



**FACULTY OF HEALTH SCIENCE
BACHELOR OF ENVIRONMENTAL HEALTH AND SAFETY
(HONS)**

**SPATIAL-TEMPORAL
DISTRIBUTION OF ANIMAL RABIES CASES IN SARAWAK,
MALAYSIA, FROM 2017 TO 2022**

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ABSTRACT

Introduction Rabies is a deadly zoonotic disease. It has been a growing concern in Sarawak, Malaysia. This study highlights the geographical spread, rabies prevalence rates, and affected animal species within the region. The analysis incorporates data from reported cases, laboratory confirmations, and surveillance efforts conducted from 2017 until 2022.

Methods A retrospective design research was conducted using Animal Rabies Sampling Result data, obtained from the Department of Veterinary Services, Sarawak for the period of 2017 to 2022.

Results Prevalence rate for rabies in canine samples are 29.5% in 2017, 77.9% in 2018, 31.3% in 2019, 30.9% in 2020, 18.6% in 2021, and 11.5% in 2022, while the prevalence rate for rabies in feline samples are 31.6% in 2017, 56.3% in 2018, 33.0% in 2019, 40% in 2020, 25.0% in 2021, and 20.0% in 2022. Another type of sample, namely bat has a prevalence rate of 33.3% in the year 2018 and at 0% for the other years.

Conclusion By examining the distribution patterns, the study aims to identify key areas of concern and potential risk factors associated with the spread of rabies. The findings of this study contribute to the understanding of the epidemiology of rabies in Sarawak and can aid in the development of targeted interventions and preventive strategies to combat this public health threat. Further research and collaboration between health authorities, veterinary agencies, and local communities are crucial to effectively control and eliminate rabies in Sarawak. This study also aims to develop awareness among animal owners on the importance of animal vaccination and animal birth control in order to monitor and control the potential reservoir of rabies viruses. In conclusion, awareness is the most basic intervention that needs to be emphasized to ensure the effectiveness of other interventions such as neutering, vaccination, and others.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Rabies is a zoonotic disease caused by a lyssavirus of the Rhabdoviridae family and is one of the diseases with a high fatality rate. Rabies virus (RABV) is globally the major contributor to rabies cases. In 99% of cases, domestic dogs are responsible for rabies virus transmission (Hanlon et al., 2001). The rabies virus transmission to humans is usually by the bite or scratch of infected rabies dogs. However, in rare cases, other infected wild animals, such as bats, foxes, and wolves, can also transmit the rabies virus. It became a substantial public health concern, particularly in developing countries such as Africa and Asia, which recorded more than 95% of all human rabies cases (WHO, 2016). Rabies is encephalomyelitis, which is always fatal whenever clinical symptoms appear. Death among the poor and vulnerable population due to rabies is often not reported and neglected. A high incidence of rabies morbidity and mortality among this population has been reported as human vaccines, and immunoglobulin is not readily available or accessible.

Ninety-six per cent (96%) of human rabies cases in South-East Asia are caused by dogs (World Health Organisation (World Health Organisation (WHO), 2012). However, there are also reports of human rabies due to cat bites, foxes, wolves, and other carnivorous animals (Dutta, 2014). The Sarawak rabies outbreak is ongoing. There was a significant rabies outbreak in West Kalimantan, Indonesia, which is thought to be the source of the rabies outbreak in Sarawak (Rare Outbreak of Rabies in Sarawak Could Have Originated from Indonesia's Kalimantan, Says Malaysia Health Minister | The Straits Times, 2017). The rabies epidemic in Sarawak was declared in July 2017 after the death of two children in the Serian district. They were the first rabies cases of death in Malaysia after almost 20 years.

Eight divisions, including Betong, Kapit, Kuching, Miri, Samarahan, Sarikei, Sibul, and Sri Aman, have been declared rabies-infected areas after the