

Investigation of non typhoidal *Salmonella* (Multi Drug Resistance Organism) outbreak in a Malaysia tertiary hospital

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ABSTRACT

Introduction: On 22nd November 2023, Temerloh District Health Office received notification of a possible Non Typhoidal *Salmonella* (NTS) Multi Drug Resistance Organism (MDRO) outbreak amongst infants in Special Care Nursing (SCN) dan Neonatal Intensive Care Unit (NICU) at a hospital. The investigation aimed to verify the diagnosis, identify cases, determine epidemiological characteristics, identify associated risk factors, and initiate control measures to manage the outbreak. **Materials and Method:** Case were defined as infants with a history of admission to SCN / NICU of affected hospital including SCN / NICU staff during the period of 24th October 2023 to 9th December 2023 who exhibited symptoms of diarrhoea and/or signs/symptoms of sepsis and/or were confirmed positive for NTS MDRO through laboratory testing. Epidemiological, environmental and laboratory investigations were performed. Data were analysed using Microsoft Excel. **Results:** The number of exposures in this outbreak is 684, and 34 cases fulfill the operational outbreak case definition criteria (30 infants and 4 adults). These cases range from as young as two days old to 58 years old, with the majority being infants less than a month old. In terms of gender, 17 are male (50%) and 17 are female (50%). A total of 15 (44.1%) cases had diarrhea, 6 (17.6%) cases had rapid breathing, 5 (14.7%) cases had fever, 4 (11.8%) cases were less active, 2 (5.9%) cases had vomiting, 1 (2.9%) case had poor feeding, while 7 cases were asymptomatic. A total of 19 cases were confirmed positive through laboratory tests. The attack rate was 4.97%. Transmission of the infection is via the fecal-oral route, and the causative agent was tbacterium Non-Typhoidal *Salmonella* (MDRO). **Discussion:** The outbreak ended on 9th December 2023. The cause of the outbreak was non-compliance with infection prevention and control practices. Understanding and adhering to infection control practices are crucial for preventing the spread of infectious diseases, especially in healthcare settings.