Rapid EBOLA Outbreak Response and Disease control lessons from DRC

Since April 3, 2018, the Democratic Republic of the Congo (DRC) has managed the ninth epidemic outbreak of Ebolavirus diseases (EVD) affecting the country, this time in the Equateur Province in northwestern DRC. This epidemic alert was sparked by 17 successive deaths in the health area of Ikoko Impenge, in the Bikoro health zone, and has received special attention from the Congolese Government and the scientific community.

After contact tracing was conducted, the 17 individuals were found to be linked through family relationships. Patients presented the following symptoms prior to their deaths: fever, diarrhea, abdominal pain, vomiting, muscle and joint pain, and hemorrhagic symptoms. Considering that rapid response is the key to fighting the epidemic spread of EVD, the DRC government and its partners (USAID, WHO, Médecins Sans Frontières (MSF), UNICEF, USAID-PREDICT, CDC, FAO etc...) did not hesitate to initiate response by following the chronology of the facts below.

ON MAY 4, the Ministry of Health Office of Disease Control received an alert for suspected Viral Hemorrhagic Fever in the Bikoro health zone. On May 5, the Ministry of Health (MOH), WHO and MSF deployed a joint investigation team to Mbandaka (capital of the Equateur province) to conduct case investigations. Blood samples were drawn from five identified patients, and early results of the mission investigation led the MOH Office of Disease Control to officially acknowledge the outbreak on May 6.

ON MAY 7, the National Institute of Biomedical Research (INRB) in Kinshasa, received five blood samples, two of which were confirmed positive for Ebolavirus by Real Time-PCR.

ON TUESDAY, MAY 8, an official statement on the Ebola Virus Epidemic was released by the Congolese Government. The Ministry of Health requested that USAID’s PREDICT program conduct additional testing of the 5 samples stored at INRB, which USAID approved on the same day.

"THROUGH OUR APPROACH OF ACTIVELY INTEGRATING MANY DISCIPLINES, WHICH IS FUNDAMENTALLY A ONE HEALTH APPROACH, DRC HAS ALWAYS OVERCOME ITS PREVIOUS EBOLA EPIDEMICS."

BY DR. CHARLES KUMAKAMBA

"THROUGH OUR APPROACH OF ACTIVELY INTEGRATING MANY DISCIPLINES, WHICH IS FUNDAMENTALLY A ONE HEALTH APPROACH, DRC HAS ALWAYS OVERCOME ITS PREVIOUS EBOLA EPIDEMICS."

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EMERGING INFECTIOUS DISEASES

NIPAH IN BANGLADESH: WHEN EPIDEMICS BECOME ENDEMIC

THE POWER OF ONE HEALTH

New World Screwworm Eradication in South Florida – A One Health Success Story

EMERGING INFECTIOUS DISEASES

ACHIEVING RABIES ZERO BY 2030

ONE HEALTH CHALLENGES

FUTURE EARTH’S TOP TEN CHALLENGES FOR ONE HEALTH

ONE HEALTH IN UNDERSERVED COMMUNITIES

Transformation within Indigenous Lived Experiences and the Journey from a Pedagogy of Oppression to a Pedagogy of Hope and Freedom

EMERGING INFECTIOUS DISEASES

THE OTHER SIDE OF ONE HEALTH: A BRUCELLOSIS STORY

VACCINATION

A systematic review of strategies for reducing missed opportunities for vaccination
Dear Reader,

It is with great pleasure that we invite you to read the One Health Platform Communicator, issued by the One Health Platform Foundation.

This third edition is dedicated to the 5th International One Health Congress and gives you a hint of the wide variety of topics and issues that will be addressed during the congress. Contributors have been selected from the congress program and were asked to provide an outline of their lecture, newspaper-style. We are very grateful for their enthusiastic and professional cooperation, knowing how challenging it is to translate research results in catchy headings and appealing paragraphs.

The current Ebola outbreak in DR Congo and the emergence of Nipah virus in Asia, which has now spread to Kerala State in south-west India, with up to 18 fatalities as of 6th June, are clear warnings that deadly diseases can suddenly (re-)emerge and spread fast. Articles in this Communicator shed more light on the response strategies to such outbreaks of zoonotic diseases, and they remind us that pathogens from the animal world continue to cross the species barrier to infect the human population. As the human population expands, they intrude into wildlife habitats which are natural host reservoirs for thousands of viruses, bacteria and other pathogens. The poorest people are especially vulnerable, the 5th International One Health Congress has therefore chosen ‘One Health in underserved communities’ as its overarching theme, in recognition of the complex interplay of environmental, animal and human health in underprivileged societies around the globe.

One Health is a multifaceted concept that can be used at many different levels, varying from the basic level of increasing communication and awareness (as demonstrated by the Achieving Rabies Zero by 2030 campaign in Pakistan) to using it as a strategy to address the root causes of what is driving diseases to emerge (as shown by Future Earth’s horizon scan, yielding the top ten of high-impact issues for global human, animal and environmental health).

Recognizing that it is impossible to address all aspects of One Health in a single newspaper, we wish you lots of reading pleasure!

Prof. John Mackenzie  
Prof. Ab Osterhaus  
One Health Platform chairs
ON MAY 11, PREDICT received a formal request from the Government through INRB regarding support for outbreak response activities. In response to the list of unmet needs provided by the Ebola Response Laboratory Commission, PREDICT provided 150 sets of Personal Protective Equipment (PPE), a Smartcycler PCR machine and accompanying computer, and two gloveboxes.

ON MAY 12, the K-Plan mobile lab (previously acquired through USAID support) was deployed to the outbreak site in Bikoro. Two mobile labs were installed in two of the outbreak sites: one in Mbandaka and the other in Bikoro (a town located 120 km from Mbandaka).

Considering the multidisciplinary aspect of the fight against the EVD outbreak, a national coordination committee has been set up that brings together specialists (epidemiologists, virologists, medical doctors, psychologists, sociologists, anthropologists, communication specialists, etc...) that can intervene in this fight.

This committee meets every day to assess the situation to provide the appropriate response solutions. This committee is functional at the provincial level and at the outbreak sites.

Through this approach of actively integrating many disciplines, which is fundamentally a One Health approach, DRC has always overcome its previous Ebola epidemics. The most important epidemic ever having occurred in DRC resulted in 256 deaths. This could be qualified as defeat, especially considering that it was an epidemic affecting urban areas. We hope that this One Health approach to managing the epidemic of EVD will be a model in the rapid resolution of this current Ebola outbreak, as well as a model for dealing with other public health problems.

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See you in Europe in 2020!

SAVE THE DATE
15-18 June 2020

www.worldonehealthforum.com
The recent Nipah virus encephalitis outbreak in Kerala, India, has claimed at least 17 lives and is still being investigated. This is the first recognized Nipah virus outbreak in southern India and the third reported in India. However, Nipah virus outbreaks have occurred almost annually in neighboring Bangladesh since its discovery there in 2001. In Bangladesh, Nipah virus causes seasonal encephalitis outbreaks during the winter. The virus is carried by large fruit-eating bats in Asia, called flying foxes. Nipah virus outbreaks in Bangladesh, on average, have a 70% case fatality rate. The virus doesn’t make bats sick, but people and domestic animals can be infected when they eat or drink food that has been contaminated by bat saliva or urine.

While Nipah virus can be spread from person to person, it is not very infectious, which has so far prevented larger epidemics. However, given its broad distribution, high mortality rate, lack of a vaccine or therapeutic, and continual spillover into people in one of the most populous regions on Earth, there is concern that a genetic strain may eventually spillover from bats into people that is more easily transmitted. WHO has recently prioritized Nipah virus as one of the 10 most urgent epidemic threats and is facilitating the development of vaccine and treatment.

Nipah was first identified in Malaysia in 1999, causing severe damage to their pig industry along with the death of 105 farmers. The virus jumped from bats to pigs when contaminated mango pieces chewed by bats were dropped into pig enclosures from overhanging tree branches. People were infected through contact with sick pigs and the epidemic spread throughout Malaysia from the movement of infected pigs from farm to farm. Further human or animal cases were prevented by a strong legislation to keep space between orchards and livestock enclosures. In Bangladesh, Nipah is transmitted from bats to people through contaminated raw date palm sap. The mechanism for transmission, however, is similar to Malaysia – the contamination of a shared food resource.

Drinking raw date palm sap early in the morning during winter, is a cherished custom in Bangladesh. Fruit bats have learned to exploit this otherwise unavailable food by landing on the palm fronds and licking the sap as it flows into the pot, contaminating the sap with saliva and possibly with urine if the bat urinates over the collecting pots. Infrared camera images show many types of fruit bats eating date palm sap, including Pteropus medius, the natural reservoir for Nipah virus in Bangladesh and India. Fruit bats avoid contact with people (in fact, they are hunted throughout much of their range) nor do they bite people unless they are grabbed.

From 2001-17, 289 people were infected in Bangladesh, of which 211 died. Survivors frequently suffer from prolonged nervous system disorders including muscle weakness, cognitive impairment, and personality change. In 2007, researchers from icddr,b and the government of Bangladesh persuaded a sap collector to cover the trunk of date palm by a bamboo skirt, which actually prevented the bats from contaminating the sap. Efforts are underway to encourage sap collectors to use these covers, and for people to boil sap before drinking, which may reduce the risk of Nipah virus infection. Nipah virus cases are seasonal, occurring between November and April, which coincides with date palm sap harvesting season. Nipah virus has been detected in Pteropus bats outside of this time period and in locations outside the Nipah belt. Date palm sap is consumed across Bangladesh, though to a lesser extent in the eastern part of the country. Nevertheless, it remains unknown as to exactly why cases have not been reported more frequently in other parts of the country, given the presence of the virus, bat host, and the main route of transmission. We do know that Nipah virus infection in bats is fairly rare, which to some extent influences the frequency with which we see human cases.
BATS FOR A HEALTHY ECOSYSTEM: LIVE SAFELY WITH BATS RATHER THAN BLAMING THEM

Though they may carry dangerous viruses, bats play a vital role in maintaining healthy ecosystems. Fruit bats pollinate around 528 species of flowering plants worldwide. And spread seeds from tropical trees long distances. Old world fruit bats are responsible for maintaining more than 50 percent of Africa and Asia’s tropical rainforest. Despite the obvious risk bat viruses pose to human health, it must be acknowledged that most outbreaks of bat-borne zoonotic diseases are a consequence of human activities. The natural habitat for flying foxes is tropical forests. Due to rapid urbanization and increased human population, the forest lands are converted into commercial agriculture land, bringing bats into our farms and suburbs. It is for all these reasons that it is neither effective nor ecologically sustainable to try to eliminate bats in order to control zoonotic pathogens like Nipah virus.

The cause of the India Nipah virus outbreak remains unknown, but likely is linked to some contact between people and flying foxes. Even though Nipah virus infection in bats is fairly rare, the current outbreak in Kerala, more than 2500 kms from Bangladesh, is a stark reminder that Nipah virus spillover can occur wherever people and pteropid fruit bats interact.

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STAKEHOLDER ROUND TABLE
How to join forces in influenza pandemic preparedness?
at the occasion of the Centenary of the 1918 Pandemic

18 JANUARY 2019  SAVE THE DATE

CHATHAM HOUSE, LONDON, UK
ORGANIZED BY ESWI AND CHATHAM HOUSE
CHAIRIED BY  DR. DAVID HEYMANN, Chatham House
             DR. AB OSTERHAUS, ESWI

- How devastating was the 1918 pandemic and why?
- The threat of a new Influenza pandemic: its certainty, its unpredictability (or not?), its potential magnitude and speed
- Virus evolution studies using ancient sequences
- Pandemic vaccines
- Epidemiology of Influenza Vaccination in Interpandemic years
- Antivirals – scientific point of view
- Non medical interventions
- Communication and public engagement
- Coping with the 2009 pandemic - what did we learn?
- Pandemic Influenza Situation Monitoring / SWITCH
- WHO Pandemic Programme
- EU challenges: Joint procurement
- Regulatory requirements of pandemic preparedness
- Industry as a key player - Vaccines Europe
- Government challenges
- Non-medical interventions

Cornerstones of Pandemic Influenza Planning and Coordination: Panel discussion and debate with the participants.

"BETWEEN 2001 AND 2017, 289 PEOPLE WERE INFECTED WITH NIPAH VIRUS IN BANGLADESH, OF WHICH 211 DIED."
Arguably, one of the most charismatic animals in Florida is the diminutive Key Deer. A subspecies of white-tailed deer, the endangered Key Deer are the smallest North American cervid, males weighing an average of 36kg/females 28kg, and found only in the southern islands of Florida.

New World Screwworm Eradication in South Florida
A One Health Success Story

By Lisa Conti, One Health Initiative and Florida Department of Agriculture and Consumer Services

In Fall 2016, the United States Department of Agriculture (USDA) National Veterinary Services Laboratory confirmed New World screwworm (NWS) (Cochliomyia hominovorax) in larva samples collected from Key Deer. This was the first NWS infestation since the fly was eliminated from Florida 50 years prior. NWS disease is a maggot infestation of warm-blooded animals, including people. NWS flies lay eggs near an open wound, mucus membrane, or navel, and the larvae feed on the animal’s living flesh causing severe morbidity or mortality.

One Health foreign animal disease eradication program

With an endangered species at risk, proximity to Florida’s robust cow-calf production, and possibility of harm to people and pets, Florida launched a One Health foreign animal disease eradication program. In addition to USDA and the Florida Department of Agriculture and Consumer Services (FDACS), partners included US Fish and Wildlife Services, Florida Fish and Wildlife Conservation Commission, Florida Department of Health, University of Florida, Monroe County, and citizen scientists. Incident command used a Unified Command structure to implement the eradication program.

Sterile Fly Release Box – USDA

NWS eradication elements included:
- The FDACS State Veterinarian ordered a quarantine zone encompassing the Florida Keys, and instituted an animal checkpoint to prevent NWS from leaving the keys on pets or livestock.
- USDA entomologists released millions of sterile flies in the Lower Keys. As the female fly mates only once in her 3-week lifespan, sterile fly release is a proven strategy for NWS eradication.
- Surveillance included search for new animal cases, as well as monitoring for fertile and sterile flies.
- US Fish and Wildlife monitored Key Deer for infestation, and wildlife veterinarians treated wounds. Trained volunteers provided oral preventive medication (doramectin), and self-medication stations were placed in more remote areas.
- Considerable outreach provided information to residents and visitors to be on the lookout for screwworm, and to be able to treat infested animals.

Sterile Fly Cordon Sanitaire

On March 23, 2017, USDA Animal and Plant Inspection Service announced the eradication of NWS in Florida – the result of earnest One Health actions. In all, 145 NWS animal cases were reported, 128 were presumptive, and 17 confirmed (11 in wildlife (Key Deer and 1 raccoon) and 6 domestic animals (3 dogs, 2 cats and 1 pet pig). No livestock cases were reported, and the estimated cost benefit of US screwworm freedom is millions of dollars annually.

While the origin of this infestation is unknown, NWS exists in the Caribbean and Latin America. USDA and Panama maintain a sterile fly cordon sanitaire in Panama’s Darien Gap to keep NWS from moving into Central and North America. Due to Florida’s subtropical climate, proximity to countries with NWS, and significant animal movement, there is always a risk of reintroduction of this devastating pest. It is crucial that the veterinary community and public remain vigilant. NWS is a reportable disease in the US, and clinicians are a first line of defense in suspecting cases and submitting samples for confirmation.
Unfortunately, more than 50% of the cases are in teenage (<15 year) children. Multiple factors contribute to the ongoing cases of rabies both in animals and humans all over the world. Some of the major loopholes are illustrated below.

1. Inadequate and insufficient prophylactic measures in basic health units

Studies show that the provisions of necessary vaccines for the pre-exposure and post-exposure treatments are not available in healthcare units. Alternatively, people are unable to obtain complete injections of vaccines in case of a deep dog-bite. Moreover, standard diagnostic facilities for the diagnosis of rabies in animals and humans are also deficient.

2. Ever increasing population of ownerless and unvaccinated dogs

Spaying and neutering of dogs prove to be effective tools. Uncontrolled movements of free roaming or ownerless dogs are another aggravating factor which is entirely due to the lack of practicing “Responsible Pet Ownership” (RPO). The knowledge of RPO enables each citizen of any nation to offer healthy food, shelter, exercise, stress and disease-free environment to their pets so that they may live happily just like the way we do. Being good human beings, we should be kind to dogs.

3. Legislative negligence, lack of public awareness, and poor perceptions of health practitioners

Each doctor must convey the general rabies preventive information to the patients. In lower socioeconomic settings, however, doctors and paramedic staff are unable to convey the essential knowledge to the public. In addition, almost 70% of the dog population needs to be vaccinated, which would be the responsibility of the government.

We have to remove these loopholes to achieve the slogan of rabies zero by 2030, while for the upcoming World Rabies Day the slogan is “Share the Message: Save a Life.” Therefore, by educating ourselves about the basic preventive measures and sharing the message among each other would be the best way to fight rabies until it is completely eradicated from the planet.

“TO DATE, THERE IS NO APPROVED CURE OR TREATMENT AGAINST RABIES”

Educating ourselves would be the best way to fight rabies until it is completed eradicated from the planet.

About the author: Dr. Waqas Ahmad is working as an Assistant Professor in the Department of Epidemiology and Public Health at the University of Veterinary and Animal Sciences (Jhang Campus), Pakistan.
HORIZON SCANNING TO PROMOTE HUMAN, ANIMAL AND ENVIRONMENTAL HEALTH: Future Earth’s Top Ten Challenges for One Health

BY PETER DASZAK, CATHERINE MACHALABA, BRIAN BAKER AND WILLIAM KARESH, ECOHEALTH ALLIANCE

HORIZON SCANNING TO PROMOTE HUMAN, ANIMAL AND ENVIRONMENTAL HEALTH: Future Earth’s Top Ten Challenges for One Health

BY PETER DASZAK, CATHERINE MACHALABA, BRIAN BAKER AND WILLIAM KARESH, ECOHEALTH ALLIANCE

Much of the attention of public health and environmental efforts is focused on responding to and limiting impacts once they occur. A One Health approach has shown high utility in providing a more comprehensive understanding of the ecological and epidemiological dynamics that shape disease risks. In addition to directly informing disease prevention and control strategies, it can also help examine threats and opportunities on the horizons and broaden our technical, policy and wider societal capacity to proactively address them.

Future Earth’s oneHEALTH Global Research Project conducts an annual horizon scan review of hot topics for One Health that will profoundly change the future of health on the planet. These are targeted at topics deemed to have serious potential implications for health, have been under-emphasized or are emerging issues, and can benefit from new thinking informed by a One Health perspective. Horizon scanning offers an exciting application for One Health to provide pathways for researchers and policy makers to better anticipate risks and mitigate negative outcomes for society and maximize progress toward sustainable development.

FUTURE EARTH AND THE ONEHEALTH GLOBAL RESEARCH PROJECT

The Future Earth global sustainability research platform was developed to advance scientific knowledge and policy and societal solutions to address complex challenges facing the planet. Promoting collaboration and capacity strengthening across disciplines, its mission is implemented through a series of global research projects, knowledge-action networks, global hubs, regional offices, and national programs, supported by strong communication channels and policy engagement. With focus spanning from mountain biodiversity to sustainable production and consumption, Future Earth provides a novel model for collaborative and innovative research and policy that aligns closely with the 2030 Sustainable Development Agenda.

The oneHEALTH Global Research Project is comprised of experts from diverse professional and backgrounds and settings, including expertise on biodiversity, climate and weather, disaster risk reduction, economics, food security, parasitology, public health, and veterinary medicine, and virology. The annual horizon scan is based on identification and synthesis of issues from the oneHEALTH Scientific Committee.

FUTURE EARTH’S TOP TEN CHALLENGES FOR ONE HEALTH

The 10 high-impact issues for global human, animal and environmental health selected for this year’s horizon scan have wide range of technological and policy scope. The associated report, which will be released at the One Health Congress, summarizes the evidence to date and showcases needs and opportunities at the science-policy interface. The issues include:

1. Big data, artificial intelligence, and monitoring earth systems
2. Global collaborations on microbial diversity and phylodynamics
3. Mitigating the underlying drivers of emerging infectious diseases and disaster risk reduction
4. Gene editing technology, including application to food production
5. Human-driven evolution and synanthropic species
6. Mechanisms and manifestations of disease transmission
7. Crowdsourcing and private funding influencing future research
8. Multi-factorial investigation and response for mass mortality events in wildlife
9. Economic optimum for land development to reduce negative externalities to health

"FUTURE EARTH PROVIDES A NOVEL MODEL THAT ALIGNS CLOSELY WITH THE 2030 SUSTAINABLE DEVELOPMENT AGENDA."

The multisectoral nature of these issues – including equity and capacity considerations - warrants a One Health approach to enhance understanding of future threats and opportunities and maximize progress across the Sustainable Development Goals and related initiatives for health security, conservation, and economic development that benefits from integration of disciplines. The One Health community is already delivering important solutions to pressing issues for human, animal and environmental health; looking ‘on the horizon’ can help us further expand our positive impact.
Transformation within Indigenous Lived Experiences and the Journey from a Pedagogy of Oppression to a Pedagogy of Hope and Freedom

BY ANNE POELINA, THE UNIVERSITY OF NOTRE DAME, AUSTRALIA

PEDAGOGY OF OPPRESSION

“Impression, conflict, divide and conquer, manipulation” continue as the characteristics of oppression (Freire, 1968). The colonial states were established to create wealth for private and foreign interests at the expense of Indigenous people, our lands and waters. The lived experiences in the Kimberley and throughout Australia is shared with other First Nations people in countries colonised during the seventeenth and eighteenth centuries. The consequences of colonisation from legislated inequality are termed “structural violence” by the peace philosopher Galtung. Such effects are measured not only in the disparity of mortality rates for children and young adults, healthy life expectancy, and in morbidity from non-communicable diseases, but in the effects on mental health and wellbeing from trans-generational psychic trauma, and the devastating effect of endemic alcohol and drug misuse.

In 2017 we recall a decade since our government ratified the United Nations Declaration on the Rights of Indigenous People; however, we have not seen this domesticated in Australian law. Many of us who have had our customary law recognised in Native Title are prepared to stand and work together to take charge of our own destiny and partner with like-minded people to act to deliver justice based on First Water Law of the Martuwarra.

PEDAGOGY OF HOPE

The Freire framework is based on mutual respect involving open and honest dialogue. This heightened sense of cooperation has instruments known as ‘unity, organisation, [and] cultural synthesis’ which if undertaken leads to a process for a truly more positive life which enshrines the principles of human rights (Paulo Freire 1968). On 2 and 3 November 2016, Indigenous leaders met in Fitzroy Crossing to showcase to the world the recognition that the National Heritage Fitzroy River is a living sacred ancestor from source to sea. More recently in May 2018 these leaders united to form the Martuwarra Fitzroy River Council. The Council builds on the United Nations Permanent Forum On Indigenous Issues Background Guide (for) 2017. We recognise this is an important model framework for cultural governance of our natural and cultural resources.

PEDAGOGY OF FREEDOM

This is a story of hope and freedom as we explore our rights and responsibilities of First Law, the law of the land. This First Law encompasses our relationship with each other, our neighbours, and most importantly our family of non-human beings. These are key indicators for personal, community, cultural and systemic economic wellbeing. The alternative put forward is a ‘strength based’ approach which rejects narratives that promulgate inferiority. Strengths based education has a greater focus on innate ability, the advantages of Indigenous culture (rather than framing it as disadvantaged), dialogue, and ‘hopes and aspirations’ for ‘how we want to be’. Our Centre (www.majala.com.au) demonstrates, our culture, science, heritage and conservation economy is blossoming, founded upon our connectivity and distinct cultural identities. Guided by First Law, our ‘living water’ systems are our life force, connecting surface to ground water, uniting the diverse cultural landscape of the Kimberley. We are building collaborative knowledge systems, combining Western sciences, traditional knowledge, and industry practice in sharing our most precious resources - water and biodiversity. We are developing our ‘Sustainable Life and Livelihoods’ on country.

References:

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The ONE HEALTH PLATFORM Communicator
THE OTHER SIDE OF ONE HEALTH: A BRUCELLOSIS STORY

Within One Health, there is the need to look at indirect effects of disease outbreaks on human and animal populations, as well as systems and societal structures. A constant research-based control system is also important in addressing challenges posed by infectious diseases such as brucellosis on the well-being of farmers and stakeholders.

“The country is sitting on an epidemic time bomb” is the first line of a 2016 newspaper article in South Africa headlined “Brucellosis: An epidemic time bomb in South Africa.” The writer goes on to speak about brucellosis, its zoonotic status as well as how “scary” it is. On another news portal, a recent brucellosis outbreak is detailed with a Veterinary Services director quoted as saying:

“Once an animal on a farm tests positive, that farm is placed under quarantine. No animals are allowed to be moved to or from that farm. The infected animals are taken away and the remaining animals undergo tests every six months. Only once a farm has had at least two consecutive negative tests will the quarantine be lifted.” This means a farm must stay under quarantine for at least a year, but extreme cases have been recorded where farms have only been cleared in six years.

It brings to bear a less researched aspect of disease outbreaks such as brucellosis: its socio-economic impacts on industries, businesses, investments as well as the welfare of a farmer with an infected herd who has to undergo quarantine and obtain “clean status.” An animal like the sable antelope with market value of around $40,000 and record sales up to $1.96 Million before the brucellosis outbreak, now sells as low as $3-4,000 with the only lucrative venture currently being hunting at $6-7500. Then comes the hurdles of quarantines (ultimately affecting sales of other wildlife the farmer may have), testing and screening costs and the emotional fatigue of animal and investment loss. A systemic review and questionnaire-based assessment was done of farmers in affected areas as well as policy makers in assessing indirect impacts of brucellosis as well as useful One Health practices for control. Four types of questionnaires were handed out targeting four stakeholders: farmers, veterinary officers, state medical officers and policy makers in the Health and Agriculture departments.

The wildlife questionnaires assessed socio-economic burdens of brucellosis, and initial reports on brucellosis in one wildlife farm perked losses at approximately 1 million rands (approx. $80,000), where the prices of Sable antelope have fluctuated between R 178 000 (Matetsi/ Southern Sables) and R 485 000 (Zambian Hybrids). Farm records documented the trauma of the farmer’s loss of revenue and investments with records of depression and fatigue. Using the Harvard Trauma Questionnaire (revised Cambodian version), the effect of quarantine and investment loss on farmers were assessed on a 4-point scale from “not bothered to “extremely bothered”. All assessments were done in anonymity with the full consent of the farmers and ethics approval from the University of Pretoria, South Africa.

The veterinary officer questions focused on assessing their perception of One Health practices, factors that increased disease occurrence in the district, existing collaborations and expertise. This aspect of the research is ongoing and the outputs would be written out as policy recommendations to guide activities in the department related to zoonotic diseases.

A farmer may not be directly infected with a zoonotic pathogen, but indirect effects of herd loss and challenges faced post-outbreak are explored, bringing to fore the essence of One Health and the need to explore it on an interdisciplinary platform.

About the author:
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INTRODUCTION
Sable antelope breeding seemed a very lucrative venture in 2013. In economic projections based on 2012 data, it was projected that with a starting group of 5 animals (1 male & 4 females), and the assumption that the population increase ratio will be 50% male: 50% female each year, and the understanding that the maximum amount of animals to be kept in the camp to be 10 at all times, only 1 bull to be kept in the breeding herd at all times, and females able to carry within 2 years, one’s earning may, after year 4 (2016), total R 636 000, with 2017 earnings of R 1 272 000.

Until there was a brucellosis outbreak.
A systematic review of strategies for reducing missed opportunities for vaccination

BY ANELISA JACA

VACCINATION IS BETTER THAN CURE

- Vaccines play a very important role in protecting people against various diseases. Therefore, vaccines prevent deaths and also improve health.

- Individuals sometimes miss opportunities to be vaccinated due to factors like vaccine hesitancy, vaccine affordability and vaccine availability.

- Missed opportunities for vaccinations (MOVs) occur when a person who is eligible for vaccination visits a healthcare service and does not receive all the needed vaccine doses.

- When MOVs occur, children fail to receive the basic set of routine vaccines they are supposed to get.

WORLDWIDE VACCINE COVERAGE

According to the World Health Organization, about 19.5 million infants were not immunized in 2016 in places like Africa, Eastern Mediterranean region and South East Asia.

- In 2016, approximately 19.5 million infants were not vaccinated for DTP3


STRATEGIES TO AVOID MOVs

- There are various strategies or interventions that can be used to reduce MOVs and increase vaccination coverage.

  - Communicating with patients about vaccines: Reduces MOVs and increases vaccination coverage.
  - Educating parents about vaccines: Increases vaccination coverage.
  - Education sessions targeting clinicians and families: Increases vaccination coverage.
  - Patient tracking and provider prompts: Reduces MOVs and increases vaccination coverage.
  - Vaccination without a legal guardian’s signature: Have little or no effect on vaccination coverage.
One Health Day is an international, global campaign coordinated by the One Health Commission, the One Health Initiative Autonomous pro bono Team and the One Health Platform Foundation.

Get involved and set up your own activity to bring attention to the need for One Health interactions and collaborations.

www.onehealthday.com