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Veterinary medicine’s increasing role in global health

13 zoonoses are responsible for a staggering 2·2 billion human illnesses and 2·3 million deaths per year, mostly in low-income and middle-income countries (figure) where the correlation between rates of protein malnutrition and incidence of endemic zoonotic diseases is 99%.1,2

Veterinary medicine has an increasingly important role in global health, food security, and the post-2015 development goals proposed by a high level UN panel.3 Three of the five proposed goals (ending all forms of extreme poverty; sustainable social, economic, and environmental development; and forging of a new global partnership connecting poverty relief with sustainable development) are unattainable without effective animal health services. Together with the livestock sector in general,4 these services have been marginalised and underfunded for decades throughout much of the developing world to the point that they do not have the capacity to meet the challenges of an increasingly commercialised livestock industry, poverty relief, sustainable food security, and food safety.4–6

For example, in 2013, hundreds of pigs that had died from unknown causes were dumped into a tributary of the Shanghai river, the source of much of Shanghai’s drinking water.7 This incident was symptomatic of larger problems with animal health care in China and prompted Jia Youling, head of the Chinese Veterinary Medical Association and former head of the Ministry of Agriculture’s Bureau of Veterinary Medicine, to observe that the Chinese veterinary medical system is nowhere near adequate. Jia further remarked that in China, veterinary medicine is barely recognised as a profession.7

Driven by rising urban wealth, escalating demand for foods of animal origin, and rising prices, livestock and poultry production are global agriculture’s fastest growing industries.8 Much of the growth is occurring in large-scale intensive operations, but escalating demand provides subsistence farmers with an unprecedented opportunity for economic growth and poverty reduction.

For more than 20 years, a global crisis in the emergence and transmission of zoonotic diseases from wildlife has been growing steadily, including severe acute respiratory syndrome, highly pathogenic avian influenza, Rift Valley fever, West Nile virus infection, Ebola haemorrhagic fever, Nipah virus infections, and Middle East respiratory syndrome.9–12 Rapid expansion in food animal populations is also responsible for the emergence and spread of many human infections. Because emergent or re-emerging zoonoses and many endemic zoonoses are not under satisfactory control, the absence of competent veterinary services is a cause for alarm.

Other factors such as climate change, globalisation of world trade (including increased trade in animals and animal foodstuffs between developing nations), rapid movement of people around the globe, and encroachment of livestock farming into wildlife areas influence the dynamics of zoonotic disease spread and transmission. 75% of people in poverty live in rural areas13 and more than 85% of livestock keepers in sub-Saharan Africa live in extreme poverty.14 In such communities, hotspots of endemic disease trap people in poverty and pose a threat to the rest of the world.15 Disease control measures accompanied by opportunities for economic growth need to focus first on hotspots of endemic disease.

Furthermore, because global food insecurity will be very expensive to counteract, increased production by the millions of subsistence livestock farmers in the world should be encouraged. At present, yields from their animals are meagre at best, owing to poor nutrition and chronic infections. Unhealthy livestock also carry increased food safety risks and restrict access to lucrative markets. As a result of these problems, more
animals are needed to meet rising demand, which is not a sustainable approach. A better approach would involve fewer, healthier, and more productive animals. Investment in research on infectious disease control and food safety is urgently needed in addition to studies on genetics, nutrition, management, market access, and rural economic growth.

Beneficial interventions will require collaboration between medical, veterinary, agricultural, social, environmental, and wildlife scientists. Veterinary medicine intersects with all of these disciplines and for years has promoted the concept of One Health\textsuperscript{15} as a technique for promotion of collaboration. The One Health Initiative, strengthened by the UN expert panel’s recommendations, is slowly gathering momentum as the association between the health of all types of animals and poverty relief became more fully recognised. The challenges however, remain daunting.

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