A study of epidemiological link on measles outbreaks in the districts of Kelantan state

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ABSTRACT

Introduction: Measles is a highly contagious disease that can have severe consequences, especially for vulnerable populations such as infants, young children, pregnant women, immunocompromised and unvaccinated individuals. Malaysia had a high measles vaccination coverage; however, pockets of unvaccinated individuals still pose a threat. By identifying and understanding the epidemiological link, effective targeted interventions to control and prevent the spread of the disease can be implemented. This study aims to describe the epidemiological characteristics, identify the source and the epidemiological link of measles outbreaks in Kelantan. **Materials and Methods:** A cross-sectional study using secondary data was conducted. The measles outbreak data reported in District A and B from April to May 2023 were extracted from the *Sistem Maklumat Siasatan* Measles (SM2), eMeasles. Data was analysed using Microsoft Excel. **Results:** A total of 27 measles cases were recorded with 56% (15) of them being male and the median age was 8 years old ranging from 8 months to 23 years old. All cases were either unvaccinated or not yet eligible, except for one case whose vaccination status was unknown. The symptoms were fever (100%), maculopapular rash (100%), cough (88%), coryza (69%), and conjunctivitis (23%). The first outbreak was declared on 5th of May 2023 in District A involving 23 cases (10 laboratory confirmed and 13 epidemiology linked to confirmed cases) and the second outbreak was declared in District B on 13th of May 2023 involving 3 laboratory confirmed cases. Apart from that, there was one confirmed case in District A with an epidemiology linked to confirmed cases detected on 8th of May 2023. All cases had an epidemiological link to the measles outbreak starting from a gathering in a national-level Quran memorization competition in Selangor and later propagated to Kelantan during the *'Aidilfitri'* gathering. The epidemic curve showed a propagated pattern with the exposure period overlapping with the infectivity period of the previous cases from Selangor. Results for viral culture from three samples sent to the National Public Health Laboratory also showed the D8 strain which was similar to Selangor's strain. **Conclusion:** The presence of unvaccinated individuals poses a significant risk, as not only do they have a higher susceptibility to infections, but they also act as potential sources of transmission to other vulnerable groups. Identifying an epidemiological link is important as it allows for early detection of cases, enables rapid response and targeted interventions to interrupt transmission chains. Failure to identify an epidemiological link poses significant threats as it can result in spreading and prolonged transmission, missed opportunities for prevention and ineffective response measures. Efforts to rapidly identify and understand these links are crucial for effectively controlling outbreaks and safeguarding public health.