

Viral Zoonoses in Sri Lanka and Public Health Implications

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Zoonoses have been defined as "those diseases and infections (the agents of) which are naturally transmitted between (other) vertebrate animals and man". These diseases have been in the past and continue to remain in the world causing widespread illness and death among humans. In addition to direct transmission to man from animal reservoirs or via animal foods, other animal products and animal wastes, a majority of zoonoses depends totally or partially on arthropod vectors to maintain chain of infection in and between animals and human beings, thereby exposing large numbers of people to the diseases in question. Recent changes in the pattern of human behaviour are allowing increasing number of emerging pathogens in which over 70 per cent of new human diseases are zoonotic in origin including Ebola, Nipha virus and SARS. Zoonoses also undermine animal health and productivity reducing food (meat, milk and eggs) thus contribute to human malnutrition and to lowering the resistance of large numbers of people, particularly children, to infectious diseases of all kinds. Rabies, Japanese encephalitis (JE), and recently re-emerged Chikungunya virus are major viral zoonoses that have been recognized by the public health services of Sri Lanka. These zoonoses have received public attention as they are capable of causing severe disease in humans. Rabies is one of the many zoonoses characterized by sporadic transmission to man and by outbreaks involving only a few persons. Every year over 15,000 people throughout the world die from this most fearful illness, despite benefits of modern medical services. Rabies is endemic in all provinces of Sri Lanka and the dog (76.4%) in particular the stray dog (43.6%) is the main reservoir of the virus. The rest is due to cats and other wild animal exposures. According to studies in Sri Lanka approximately 100,000 persons annually undergo post exposure treatment for rabies in the recent years, resulting in an enormous amount of psychological stress and in the loss of many man-hours work, in addition to which there are at least 50 -100 number of annual deaths from the disease. However, another study carried out in Sri Lanka has questioned the appropriateness of post exposure rabies treatment given to dog bite victims. The number of human rabies deaths declined from 377 in 1975 to 55 in 2005. Highest percentage of human rabies cases in 2005 occurred in the age group 5-19 years and the reported male: female ratio was 4:1. JE is the most common documented cause of viral encephalitis in Asia. The virus was first isolated in 1986. Since then JE has been involved in several outbreaks in various provinces of the country but there were no outbreaks since the introduction of the JE vaccine. Sixty five suspected cases of JE with 6 deaths reported in Sri Lanka in the 2005. The case fatality rate was 9.2 per cent. Therefore, a number of successes have been achieved in zoonosis control in Sri Lanka in the recent years by the wide use of post exposure treatment against rabies and vaccination against Japanese encephalitis. Evidence of Hantavirus infection transmitted by rodents among patients hospitalized with leptospirosis-like illness in Sri Lanka is an example of viral zoonoses in which true public health implications have not been recognised in the country. There are also occasional cases of identified (i.e., Orf virus) and unidentified pox virus infections among Sri Lankan patients. The zoonotic relationships of some less well-known and milder forms of human enteric virus infections, especially those associated rotaviruses are only now beginning to be understood. Rotaviruses have been associated with enteritis in infants and children and many species of young animals. Several rotavirus serotypes have a high degree of cross protection. Studies carried out in Sri Lanka on buffalo calf diarrhoeas Baave revealed that they are infected with group A subgroup I rotavirus strains. However, detailed studies are required to understand any zoonotic relationship of these I virus strains. True public health significance of some viral zoonoses in Sri Lanka often remains unclear because of the lack of appropriate national programmes and in particular, of diagnostic services which could elucidate the causes of fevers,

nephritis or encephalitis etc. This group of diseases classified as "of unknown aetiology" often contains a high proportion of zoonoses which need to be determined locally. There is also growing concern in Sri Lanka with the emergence of avian influenza A/H5N1 or bird flu in the Asian region. The attempts to isolate and identify the virus so far have not indicated its presence in Sri Lanka. However, serious public health and socioeconomic implications could occur in an event of any introduction of the 'bird flu' to the country. Since the expertise, laboratory and training facilities and other resources are unequally distributed among various parts of the country, it is of paramount importance to ensure interdisciplinary and intersectional cooperation for mobilizing all existing resources with the help of international cooperation for the control of bird flu or any other emerging zoonotic virus.