

Isolation and Antimicrobial Susceptibility Testing of *Haemophilus influenzae* in a Tertiary Care Hospital, a 6-Year Study (2016 to 2021)

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Objective: To determine the prevalence and antimicrobial susceptibility of *Haemophilus influenzae* at Taksin Hospital.

Materials and Methods: The susceptibilities of clinical isolates to six antimicrobial agents, ampicillin (AP), cefuroxime (CXM), cefotaxime (CTX), ciprofloxacin (CIP), trimethoprim-sulfamethoxazole (SXT), and meropenem (MEM), between 2016 and 2021 were evaluated by the standard disk diffusion method.

Results: One hundred thirty-eight *H. influenzae* clinical isolates were found in different patients. There were 63.04% male patients. The ages of patients ranged from two months to 93 years old (mean±SD: 65.67±20.58). *H. influenzae* was mostly found in patients older than 50 (60.14%) years old. In children, *H. influenzae* was mostly found in patients younger than 1 to 10 (16.67%) years old. Unduplicated *H. influenzae* from different patients were isolated from the sputum (71.01%), blood (11.59%), pus from eyes (10.14%), and urethra (2.90%). *H. influenzae* demonstrated 100% susceptibility to CTX, CIP, and MEM, but less susceptibility to CXM (93.48%), AP (49.28%), and SXT (53.62%).

Conclusion: The present study results suggested the importance of monitoring the prevalence of *H. influenzae* at a hospital in Bangkok. The antibiogram of susceptibility helps provide guidelines for clinician to consider empirical treatment.

Keywords: *Haemophilus influenzae*; Drug resistance, Thailand

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Haemophilus influenzae is an important bacteria as it is responsible for causing various diseases in humans such as community-acquired pneumonia, meningitis, bacteremia, acute epiglottitis, otitis media, sinusitis, and conjunctivitis⁽¹⁻³⁾. In Europe, 3,882 cases of invasive *H. influenzae* disease were reported in 2018⁽⁴⁾, or 0.8 cases per 100,000

population, an increase from 0.6 per 100,000 in 2014⁽⁴⁾. The highest rate of infection was patients younger than one with 4 cases per 100,000 population, followed by patients aged 65 years and older with 2.4 cases per 100,000 population⁽⁴⁾. Community-acquired pneumonia is the most common disease associated with *H. influenzae*. Multiple drug resistance to *H. influenzae* has previously been reported^(3,5). Patterns of *H. influenzae* antimicrobial susceptibility may vary according to country, geography, patient age, and infection site.

The aim of the present study was to evaluate the prevalence and drug resistance of *H. influenzae* isolated in patients at Taksin Hospital, a public tertiary care hospital with 500 beds in central Bangkok operated by the Bangkok Metropolitan Administration. The present study determined antibiogram pattern profiles to provide guidance on the treatment of *H. influenzae* disease to clinicians.

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