The Soulsby Foundation
Newsletter

Welcome

Welcome to the 2020 newsletter of The Soulsby Foundation. To say that the world has 'turned upside down' since the last edition is perhaps an exaggeration, but awareness of epidemics, pandemics, diagnostic testing and One Health must surely be at a high point.

We started the year in fund raising mode. Readers may remember that in 2019 we were constrained in the number of Soulsby Fellowships we could award by limitations on funding. We are delighted to report that The Alborada Trust has made a significant long-term commitment to the foundation, which has allowed us to award five fellowships in 2020, to the value of £50,000.

We welcome several new trustees this year. Professor David Hayman is the representative from the Royal Society of Tropical Medicine and Hygiene. The Royal Society of Medicine representative is Mr Babulal 'B' Sethia. We also welcome Professor Donald Kelly, previously at the University of Liverpool, and Professor Andy Peters from the University of Edinburgh.

Sadly, we lost a friend and trustee this year. Professor Michael Day died in May. Michael contributed so much to veterinary medicine generally and One Health in particular. The WSAVA have posted a fulsome tribute to him. He will be greatly missed by his family, friends and colleagues.

Michael Day

We received a record number of applicants for Soulsby Fellowships this year. The board of trustees followed a rigorous selection process, involving two or more objective assessments and an interview. Eventually, five fellowships were awarded. Chair of the Soulsby Foundation trustees, Judy MacArthur Clark, said: 'The Covid-19 pandemic has highlighted the intimate link between animals and humans in emerging diseases. This emphasises the importance of a One Health approach so firmly advocated by Lord Soulsby in which veterinary, medical and other professionals work together to find solutions. These 2020 Soulsby Fellows are remarkable examples of how a One Health approach benefits humans, animals and the communities in which they live. They are potential future leaders who will enable us to better respond to future pandemics.' Also, in 2020, we have introduced a scheme so that each fellow has been assigned a trustee mentor to support them.

This year's Soulsby Lecture features Dr William Karesh of the EcoHealth Alliance. Dr Karesh presents 'Global diplomacy and security: One Health in the 21st century' at the Sixth World One Health Congress in late October.

The importance and relevance of One Health has also been highlighted in a blog in *The BMJ* by trustees and fellows (https://bit.ly/2TviWss).

Calling applicants for 2021

The application process for Soulsby Fellows for 2021 opens on 1 November 2020. For information on the process, including eligibility visit our website at https://soulsbyfoundation.org. You can also see inspirational one-minute videos from each of our current Fellows.

The 2020 Soulsby Fellows

The global Covid-19 pandemic has severely constrained the activities of the fellows, particularly through interruption to international travel. Below are summaries of their programmes.

Lisa Cavalerie I first visited Ethiopia and the largest cattle population in Africa 10 years ago. The HORN project has given me the opportunity to return. HORN's aim is to develop a network of researchers and organisations across the Horn of Africa with the view to undertake high quality research into the underlying relationship between people's health and wellbeing and that of livestock and the environment. I am now a HORN postdoc associated to the University of Liverpool.

The specific reason why I'm a recipient of a Soulsby Fellowship comes from exploring a topic somewhat novel to me: the connection between livestock (an essential component of Ethiopian life) and maternal health (a major public health issue in Ethiopia). A mother-child cohort study has been enrolling pregnant women and their expected children in Butajira, studying the effects of nutrition on pregnancy outcomes. This cohort study offers the perfect opportunity to document the risks and benefits for

pregnant women of owning livestock by collecting additional data on the access for women to animal source foods, the presence of zoonoses in women and their livestock and the knowledge, attitude and common practices of women towards zoonoses. Livestock production can be a pathway out of poverty, however it can also be a threat when it comes to zoonoses. Women often come last for benefiting from the money or the meat but first for bearing the responsibilities for cooking or milking, the burden of which can be compounded by pregnancy with a higher susceptibility to infectious diseases. I hope this study brings an opportunity to bring One Health to maternal health.

Lisa Cavalerie

Vito Colella

Mark Nanyingi

Vito Colella I am a postdoctoral research fellow at the Melbourne Veterinary School, Australia, where I develop and test intervention strategies to mitigate the impact of zoonotic parasites on people and animals residing in resource-limited settings. I have been fortunate to have the chance to research the epidemiology of zoonotic parasites in several European countries and in Asia. This culminated with an investigation into the zoonotic parasites affecting companion animals in eight different countries.

Hookworms are blood-feeding soil transmitted helminths (STHs) causing infections of the small intestine. These parasites cause infections in nearly a billion people worldwide, causing impaired physical and cognitive development in children and poor neonatal outcomes. The World Health Organization has provided guidelines for the control of STHs, which have been successful in reducing the morbidity of these parasites on a large scale. These recommendations are based on the assumption that *Necator americanus* and *Ancylostoma duodenale*, which are human-specific, are the main hookworms causing disease globally. However, data obtained through molecular tools in the past 10 years have shown that *Ancylostoma ceylanicum* is the second most common hookworm of people in the Asia-Pacific region, affecting roughly 100 million people. Importantly, *A ceylanicum* is transmitted to humans from animals, with dogs acting as a reservoir of these pathogens. This zoonotic hookworm can reach a prevalence as high as 90 per cent in dogs in rural communities in Asia, where people, especially children, share a common environment.

Thanks to the Soulsby fellowship I'll be able to deliver mass drug administration to school age children and community dogs in resource-poor communities in Cambodia. We will measure whether there is a reduced proportion of animals and people suffering from the zoonotic parasites after implementation, exploring the genetic and epidemiological traits driving disease transmission, and perform a cost-effectiveness analysis of this intervention to advocate for relevant policy change.

Mark Nanyingi I am an infectious diseases epidemiologist and a One Health expert undertaking a one health postdoctoral fellowship at the School of Public Health at University of Nairobi in collaboration with the University of Liverpool under the HORN project. I am also a visiting scientist at ILRI One Health Center. In the past 15 years my focus has been on capacity building, policy development and implementation research on emerging infectious zoonotic diseases at the human-animal-environmental interphase.

In the past decade I have been unravelling the cyclic re-emergence and geographical spread of Rift Valley fever (RVF) and other arboviral zoonoses in naïve human and animal populations in Kenya. RVF is a priority zoonotic diseases (PZD) in Kenya based on its ability to cause epidemics, economic losses and severity of infection in humans. I am establishing a small scale human-animal integrated One Health surveillance system to enhance national decision support tools that will lead to faster detection, effective response, prevention and targeted control of RVF during the interepidemic periods. The study will strengthen One Health research capacity by harnessing the synergy in genomic and spatial epidemiology, public health, entomology and social sciences.

There are challenges in effective control of RVF outbreaks due to lack of knowledge of risks and poor preventive practices among the population. RVF is an ideal examples of a zoonotic disease where integrated multisectoral One Health approaches can be used to develop effective and replicable control strategies.

Kelsey Shaw I am a PhD candidate in the Population Biology, Ecology, and Evolution program at Emory University. During vet school, I had my first experience with basic science research and I knew I wanted to combine this with veterinary science into one career, with a focus on infectious diseases.

For my dissertation I am studying the transmission of schistosomes, parasitic flatworms that infect humans and livestock. Schistosomes have a complex life cycle in which they must infect both a mammal and an aquatic snail before their life cycle is complete. Public health efforts to control schistosomes have mostly focused on treating infected people and killing the snails that schistosomes need to complete their life cycle. However, killing snails requires the widespread use of pesticides resulting in the death of numerous other aquatic species. For my project, I want to take a different approach to fighting schistosomiasis. This approach is rooted in the One Health principle that by preserving the health of the environment, we can protect the health of humans and animals.

As a Soulsby Fellow, I plan to travel to Mwanza, Tanzania to work with Dr Safari Kinug'hi at the National Institute for Medical Research. We will visit sites along Lake Victoria where schistosomes are present and quantify the abundance of vector snails, schistosome parasites, and other relevant species that interact with vector snails including other snails, insects and birds. This information will help guide public health efforts in Tanzania and may also inspire researchers in other countries to conduct similar studies to help them control schistosomiasis.

Kelsey Shaw

Juan Pablo Villanueva-Cabezas

Juan Pablo Villanueva-Cabezas I am a research fellow in One Health at the Peter Doherty Institute for Infection and Immunity in Victoria, Australia.

I do epidemiological research on emerging issues of animals and humans with a focus on global health. This has included working on livestock in Bhutan, African swine fever in Vietnam, and now Covid-19 in Australia. I also coordinate two One Health subjects at the University of Melbourne called 'Our Planet, Our Health', which introduce undergrads to the One Health research framework.

When I joined the Peter Doherty Institute, I began a collaboration with the veterinary service of Bhutan. Exploring Bhutanese Livestock & Livelihoods to achieve Sustainable Systems (BLLiSS) is an idea that was born in my fieldwork, when I met milk producers in a region called Haa.

Bhutan is a small nation – less than one million people – landlocked in the Himalayas. In Bhutan Buddhism is widely practised and is associated with a strong compassion for animals that does not allow their culling. In Bhutan, all animals – owned or otherwise – receive free veterinary care until they die of natural causes. Milk, cheese and butter are the main animal-sourced products in Bhutan. Although there has been some success with the establishment of milk cooperatives, many herds suffer from limited access to fodder and pasture. These limitations encourage forest overgrazing that damages natural ecosystems. The veterinary records kept in Bhutan suggest that these long-lived animals suffer from many health issues, and some records suggest a high prevalence of zoonotic diseases in the region. Understanding the practices and level of zoonosis awareness among farmers is essential to consolidate a milk value chain that supports the health and wellbeing of stock, farmers, consumers and the environment.

Thus, with the support of the Soulsby Foundation, I will investigate the milk production systems in Haa and the context in which these are embedded, to gain insight into animal husbandry, health challenges of animals and people, food safety practices, and zoonosis awareness among livestock owners. With this pilot research, I expect to provide a better understanding of the components of the milk value chain, improving animal health, food and economic security.

I have also recently published an article 'One Health needs a vision beyond zoonoses', which is available at https://bit.ly/2TL71qZ

News from the 2018/19 Fellows

Harriet Auty is working with policymakers in Tanzania to ensure the research she is carrying out on animal and human African trypanosomiasis provides the evidence based they need to tackle this One Health disease.

Camilla Benfield has made a video, showing the value of her Fellowship for the diagnosis and treatment of peste des petits ruminants virus (PPRV) in Tanzania.

Lorena Sordo is working on dementia in cats, the money she received from the Foundation allowed her to learn a new technique for studying cats' brains, which has further the understanding of cognitive dysfunction in cats and its comparison with Alzhiemer's disease in people. It has also allowed her to build up a network of future potential collaborators.

Andy Stringer writes about 'The Value of Conversations' in the context of understanding antimicrobial use.

The aim of our research project is to better understand the behavioural determinants and human motivations for prescribing and using antimicrobials in Ethiopia.

We are prioritising two very different populations in this project, those that prescribe antimicrobials (animal health professionals) and those that purchase and use antimicrobials (semi-intensive poultry producers). The project involved using focus group discussions with these two groups to explore themes surrounding antimicrobial use and prescribing behaviours.

The data gathered from these discussions on the prescribing and use of antimicrobials by Ethiopia animal health professionals and semi-intensive poultry producers will facilitate the design and development of culturally appropriate interventions focused on mitigating the impact of antimicrobial resistance. We hope to share this data openly in 2020.

Lian Thomas is working on the pork value chains in Nairobi, Kenya. She highlights the need to provide more protein for the human population in a sustainable, secure and safe way. She now leads a theme on neglected zoonotic diseases at the One Health Center hosted in ILRI in Kenya.

Fund raising

The Soulsby Foundation is deeply grateful to all the kind donors who have made our work so far possible. Many of our donors are friends and co-workers of the late Lord Soulsby and were influenced by him and his work to support 'One Health' initiatives.

We are always keen to speak to existing and potential donors about the work of the Soulsby Foundation either via the website, by email, or via any of the trustees.

The Foundation is now registered with Amazon Smile, Amazon's charity option. Please select the Soulsby Foundation as your chosen charity at https://amzn.to/3kAohux

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