

The epidemiology of multidrug-resistant tuberculosis in Sabah, Malaysia: Gains and losses from 2016 to 2021

Tuberculosis is a respiratory disease endemic to the state of Sabah in Malaysia. Multidrug-resistant tuberculosis (MDR-TB) occurs when the bacteria become less susceptible to conventional treatment, and is more difficult to treat than regular forms of tuberculosis, therefore we wish to generate more evidence in the interest of public health. After reviewing the disease registry database, we found that the annual number of MDR-TB cases increased in 2020-2021 as compared to the previous four years before Covid-19. Treatment success rates for MDR-TB also decreased during this period. We may not know the actual extent of MDR-TB, but we do know that detecting and treating such cases will be important to prevent community transmission of this tricky type of tuberculosis.

Abstract

Tuberculosis (TB) was the world's leading cause of death by a single infectious agent, usurped by Covid-19 in 2020 and 2021. While Malaysia is classified as "upper-moderate" TB incidence, the eastern-most state of Sabah reported 135 cases per 100,000 in 2019, qualifying as an endemic region. The burden of multidrug-resistant TB (MDR-TB) in Sabah is poorly described, we aim to characterise the epidemiology of MDR-TB to inform public health measures.

The state TB registry database was reviewed. The impact of Covid-19 was evaluated by designating 2016-2019 as pre-Covid, and 2020-2021 as Covid years. Investigations include age, citizenship, and other indicators. Logistic regression of variables associated with poor MDR-TB treatment outcomes was done using R software.

Sabah reported an average of 5027 cases annually pre-Covid, declining by 10.3% to 4508 per year during Covid. Within study period, there were 97 MDR-TB cases, with median age of 38 years, and 33% being non-citizens (n=32). The proportion of MDR-TB in Sabah was 0.27% of TB cases pre-Covid, rising to 0.47% of TB cases reported during Covid. The proportion of treatment success decreased from 60% to 24% between pre-Covid and Covid periods (OR=3.45, $p<0.01$); the proportion of non-citizens who completed MDR-TB treatment decreased from 47.4% to 10.0%.

Improving adherence to MDR-TB treatment and adequate management of side effects could reduce likelihood of poor outcomes. The proportion of MDR-TB in Malaysia and Sabah remains relatively low compared to endemic countries, but surveillance is needed to detect and treat new cases to prevent future outbreaks.