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THE CONTRIBUTION OF VETERINARY MEDICINE TO PUBLIC HEALTH

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Annotation
Few studies have explicitly examined the linkages between human health, animal disease control and poverty alleviation. This paper reviews the contribution that veterinary medicine can make to poverty alleviation in sub-Saharan Africa. Our analysis attempts to explore aspects of this contribution under five themes: food production; food safety; impact and control of zoonotic infections; promotion of ecotourism; and environmental protection.

Keywords: Diseases, Livelihoods, Livestock Production, One Health, Poverty alleviation.

INTRODUCTION

The “One World, One Health” framework supports an integrated approach for addressing the surveillance of and response to, human, animal and environmental health concerns. First articulated by William Osler and Rudolf Virchow over a century ago (Kahn et al., 2007), ‘One Health’ was re-introduced to the world in Schwabe’s “Veterinary Medicine and Human Health” (AVMA 2008; Battelli and Mantovani, 2011). Its contemporary precepts were articulated at a symposium organised by the Wildlife Conservation Society (WCS) in New York in 2004 (WCS 2013). While the inextricable linkages between human and animal health and their shared environment have been outlined in the literature, context-specific illustrations of the need to maximise the benefits of a holistic approach to animal and human health in the Sub-Saharan African context are still required.

MATERIALS AND METHODS

In the war against infectious diseases, physicians in Sub-Saharan Africa often face what seem to be insurmountable odds; odds which could be improved by a partnership between the veterinary and environmental professions to explore and address Africa’s social determinants of health. At the same time, the veterinary profession in Sub-Saharan Africa, however, faces unique context-specific challenges.

Following the International Monetary Fund Structural Adjustment Programmes of the late 80s and 90s, animal health programmes, which used to be government run, were relegated to the private sector so to scale down the role of public administration involved in the management of veterinary service (Cheneau et al. 2004). However, in many contexts, the disincentives of working in rural or low input areas led to detrimental consequences for overall animal health and production.

On the one hand, the vulnerability of rural areas makes them a key source of both human and animal infectious diseases; a situation worsened by the paucity of rural veterinary support. On the other hand, under commercial settings of Sub-Saharan Africa, the information technology boom of the 21st century allowed farmers to become much more educated than they used to be, having access to specialised information through formal and informal educational resources, making the farmers less likely to consult veterinarians on areas such as cattle, pig and poultry production and other husbandry practices. The veterinary profession in Sub-Saharan Africa has therefore suffered severe setbacks as the need for specialist veterinary care in animal production has decreased.

RESULTS AND DISCUSSION

Food production and food security are critical components of rural livelihoods in Sub-Saharan Africa. In crop-livestock production systems, animal traction power is a vital input in the production cycle (Perry et al. 1984). It has been demonstrated that when oxen are available for cultivation, maize production is increased 4 to 5 times (Connor 1989). However, cattle kept by rural populations remain vulnerable to diseases and adverse climatic conditions, which all tend to impact negatively on rural welfare and food security (WHO 2006). Serious livestock epidemics have the potential to threaten entire crop-livestock production systems by adversely affecting those communities whose livelihoods actively depend on animal draft power.

The impact of the now eradicated Rinderpest virus on human communities is an example of how a livestock disease can change the course of nations. The broad impact of infectious diseases is not unique to Africa. The 2001 Foot and Mouth Disease (FMD) outbreak in the UK provides another example of how a nation's economy can be severely affected by livestock diseases. Foot and Mouth Disease is reported to have brought about losses to agriculture and the food chain amounting to £ 3.1 billion. The majority of costs went towards compensation for slaughtered livestock, waste disposal and clean- up, while agricultural producers were expected to suffer losses estimated at £ 355 million, representing about 20% of the estimated total income from UK farming in 2001 (Thompson et al. 2002). A 2002 study conducted by the National

Audit Office estimated the direct costs of the outbreak at £ 3 billion and the indirect costs at £ 5 billion (Oxford Analytica 2012).

When livestock movement bans are implemented just before the crop planting season, farmers often fail to raise funds needed to obtain farming inputs such as seed and fertilizer. Funds are usually acquired through the sale of livestock at markets far from their homes. Movement bans also lead to problems in food security. In West Africa for instance, an interstate ban on the movement of poultry and poultry products instituted following an outbreak of avian influenza ultimately led to regions with low poultry production unable to obtain poultry and poultry meat from the high poultry producing areas (Dolberg 2003). The result was the reduced availability of the cheapest and commonest source of protein for low-income consumers (Dolberg 2003).

Often, outbreaks which occur in Sub-Saharan Africa are not due to a failure to detect disease occurrences, they rather follow a lack of appropriate response tools for early detection by veterinarians or qualified animal health technicians. There is a direct correlation between consistent up-scaled veterinary service delivery and food availability. This has been seen in developed economies in which there is a rapid response to disease outbreaks and effective monitoring and surveillance systems. An example is the control of FMD in Japan where outbreaks are rapidly quelled because of financial investments in the veterinary services (Muroga et al. 2012; Sugiura et al. 2006).

CONCLUSION

In conclusion, in adapting the 'One Health' approach to the Sub-Saharan African context, veterinarians need to be cognizant of the fact that animal health is one, albeit important, pathway for the improvement to human health and welfare. The veterinary profession should therefore refocus its energies on adopting new knowledge and new partnerships. It should identify and understand the various economic constraints and challenges that the veterinary profession faces in contributing efficiently to human development, public health, animal production, draught power and wildlife conservation (Swan et al. 2009). Veterinary science is uniquely positioned to play a key role in both poverty reduction and the promotion of global health. This role can be enhanced through the reorientation of the profession's goals and the creation of synergies with allied and related professions.

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