One Health- the WSPA Approach¹

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Abstract — The One Health principle holds that human health is closely linked to animal health and welfare. Consequently, the development of integrated responses to global public health challenges is required. WSPA believes that global adherence to animal welfare principles will be instrumental in preventing emerging infectious diseases, including zoonotic diseases, from occurring, and thus help stop these diseases inflicting serious resource strains on national and international health services. We work with governments, intergovernmental and nongovernmental organisations and communities to ensure positive solutions are put in place for animals and people alike. These solutions include; working to control the transmission of canine rabies to people through sustainable mass dog vaccination programmes; preparing communities for disasters so that both their own and their animals’ welfare is protected; and addressing the role that better welfare standards for wildlife play in the spread of zoonotic diseases.

Keywords — Animal Welfare, Animal Health, Human Health, Rabies, Disaster Preparedness, Wildlife Trade

1. Introduction

The World Society for the Protection of Animals (WSPA) has nearly 50 years’ experience in working with animals and communities. We work with communities, governments, intergovernmental and nongovernmental organisations to ensure that needs are addressed with positive solutions for animals and people alike; our focus is on collective action. There is rarely such a thing as a single solution to a single issue in any field and health is no exception. Human health is closely linked to animal health and welfare, and as a consequence, integrated responses to global public health challenges are required. For WSPA, these include; working to control the transmission of canine rabies to people through sustainable mass dog vaccination programmes, preparing communities for disasters so that their welfare and that of their animals is protected, and addressing the role of better welfare standards for wildlife in the spread of zoonotic diseases. This paper aims to demonstrate how improvements in animal welfare globally have a positive impact on a range of human health and environmental issues.

2. Rabies

Throughout history rabies has been one of the most feared diseases, having the highest human case-fatality rate of any infectious disease (Rupprecht, Hanlon, & Hemachudha, 2002; World Health Organisation, 2013). In developing countries, someone dies of rabies every ten minutes, thus every day 150 people die of rabies, 55,000 every year, and annually 7 million people receive expensive post-exposure prophylaxis (Hampson, et al., 2009).

In more than 99% of all cases of human rabies, the virus is transmitted via dogs (World Health Organisation, 2013). Mass dog culls are widely used in a misguided effort to stop the spread of rabies, yet there is no evidence that removal of dogs has a significant impact on dog population density or the spread of rabies (World Health Organisation, 2013). The World Health Organisation (2013) state that mass culling of dogs is ineffective and can be counterproductive to vaccination programmes and should not be an element of a rabies control strategy, whereas mass dog vaccination has repeatedly been shown to be effective in controlling canine rabies.

WSPA’s vision is of a world where dogs are no longer needlessly killed in response to the fear of rabies. Mass dog vaccination as part of a wider ‘One Health’ approach can help save human lives as well as protecting animals

¹This article is based on a presentation given during the 2nd GRF Davos One Health Summit 2013, held 17-20 November 2013 in Davos, Switzerland (http://onehealth.grforum.org/home/)
and saving money. Vaccinating at least 70% of dogs in an area creates 'herd immunity' (Coleman & Dye, 1996; World Health Organisation, 2013). The vaccinated dogs form a barrier, slowing the spread of rabies until it dies out. By removing the main source of infection, rabies cases in dogs and other animal populations can be eliminated and human rabies deaths can be vastly reduced.

The concept of One Health encourages multiple disciplines to work together to achieve the best possible health for people, animals and the environment (American Veterinary Medical Association, 2014). To apply this concept to rabies control, it is essential to acknowledge that addressing animal health, through humane dog vaccination, is key to an effective rabies response, and there needs to be strong political will and appropriate public health support (such as advocacy, post-exposure prophylaxis, education, diagnostic and surveillance facilities) in place. Our global work with our partners demonstrates the One Health concept in action. In compliance with a resolution adopted by the South Asian Association for Regional Cooperation and the Association of Southeast Asian Nations, Bangladesh adopted an ambitious target to eliminate rabies by 2020. In 2011 WSPA and the government of Bangladesh worked together to vaccinate over 70% of the dog population in the southern beach resort of Cox’s Bazar against rabies. In 2012 WSPA supported a government workshop developing a coordinated national action plan against rabies, which involves conducting a mass dog vaccination programme alongside more effective delivery of post-exposure prophylaxis, community advocacy and communication, monitoring and surveillance. Crucially, several key government ministries were involved (health, livestock and local government) as well as academics and representatives from international organisations including the World Health Organization and the Food and Agriculture Organization of the United Nations.

Rabies was reintroduced to the East African island of Zanzibar in 1991. Over the last four years WSPA and the government have been implementing a project to establish sustainable humane dog population management. Following on from this, the Zanzibar government are developing infrastructure and seeking the assistance of supporting agencies to increase deployment of vaccination programmes to help eliminate rabies from the area. It is worth noting that although reducing the density of dogs is not critical for effective rabies control, there are many benefits in humane dog population management. Combining humane dog population management and responsible pet ownership programmes can help combat a range of problems associated with roaming dogs, such as livestock predation and injury and fear caused by aggressive behaviour. WSPA are part of the International Companion Animal Management Coalition (www.ican-coalition.org), which draws together diverse groups to offer consistent dog population management guidelines for use by governments and responsible authorities.

Our other global efforts in the field of humane rabies control include: signing a memorandum of understanding with the government of Vietnam to support their rabies control efforts; working with partners such as the Global Alliance for Rabies Control (GARC) on vaccination projects in the Philippines; partnering with the Pan American Health Organisation and GARC on educational resources for Latin America, and participation in the first key stakeholder consultation in review of Kenya’s ‘National Rabies Control Strategy’ under the Kenyan government’s ‘One Health’ banner. In 2012, we jointly signed a cooperation agreement with the China Animal Disease Control Centre. This landmark agreement is introducing advanced rabies prevention and control technology to China, adapted to the local situation, with the aim of avoiding the needless culling of dogs in the name of rabies.

In conclusion, the initial success of coordinated responses to rabies in countries such as Bangladesh and Zanzibar demonstrates the value of the One Health approach in national rabies elimination planning. It ends the futile and unnecessary practice of dog culling and helps protect human lives. WSPA have helped many countries stop the inhumane culling of dogs but we want to end it worldwide. We call on governments to stop killing dogs and, as an effective alternative built around the One Health approach, implement effective dog vaccination programmes.

3. Community Resilience To Disasters

Livestock are owned by 70% of the world’s poor, and as much as 80% of cash income in poor areas is derived from livestock. People living in low-income countries also tend to be the most vulnerable to natural disasters and the least resilient in recovery. As many aspects of their income and diet are derived from animals, the loss of livestock and working animals can leave whole communities facing a significant second disaster in the form of long-term malnutrition and food insecurity, loss of labour, loss of income-generating opportunities and increased debt and dependency (Campbell & Knowles, 2011). It should be noted that livestock and those dependent upon them are not only found in rural areas. Over 70% of the world’s population will live in cities by 2050 (World Health Organisation, 2014). As people migrate from the rural to the urban and peri-urban environment, they take their rural skills and food production and companion animals with them. We have observed multiple livelihood strategies in the areas in which we work, families having multiple income and nutrition sources involving food production animals such as cows, chickens and goats. Companion animals provide support and companionship as beloved family pets. While animal-based livelihood practices have largely adapted to the urban context, development programming has not always responded by considering how animals should be incorporated into emergency responses and capacity building. Yet in disasters in urban areas (as in any area) animal health related issues are of significance due to their potential impact on livelihoods, food security and malnutrition, and disease including zoonotic diseases such as rabies. There has been a historic lack of a ‘One Health’ focus. WSPA aims to address this by seeking innovative solutions for governments and com-
munities. By integrating animals into government response and risk reduction policies and community preparedness plans in a truly ‘One Health’ approach, a foundation can be laid which assists people in protecting their animals and themselves, allowing them to return to a normal life as quickly as possible following a disaster. We achieve this through engagement and participation in local decision-making, cultural exchange and understanding. Partnership with urban and rural communities, local and national governments, intergovernmental, non-governmental organisations and academics is essential to achieve success. WSPA welcomes the recent United Nations General Assembly resolution (United Nations resolution number A/RES/68/211) calling for stronger focus on emergency planning that addresses disaster losses, specifically, through protecting people’s livelihoods and productive assets, including livestock and working animals, before, during and after a disaster.

Our work in India, Haiti and Kenya illustrates our One Health approach. The floods which hit Assam state in India in 2012 killed thousands of animals, devastating communities completely reliant on their animals for agricultural outputs. Many of those animals surviving the floods would have died shortly afterwards if support had not been provided. WSPA worked in partnership with national government units such as the Disaster Management Authority (DMA) and active organisations such as Sphere in the affected state. While providing for the basic needs of the animals to help them survive the emergency phase, our teams were able to work with the communities to identify tools and techniques to strengthen future resilience. We helped build a feed storage tower to keep animal feed safe from risk of further flooding later in the season, provided training for effective animal welfare management, and assisted design of a community disaster plan which included animals as a source of human nutrition.

When the earthquake hit Haiti in 2010, WSPA established and co-chaired an urban coalition addressing nutrition and public health concerns. Among other outputs, we provided animal vaccinations and mobile veterinary treatment clinics as the best means to reach vulnerable populations. This provided capacity for government efforts and aided their ability to control disease outbreaks. Our assessment demonstrated that people had a very low perception of their own risk or exposure to disaster and little understanding of how to handle such events. Public service announcements through radio, TV and print media greatly increased public awareness regarding disaster preparedness as measured by our post-campaign focus groups.

A three year drought in Kenya significantly reduced livestock condition and immunity to disease in Mwingi, a community largely economically dependent on livestock. In 2011 WSPA and its partners, the Kenyan government, the Ministry of Livestock Development and the University of Nairobi, intervened to provide livestock (cattle, sheep, goats and donkeys) with veterinary treatment, vaccination, supplementary feed and water. By reducing the spread of disease and increasing animal health, WSPA and its partners sustained pastoral livelihoods in East Africa. Based on an economic analysis we commissioned on this work in Kenya, over a one year period, the intervention generated $2.74 of benefits in the form of avoided losses for every $1 spent. If the time period is extended to 3 years since the intervention, the benefit-cost ratio increases to $6.69 in benefits for every $1 spent (Knowles, 2013).

In conclusion, using a ‘One Health’ approach to ensure animals are protected in disaster preparedness and response plans provides effective and sustainable animal and human health planning, builds urban and rural community resilience and reduces the human, animal and financial cost of disaster.

4. Wildlife And Trade

The interface between humans and wildlife represents a potential source of emergence and transmission of zoonotic disease; captive exotic animal-linked zoonoses are part of a major global emerging disease problem (Warwick, Arena, Steedman, & Jessop, 2012). The degree of human and wildlife interaction is continually influenced by a number of socio-economic factors including globalisation, urbanisation and demand for live wild animals such as exotic pets. Establishing the true extent of the global wildlife trade is nearly impossible since much is illegal or conducted through informal networks. Worldwide, an estimated 640,000 reptiles, 40,000 primates, 4 million birds and 350 million tropical fish are traded alive each year (Karesh, Cook, Bennett, & Newcomb, 2005). The global trade in wildlife provides disease transmission opportunities that not only cause disease outbreaks in humans but also threaten livestock, international trade, rural livelihoods, native wildlife populations and the health of entire ecosystems. The financial impacts can be catastrophic; outbreaks resulting from wildlife trade have caused hundreds of billions of dollars of economic damage globally (Karesh, Cook, Bennett, & Newcomb, 2005).

From a One Health perspective, of 1,415 human pathogens, 61% are known to be zoonotic (Karesh, Cook, Bennett, & Newcomb, 2005), and 75% of all emerging diseases affecting people over the last two decades are zoonotic (Brown, 2004). In fact, the incidence of zoonotic disease in humans may not be fully recognised as zoonotic disease may be misdiagnosed as other conditions (Warwick, Arena, Steedman, & Jessop, 2012) as established sources of zoonotic infection such as pet shops, exotic and domestic pets, and zoos and other wildlife centres are only infrequently considered as sources of infection by GPs. Thus their pathological significance may be overlooked (Warwick, 2004). Wildlife markets present an especially high risk to public health for several reasons. A large number and variety of species are held in confinement resulting in stress for the animals, increasing susceptibility to pathogens, and opportunity for shedding, mixing and dissemination of pathogens. Public contact with animals of uncertain origin and health results in significant risk (Warwick, Arena, Steedman, & Jessop, 2012). There is a potential link between poor animal welfare and increased potential for zoonotic disease transmission, clearly relevant to the One Health concept. It
is a well-accepted phenomenon that animals experiencing poor welfare (Broom & Fraser, 2007) and stress (Moberg, 2000) are more susceptible to disease. Capture, restraint and the captive environment are significant sources of stress for a range of wild species (Tolosa & Regassa, 2007; Wikelski & Cooke, 2006; Romero & Reed, 2005; Gregory, Gross, Bolten, Bjornsdal, & Guille, 1996). It is therefore reasonable to assume that traded wild animals subject to such procedures experience stress and poor welfare and are prone to developing disease. Furthermore, increased exposure to stress, particularly but not exclusively during transport, increases shedding of pathogens in a range of domestic species (Transport- Southern, Rasekh, Hemphill, & Thaler, 2006; Hartung, 2003; Barham, et al., 2002; Social Stress- Callaway, et al., 2006; Nakamura, et al., 1993). It seems reasonable to infer that environmental pathogen burden will be higher when there are large numbers of recently-transported, stressed wild animals sharing the same environment and air space, as is the case in wildlife markets, pet shops, and wildlife farming operations. The close proximity of such animals to dealers, handlers and the general public presents clear opportunity for the transmission of infection from animals to humans. A practical approach to reducing human exposure to potentially zoonotic pathogens includes reducing the rate of contact between species, including humans, at the interfaces created by the wildlife trade. Ultimately, the only way to completely erase the hazards described and guarantee the welfare of the animals at risk would be cessation of the wildlife trade. Since wildlife trade functions as a system of networks with major transit hubs, these hubs provide opportunities to maximize the effects of regulatory and enforcement efforts. Effective solutions will only come through a trans-disciplinary ‘One Health’ approach to this problem.

5. Conclusion

WSPA strongly supports the ‘One Health’ concept. As demonstrated in each of the three areas of focus reviewed above, animal health and welfare and human health and welfare are closely interlinked. WSPA will continue to work directly with governments, intergovernmental organisations, non-governmental organisations, local communities and industry to demonstrate how improvements in animal welfare globally will have a positive impact on a range of human health and environmental issues.

References


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