Chapter 8
Understanding Strategies for Implementing Integrated Information Systems for Rabies Surveillance

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ABSTRACT

Rabies continues to be one of the most perilous viral diseases that affect the nervous system and remains a significant threat to public health across the globe. Available data that show that rabies claims about 59,000 human lives annually. Most industrialized countries have eliminated rabies from domestic dog populations. Conversely, in most of the developing countries, rabies remains endemic in domestic dog populations and poorly controlled. One of the challenges in eradicating rabies in developing countries is attributed to ineffective surveillance systems. Different stakeholders have developed solutions to address this problem without tangible outcomes. Estimation of the economic burden particularly in developing countries is difficult because of the inadequacy of update and reliable surveillance data. Certainly, it is very challenging even to obtain basic information on how many human lives are lost due to rabies and the economics behind preventing the disease amongst those exposed. Up-to-date, official reporting of incidence data on rabies and rabies exposures status remains desperately poor in most canine rabies-endemic countries. Consequently, there is increasingly underestimation of the true burden of the diseases. Worse still data from active surveillance studies highlight the disparities between officially

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BACKGROUND INFORMATION

Rabies is one of the deadly infectious diseases of the nervous system, with a case-fatality rate approaching 100% in both animals and humans. The disease is established on all continents apart from Antarctica; most cases are reported in Africa and Asia, with thousands of deaths recorded annually (Fooks et al., 2014). The World Health Organization (WHO) estimates that up to 99% of human rabies cases are transmitted by a bite of an infected dog. It is estimated that rabies causes about 59,000 human deaths every year, especially in economically disadvantaged areas of Africa and Asia where awareness and access to post exposure prophylaxis can be limited or non-existent (Anyiam et al., 2016). However, the estimated annual figures of human rabies fatalities are probably underestimated due to poor reporting system (Hergert and Nel, 2013).

The most cost-effective approach to eliminate the global burden of human rabies is to control canine rabies rather than expansion of the availability of human prophylaxis. Mass vaccination campaigns with parenteral vaccines, and advances in oral vaccines for wildlife have made it possible for several countries worldwide to eliminate rabies in terrestrial carnivores (Fooks et al., 2014). It has been postulated that in order to eliminate rabies from domestic dog population in an endemic area at least 70% of the dog population needs to be vaccinated during an annual rabies mass vaccination campaign and breaks the cycle of transmission (Coleman et al., 1996). Certainly, decreasing canine rabies automatically decreases the number of human deaths (Cleaveland et al., 2002). However, in many African countries, the proportion of dogs vaccinated against rabies is far below 70%. Treatment for human rabies is often inaccessible and expensive than the cost of programmes for control and prevention of dog rabies (Ope et al., 2013; Bardosh et al., 2014; Hatch et al., 2016).

Drawing a lesson from Kilosa district Tanzania where rabies is endemic, lack of appreciation and awareness that rabies can be prevented and controlled by massive dog vaccination schedules has remained a deadlock (Kipanyula et al., 2015). Figure 1 and Figure 2 show the number of dogs in different villages in Kilosa district Tanzania and the number of dogs vaccinated, the data were collected from users through the interview and were analyzed to determine the dog owners’ response toward mass dog vaccination. Eliminating rabies require coordinated and sustainable long-term strategy supported by robust human and animal health systems. An integrated, holistic approach for information sharing is crucial for example using one health approach. This may require step wise approach allowing inter-sectoral surveillance data sharing based on participatory approach and coordinated intervention by all stakeholders. Evidence has
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