Resistance
- Hannington completed his Masters and works at Kampala Capital City Authority (KCCA)



The graduation ceremony of the 2022 ISAVET Cohort





Dr Sarah Paige, the USAID Senior Advisor giving remarks at the graduation ceremony of the ISAVET Cohort 3, 2022

Call for Applications for ISAVET Cohort 4

ISAVET invites applications from professionals with a veterinary or para-veterinary background and providing frontline animal health or wildlife services in public or private sectors. Applicants should have at least 2-3 years of direct frontline field or laboratory experience serving animal producers and their communities. Applicants should explain how knowledge obtained in this training can be applied at work. A draft of a field study proposal is necessary.

Interested professionals should prepare:

- A brief concept note of how the training will be beneficial to your current work or challenges in animal health within your area of service that you will solve with the knowledge from ISAVET.
- Signed recommendation (commitment) letter from respective District Chief Administrative Officer (CAO).
- Filled application form.

- Submit full application to the Commissioner Animal Health/Chief Veterinary Officer, Dr. Anna Rose Ademun (ademunrose@yahoo.co.uk) and copy in Dr. Namboowa Annet Praise (annpraise@gmail.com), Dr. Chrisostom Ayebazibwe (Chrisostom.Ayebazibwe@fao.org) and FAO-ECTAD Team Leader, Dr. Willington Bessong Ojong (WillingtonBessongOjong@fao.org).
- The deadline for applications is 31 December 2022.

POLICY BRIEF

Integrating Electronic Surveillance Information Systems in “One Health” Sectors: Human, Animal and the Environment

Executive Summary

Occurrences of Priority Zoonotic Diseases are increasing. For example, anthrax cases reported in Uganda doubled from 39 to 95 in humans and increased tenfold from 4 to 40 in animals, between 2020 - 2021. In fact, there was an ongoing outbreak with 6 confirmed human cases of anthrax and 14 dead animals at the time of writing this brief (May 2022).

Electronic surveillance is key to detecting public health threats. Human health information systems recorded ‘demonstrated capacity’ compared to animal health with 75% versus 27% reporting of epidemic prone diseases in 2021. In the environment sector, information sharing with other sectors is limited. Yet, research evidence shows integrated surveillance systems facilitate early warning, timely detection and effective response to public health threats across One Health sectors.

The District Health Information System (DHIS2) is a web-based software for integrated disease surveillance and response that supports early warning and disease outbreak detection. DHIS2 is easy to adapt & successfully used in 73 countries. Since its uptake by Uganda’s Ministry of Health, DHIS2 has improved weekly epidemiological surveillance data reporting from 42% in 2015 to 75% in 2021.



In the animal, and environmental sectors where electronic systems do not support integration, we recommend adapted systems based on DHIS2 for real time surveillance, data use and integration (information sharing) in the One Health spectrum.

1.0 Introduction

Globally, public health threats that involve humans, animals and the environment are increasing. In fact, 60% of emerging infectious diseases between 1940 and 2004 were zoonoses [1,3,4]. Also, Uganda has reported multiple zoonotic disease outbreaks in the recent past [4] (Figures 1a, 1b and 2).

The interplay of human, animal and the environment may potentiate public health threats that require One Health interventions. For example, rainfall favours breeding of mosquitoes that transmit Rift Valley Fever (RVF) to animals and humans. Also, humans can get RVF from contact with infected animal tissue [3].

Yellow Fever outbreaks in Uganda are linked to people encroaching on forests inhabited by infected monkeys [3]; while exposure of anthrax spores in soil or water infect domestic and wild animals [3]. Typically, animals die from anthrax suddenly before detection and remain sources of infection when exhumed for consumption after burial. Humans who handle carcasses of anthrax can also infect animals and fellow humans, through ingestion and contact [3,4]. Surveillance systems that collect data from multiple sectors and facilitate inter-sectoral collaboration for improved detection & response can be termed as “One Health Systems” [2]. This policy brief reviews existing surveillance information systems and recommends policy options for Uganda.

Box 1: KEY POLICY CONCERNS

1. Zoonotic diseases & environmental public health events are increasing in Uganda.
2. Yet, there is sub-optimal inter-sectoral (One Health) utilisation of electronic information systems (surveillance) for decision making, i.e., outbreak detection & response.
3. The District Health Information System (DHIS2) software adopted by Uganda’s Ministry of Health has doubled weekly reporting for early warning, outbreak detection & response.
4. This brief recommends adapted systems based on DHIS2 for real time electronic surveillance & data use, coordination & integration (information sharing) in the One Health sectors: human, animal, plant & environmental.

2.0 Methods

Key Informants in the One Health sectors were engaged through: personal communication, email, telephone, face-to-face meetings and multi-sectoral workshops. These engagements established consensus on the key policy concerns (see Box 1). This was augmented by systematic documentary analysis of existing reports, strategic plans, grey and published literature as appropriate for surveillance systems in Uganda.

3.0 Findings

3.1 Uganda Country Context

Currently, human health information systems demonstrated capacity compared to animal health with 75% versus 27% reporting of epidemic prone diseases in 2021, (Fig. 1a, 1b and 2). Overall, there’s limited information sharing (working in silos) across One Health sectors, especially from the environmental sector (soil and water). This needs improvement for Uganda to have robust health security.



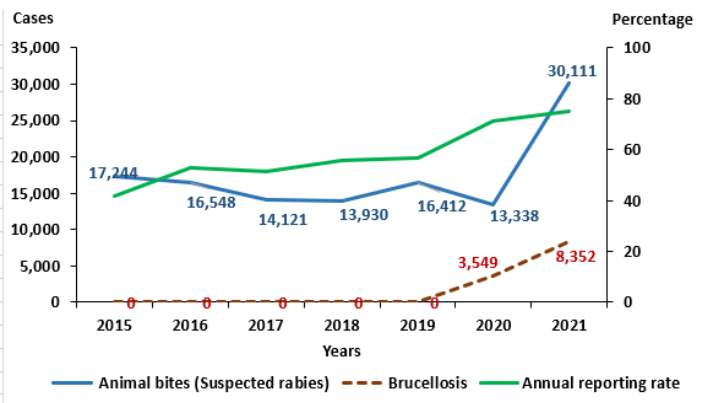


Figure 1 (a): Trends in suspected human zoonotic diseases (animal bites/suspected rabies and brucellosis), 2015–2021 (Source: DHIS2)

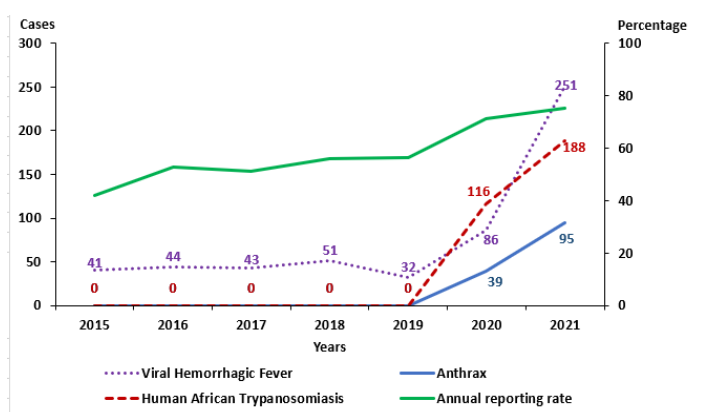


Figure 1 (b): Trends in suspected human zoonotic diseases (Viral Hemorrhagic Fever, Trypanosomiasis), 2015–2021 (Source: DHIS2)

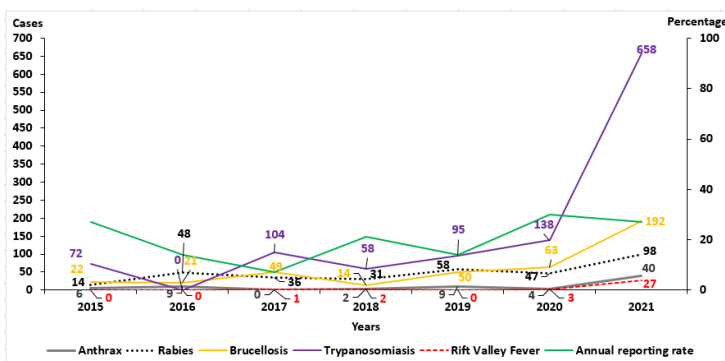


Figure 2: Trends in animal zoonotic diseases, 2015–2021 (Source: NADDEC)

A 2021 systematic scoping review of 27 epidemic intelligence systems reported none could integrate anti-microbial resistance surveillance for animals, humans, plants and the environment [5]. This suggests a global gap in “One Health” electronic information systems.

3.2 Recommendations

Option 1: Status Quo

This option entails maintaining the existing stand-alone surveillance systems in the One Health sectors: A: Human Health Surveillance: The Integrated Disease Surveillance and Response (IDSR) is the Ministry of

Health system for surveillance and response to public health emergencies. Alongside IDSR, a paper-based Health Management Information Systems (HMIS) is available at health centres and districts. These data are transformed into short message service (SMS), sent to the mobile system (mTrac) via the 6767 code and uploaded onto the District Health Information Systems (DHIS2). Event-based surveillance systems rely on community or health workers reporting ad-hoc occurrences (signals) using SMS sent to 6767 and through the electronic IDSR (eIDSR) platform. After verification, the signals are reported as events to the public health emergency operations centre as early warnings. All data are analysed and disseminated to One Health stakeholders through weekly and quarterly epidemiological bulletins.

B: Animal Health Surveillance: National Animal Diseases Diagnostics Epidemiology Center (NADDEC) at Ministry of Agriculture (MAAIF) leads surveillance for animal health. The MAAIF-IBS utilises a paper-based monthly surveillance tool. During routine farm visits, veterinary officers compile and submit hard copy animal health reports to District Veterinary Officers (DVOs) who in turn submit hard or soft copies to the NADDEC for entry and management in Microsoft Access. Uganda Wildlife Authority (UWA) uses Spatial Monitoring and Reporting Tool (SMART) for routine surveillance of wildlife diseases in game parks. The MAAIF event-based surveillance system is supported by Event Mobile Application (EMA), a mobile phone application for reporting occurrences of epidemic prone diseases developed by Food and Agriculture Organization (FAO). Veterinary Officers (VO) or animal health practitioners submit electronic reports in EMA which are verified by the DVOs before submission to NADDEC.



The electronic data are collated on the FAO EMPRESi database. Events can also be reported to VOs via email and phone calls. Events among wildlife are reported to UWA using a mobile application called ArcRanger. UWA routinely shares surveillance information with MAAIF. However, surveillance information sharing from NADDEC with MoH and Districts is ad hoc.

C. Environmental Health Surveillance: The Ministry of Water and Environment (MWE) manages water resources in Uganda. Surveillance is conducted by routine water quality monitoring testing for pathogens and pollutants in waste, lakes, and rivers. The Water Information System (WIS) is an electronic database that provides reports, tools and maps. WIS supports collection, processing, and dissemination of water resources data.

Option 2: Coordinated Systems

Coordinated Surveillance Systems share information to ensure accuracy, consistency, relevance and timeliness of data to stakeholders for decision-making [5]. This option necessitates development of data sharing mechanisms that control and protect data within and across sectors, within Uganda's Data Protection and Privacy Act 2019. Further, the coordination role of National One Health Platform could be institutionalised to include routine surveillance data reporting for joint decision-making.

Option 3: Integrated Systems

In this option, One Health sectors adopt common data collection, entry, analysis, and feedback to facilitate real-time communication and decision making. Deeper integration calls for capacity building, sharing information technology equipment (computers and mobile phones), vehicles and existing personnel [2]. This necessitates signing data sharing agreements.

Option 4: Go Electronic

Electronic surveillance systems ease data collection,

reporting, analysis, and storage compared to paper-based forms [5]. Also, these can be designed for interoperability for prompt data exchange in the One Health sectors, at least for priority public health events

[5]. Animal health reporting urgently needs such a system.

Option 5: DHIS2 for Electronic One Health Surveillance

Advantages of DHIS2 include flexibility and open source (free), (Table 1). DHIS2 has large online storage and high processing capacity. The current SMS service of 6767 in MoH is housed within National Information Technology Authority-Uganda (NITA-U). NITA-U offers a competitive price of 25 Ushs. for incoming and 20 Ushs. for outgoing SMS (as of May 2022). DHIS2 requires an online hosting server with adequate storage, memory and processing speeds. Functionality requires standard case definitions and tools, trained personnel and information technology infrastructure such as

4.0 Conclusion

Current surveillance systems in the One Health sectors in Uganda and globally are working in silos. This

policy brief strongly recommends options for coordination or integration of electronic surveillance systems for effective decision making and impact.

5.0 Acknowledgements

One Health Stakeholders: MoH, MAAIF, UWA, MWE and National One Health Platform members

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Table 1: Useful features of DHIS2

Feature	Description
Wide use	<ul style="list-style-type: none"> Globally, 73 countries use DHIS2 including the WHO Afro region & East African Community (13).
Use in Uganda	<ul style="list-style-type: none"> DHIS2 is low-hanging fruit already in use at MoH, Uganda' Surveillance data reporting improved from 42% in 2015 to 75% in 2021 (Figure 1). It facilitates immediate reporting, verification, & case-based investigation of events (outbreaks).
Adaptable	<ul style="list-style-type: none"> In 2021, DHIS2 was successfully adapted for COVID-19 surveillance in Ugandan schools (17).
Flexible	<ul style="list-style-type: none"> DHIS2 converts paper-based data into mobile friendly forms. Any SMS device can be used to send, verify & approve data before consolidation in the DHIS2 web platform. Its offline functionality is key limited internet settings. Apart from standard security features, DHIS2 is flexible & interoperable with the other systems in One Health sectors. May help limit duplication of efforts within MoH.

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STOP Spillover Uganda

Susan Babirye¹

¹ STOP Spillover

Introduction

STOP Spillover, a global consortium led by Tufts University is implemented by the Africa One Health University Network (AFROHUN) in Uganda with funding from USAID. The project seeks to understand and address the risks posed by known zoonotic viruses with the potential to spill over from animals and cause outbreaks, epidemics, and pandemics in humans. Since inception, STOP Spillover has held multiple workshops with over 100 national and sub-national stakeholders in Uganda to discuss their priorities.

Outcome Mapping Workshops

The workshops were conducted at national level and in Bundibugyo District. The purpose of these workshops was to bring together key individuals and institutions to plan interventions, identify actors and target changes (outcomes) and determine the necessary strategies to achieve project objectives. The workshops were also intended to enable participants to identify zoonotic risk nodes, opportunities, gaps, barriers, critical partner roles and appropriate interventions for risk reduction of Ebola Virus Disease in Bundibugyo District.

Workshop Participants

The workshops were attended by 105 participants, in person and online via Zoom. Participants comprised of government and partner institutions. These included the USAID Uganda Mission, Ministry of Agriculture Animal Industry and Fisheries (MIAAF), Ministry of Health (MoH), Ministry of Water and Environment (MWE), Non-Government Organizations, Private entities, and Academia/ Training institutions. The STOP Spillover Project Director - Dr. Deborah T. Kochevar and AFROHUN Chief Executive Officer - Prof. Dr. William Bazeyo participated online.



Workshop Findings

The Outcome Mapping workshops led to prioritization of pathogens, high-risk interfaces and intervention sites for STOP Spillover in Uganda. Ebola, Marburg and other filoviruses were the selected as priority pathogens; high-risk interface was bat-human; and the intervention site selected was Bundibugyo district. This process is envisaged to strengthen in-country capacity to develop, test, and validate interventions to reduce wildlife to human zoonotic virus spillover risk, and mitigate zoonotic virus amplification and spread in humans.

Conclusions

The STOP Spillover approach using Participatory Outcome Mapping is cost-effective for engaging and empowering key stakeholders at all levels to contribute to addressing threats posed by zoonotic viral diseases and reducing the risk of zoonotic viral spillover and spread. The stakeholder-driven nature of this approach will increase chances of identifying feasible and sustainable changes.

Improving Sustainable Human-Animal-Environment interrelationship in Africa: A Drive to Tackling Zoonotic Diseases in Nigeria using One Health

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Introduction

One Health is a collaborative, multisectoral and transdisciplinary approach – working at the local, regional, national, and global levels – with the goal of achieving optimal health outcomes by recognizing the interconnection between people, animals, plants, and their shared environment.¹ Human population increase, commercialization, geographical problems, global changes are all contributing factors which damage the biodiversity, ecosystems, and migratory movements of both humankind and species in general.

Rapid climate and environmental changes have led to the emergence and reemergence of zoonotic diseases and these has necessitated the One Health operationalization. This approach is aimed to adapt to the local needs and the existing constraints of the health system, employing them at the same time by enabling various stakeholders to collaborate without difficulties. The objective of this approach is to drive innovations that are important to manage the outbreaks that we experience and offer synergy across various ministries.

Status of One Health in Nigeria

Nigeria has launched a national One Health (OH) strategic plan that integrates human, animal and environmental health management for improved health security. The plan has reinforced the country's commitment to strengthen a multi-sectoral collaboration for health security and it was jointly developed by the Federal Ministries of Health, Agriculture and Rural Development (FMARD), and Environment as well as their agencies.

The successful implementation of the OH model involves integration and collaboration between multiple sectors of agriculture, animal health, and human health.² Nigeria has had some experience in implementing One Health approaches. The National Inter-Ministerial Steering Committee on Avian Influenza and the National Technical Committee on Avian Influenza set up in Nigeria in 2005 involved multidisciplinary staff from multiple ministries (including agriculture and health), communicators and industry players.

The OH approach gave rise to a successful multi-sectoral emergency action plan that led to the elimination of the highly pathogenic avian influenza virus H5N1 in Nigeria in 2006. Other infectious zoonotic diseases endemic in Nigeria include: Tuberculosis, Yellow fever, Lassa fever, Taeniasis, Strongiloidiasis, Ascariasis, Giardiasis, African Histoplasmosis, Escherichiacoli 0157:H7, Brucellosis, Leishmaniasis, Trichinosis, Bilharziasis, Ringworm, Toxoplasmosis, Rabies and Fasciolosis⁴



The 2017 Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities in Nigeria demonstrated critical gaps including absence of a national strategy for proper coordination and institutionalization of One Health in the country.⁵ In developing countries like Nigeria, the burden of zoonotic diseases is often underestimated due to weak surveillance, poor awareness and paucity of data.⁶ Weak surveillance systems, lack of coordination among human and animal health sectors and inadequate resources for public health systems have remained prominent barriers to effective response to public health threats posed by zoonotic diseases in Nigeria.^{7,8} Ultimately, there is a lack of empirical data on zoonotic diseases in the country that can be used for evidence-based policy formulation and effective implementation of public health control measures and activities.

To address the challenges, a zoonotic disease prioritization workshop using a One Health approach was jointly organized. The One Health zoonotic prioritization workshop was initiated by the Nigeria Centre for Disease Control (NCDC) and the Federal Ministry of Agriculture and Rural Development's Department of Veterinary and Pest Control Services with support from the Africa Field Epidemiology Network (AFENET), Global Implementation Solution (GIS), US Centers for Disease Control and Prevention (CDC) and the Zoonotic Disease Unit (ZDU) of Kenya. The primary objectives of the prioritization process were to identify priority zoonotic diseases in Nigeria, strengthen the links between the human, animal and environment health sectors to jointly address these diseases and increase the coordination, collaboration and networking on zoonoses prevention and control activities among stakeholders.

Conclusions and Recommendations

A holistic strategy addressing many of the aforementioned issues will go a long way in addressing the recurring factor contributing to zoonotic diseases in Nigeria.

The Nigerian Government and partners should: investment in leadership and coordination in zoonoses; improve surveillance in animal health and track globally emerging outbreaks; strengthen interdisciplinary collaboration and raise awareness of farmers, livestock managers, and environmentalists on One Health.

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Improving Sustainable Human-One Health in Action: Tree Planting for the Benefit of People, Animals, and the Environment

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Introduction

Deforestation, urbanization, intensive cultivation, and drought have resulted in significant decreases in primary forest throughout Uganda (1). Reduced habitat for wildlife increases human-animal interactions and amplifies the chance of spillover events leading to new and re-emerging zoonotic diseases. Pressure on watersheds decreases access to clean water sources for people, animals, and crops with significant public health and economic effects. In areas where contaminated natural springs are the only water source for the public, diarrheal diseases are prevalent and a leading cause of death, especially among children (2). Integrated and unifying One Health approaches are needed (3).

The role of the environmental sector in operationalizing One Health strategies is under-represented. (4) Examples of One Health thinking in environmental contexts can highlight solutions that consider the inter-connectedness between human, animal, and environmental health in new ways, while fostering interdisciplinary collaboration. We report here a grassroots initiative in ecosystem restoration that uses a holistic One Health approach that resonates with local culture and value for living in harmony with nature.

Rural Water Initiative for Climate Action

Rural Water Initiative for Climate Action (RWICA), a youth-led nonprofit focused on community-driven solutions to advance equitable access to clean water, has used tree planting as a way to operationalize One Health in three districts.

The Mountain Elgon area in Bududa District in Eastern Uganda is a hotspot of rapid degradation of natural resources, with landslides and other climate change scenarios. A major landslide in 2021 in Nakhatore Village following a heavy downpour swept away about 15 acres of food and cash crops. Without restoration, the risk of continued erosion puts about 2,100 people in over 300 households at risk (5).

In partnership with One Tree Planted, which donated 3,000 seedlings, RWICA engaged local farmers and other volunteers to replant the site of two landslide scars. Working with forest officials, four types of indigenous wood tree species were chosen for diversification to serve key ecosystem services, such as stabilizing the soils and enhancing wildlife habitat. Protecting the Manafwa watershed will ultimately restore an area that is a breadbasket of Uganda and have major impact on public health through increased access to reliable water sources.

RWICA planned these events in collaboration with the Ministry of Water and Environment, National Forest Management Authority, the Africa 2000 Network- MWARES PROJECT, and Ebapreneur solutions Uganda. This helped to garner support, mobilize the community, and recruit casual workers to pre-dig pits to prepare for volunteers to plant more trees in a day. RWICA leveraged resources by partnering with other organizations for food, tee

Conclusion and Recommendation

To date, RWICA has organized three tree planting events that have engaged over 100 volunteers, 15 organizations, and 25 farmers in Mpigi and Bududa Districts in Eastern Uganda to plant 15,000 trees on over 20 hectares. This is a small yet significant contribution to both ecosystem restoration and building community resilience. Being involved from the beginning, local community members and authorities were stakeholders in the project and its sustainability.



More than one year after the first RWICA tree planting in the Mpanga Forest, 72% of the trees have survived. RWICA has demonstrated the value of One Health coordination at the grassroots level. We recommend tree planting as a low-cost intervention to District Environment Officers, the Department of Water, the Department of Natural Resources and Climate Change, schools, youth organizations, and others working to improve public health and build resilience to climate change.

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Volunteers plant trees in Mpanga Forest Reserve in April 2021

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Development of a Coordination Strategy for One Health in Uganda

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Introduction

Rapid increase in global interconnectedness has increased the risk of international spread of emerging and re-emerging disease outbreaks, biosafety, biosecurity, and food security issues. To improve international coordination of outbreak management, the International Health Regulations (IHR 2005) call upon countries to strengthen their public health systems. Under IHR (2005), signatories including Uganda are obliged to report all outbreaks that may constitute public health emergencies including priority zoonotic diseases (PZDs) (1). Uganda experiences multiple PZD outbreaks such as Rift Valley Fever, Anthrax, Brucellosis and Influenza H1N1 whose management necessitates utilization of One Health (2, 3). Furthermore, the COVID-19 pandemic has highlighted the significance of reducing the vulnerability of communities to health security concerns across national borders (4).

Uganda has embraced One Health (OH) under the leadership of four lead sectors – Ministry of Health (MoH), Ministry of Agriculture Animal Industry and Fisheries (MAAIF), Ministry of Water and Environment and the Uganda Wildlife Authority (UWA). However, national response to health security issues still happens in silos, as interventions are not well coordinated with delays and inadequacies in information sharing despite having the same goals and joint meetings as key stakeholders (5). This has resulted into disjointed OH implementation. As a result, delays have been noted in the detection, reporting and response to the outbreaks resulting into faster spread of the diseases across species (6).



To effectively address these challenges in Uganda, we conducted a workshop with One Health stakeholders to develop a coordination strategy. The purpose of the five-day workshop was to use a multi-sectoral approach to identify the problems to be addressed by one health, key activities to be performed by different players and their key outputs. This article details the consultative approach used during the workshop; the session was facilitated by the Office of the President.

Methods

We developed a OH coordination strategy through a facilitated-consultative process involving 35 health security experts representing human, animal, and environmental health ministries, partners, non-governmental organizations and academia. All attendees voluntarily agreed to participate. The workshop was conducted between May 9–12, 2022 in Kampala, Uganda.

Participants indicated their views on coordination as guided by the facilitator. A compilation of the expert and consensus opinions generated seven themes which guided the development of the coordination strategy. The themes were:

- 1) Operationalization of the definition of OH
- 2) Identification of problems OH could address
- 3) How OH could address the identified problems
- 4) Expected outcomes and indicators resulting from OH addressing the identified problems
- 5) Possible categories of implementers under OH
- 6) Roles of implementers under OH
- 7) Roles that can support implementers to fulfil their mandate

Results

We defined One Health as a collaborative, multi-sectoral and transdisciplinary approach that addresses urgent, ongoing, or potential health threats at the human-animal-plant, environment interface at subnational-, regional-, national- and global-levels with the goal of achieving optimal health outcomes.

Consensus was reached that One Health can address the following problems: increasing incidence and burden of unsafe food, zoonotic diseases, antimicrobial resistance and inadequate biosecurity and biosafety measures linked to humans, animals and environment.

One Health would address the problems through joint:

1. Early warning, surveillance and response (by detecting, preventing, controlling and eradication).
2. Collaborative research involving risk assessment
3. Planning and budgeting to guide resource mobilization from government and non-government organizations
4. Information sharing to guide response in terms of resource sharing, logistics procurement and management
5. Monitoring and evaluation and dissemination of reports to guide planning

The main expected outcome is improved human, animal and environment health through reduced incidence of unsafe food, zoonotic diseases, antimicrobial resistance and inadequate biosecurity and biosafety measures.

Key implementers were identified in government: Ministry of Health, Ministry of Agriculture, Animal Industry and Fisheries, Ministry of Water and Environment, Uganda Wildlife Authority, Office of the Prime Minister, Uganda National Bureau of Standards and Ministry of Education. Organizations that are implementing health security, researchers like Makerere University, Civil Society Organizations and the private sector were also identified. Uganda's National One Health Platform would continue to serve as the overarching body for spearheading planning and coordinating One Health between sectors and partners.

Implementers would be supported to do their work through the following functions:

1. Conducting a capacity needs assessment to guide capacity strengthening



2. Developing, updating and managing work plans and budgets so as to regularly provide accountability to the implementers
3. Developing and maintaining an up to date database of implementers
4. Developing, reviewing and implementing a communication strategy including suitable networking platform to guide communications with the different implementers
5. Identifying, establishing and updating networks with key stakeholders and having consultative meetings with them
6. Receiving, compiling and sharing alerts and reports from different stakeholders with the implementers to enable them perform their functions
7. Organizing meetings

Conclusion

These proposals guided the drafting of a coordination strategy that will be finalized, approved and disseminated to the stakeholders for operationalization. The coordination strategy will provide a qualitative framework for multisectoral collaboration to address One Health challenges.

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