

## COMPREHENSIVE STRATEGIES FOR DENGUE OUTBREAK MANAGEMENT IN INDUSTRIAL AREAS: A CASE STUDY OF AN OUTBREAK IN FOREIGN WORKERS' DORMITORIES

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### ABSTRACT

*INTRODUCTION: Dengue Fever (DF) in Malaysia, particularly in the Kulai District, is a significant public health challenge. This viral disease is primarily transmitted by Aedes (Ae.) Aegypti and Ae. albopictus mosquitoes affect people of all ages especially in industrial areas, which recorded the largest outbreak in 2024. In January 2024, we investigated the largest outbreak ever recorded in the Kulai District, focusing on workers in an industrial area. OBJECTIVE: This study aims to describe the magnitude of this significant outbreak, assess the risk factors, and implement control measures. METHODOLOGY: A mixed-methods study was used. Quantitative data on dengue outbreaks obtained from the E-dengue database were followed by a qualitative study to explore activities and responses that enabled successful dengue outbreak control. Site visits and a review of documents involving control activities and meeting minutes were conducted. RESULT: 39 confirmed dengue cases were reported, with a 4.82% attack rate (AR), involving 37 foreigners in dormitories and 2 local workers. Dormitory 3 had the highest cases: 20 (AR = 11.4%). No deaths occurred. Most cases were male (97.4%), with predominantly affected Bangladeshi (64.1%) Majority were aged 21-40 (76.9%) and worked as operators (94.9%). A qualitative study highlighted four key themes for effective dengue control: (1) strategy development, (2) targeted interventions, (3) addressing control challenges, and (4) learning to improve future efforts. CONCLUSION: Aedes mosquitoes primarily spread DF and have the potential to cause large outbreaks among foreign workers living in dormitories. Comprehensive vector control, engaging multiple stakeholders, continuous surveillance, and education are essential strategies to manage and prevent future outbreaks. Managing dengue in an industrial area, especially among foreign workers' dormitories, requires a comprehensive vector control strategy with multi-stakeholder engagement. This strategy, which includes continuous surveillance, risk assessment activities, health promotion, and education, is crucial to prevent future outbreaks.*

Keywords: Dengue outbreak, Industrial areas, Foreign workers' dormitories, Vector control strategies, Multi-stakeholder engagement

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