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CASE STORY 2: NIPAH VIRUS – EXPERIENCE FROM MALAYSIA 1998-1999

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Nipah virus first infected humans in 1998 in the Ipoh area resulted in the death of 105 humans and the eventual culling of about 1.1 million pigs. The 1998-99 epidemic may have resulted from spillover event a year or two earlier which took off due to movement of pigs or a recent jump of index cases. Infection was probably acquired from Pteropus sp which was thought began foraging in pig farms. The virus sustained in the farm through contact or by aerosols. The disease moved from farms to farms due to 'fire sale'; black market transport of infectious but asymptomatic pigs.

The disease in pigs was highly contagious, and characterized by acute fever with respiratory involvement and sometimes nervous signs. However the mortality rate was not remarkable. Retrospective investigations suggest NiV has been responsible for the disease in Peninsular Malaysia since late 1996, but was not recognized as a new syndrome because the clinical signs were not markedly different from those endemic diseases.

In human, the disease caused severe, rapidly progressive encephalitis that carry high mortality rate. Seroprevalence survey indicates that not all humans infected with NiV became clinically ill. However, the majority of human cases had a history of direct contact with live pigs and about half did not report contact with symptomatic pigs. Most were pig farmers. Retrospective investigation also indicated that human sample in 1997 were found IgG positive for NiV.

Other animals; horse, goats and dogs were also infected. There were no report of transmission from human to humans and there was no report on relapse of the disease. Pigs seemed to be an efficient maintenance and transfer of the virus; an indication of secondary host.

Little is known about clinical pathology of NiV in its natural host populations; the bats. A number of samples from 14 species of bats have been investigated and only five species in the wild had antibodies to NiV. Four of them were species of fruit bats, including two flying foxes species and one insectivorous species. Real prevalence, indicated by virus isolation in urine, may be low. Virus may be shade seasonally.

Nipah illustrates that emerging diseases of human and wildlife is closely intertwined and led to the spillage of the NiV from its natural reservoir host into the domestic pigs and subsequently to human. Among the factors that contribute to the emergence of NiV disease are the establishment of pig farms within the range of natural host led to the initial introduction into the pig population; the maintenance of high densities of pigs led to the rapid dissemination of the infection within local pig populations; and the transport of pigs to other geographic areas for commerce led to the rapid spread of disease in pigs in southern Malaysia and Singapore. The presence of high density, amplifying host population facilitated transmission of the virus to human.