

ABSTRAK

Latar belakang: Resistensi antimikroba (AMR) menjadi ancaman kesehatan yang serius, terutama di negara berkembang seperti Indonesia. Uji sensitivitas antimikroba (AST) pada isolat sputum penting untuk memandu terapi sekaligus memantau tren AMR di tingkat lokal.

Tujuan: Menggambarkan pola resistensi antimikroba bakteri yang diisolasi dari sampel sputum di RSUD Panembahan Senopati, Bantul, selama periode 2022–2025.

Metode: Penelitian deskriptif retrospektif ini menggunakan data hasil uji sensitivitas antimikroba dari sistem otomatis *BD Phoenix*TM. Sebanyak 954 isolat sputum dari enam spesies bakteri Gram-negatif (*A. baumannii*, *A. calcoaceticus*, *E. cloacae*, *E. coli*, *K. pneumoniae*, dan *P. aeruginosa*) dianalisis terhadap 20 agen antimikroba yang mewakili sembilan kelas farmakologis.

Hasil: *K. pneumoniae* merupakan patogen terbanyak (45,6%), *P. aeruginosa* (13,5%), *A. baumannii* (13%), *E. cloacae* (10,4%), *E. coli* (10%), dan *A. calcoaceticus* (7,5%). Jumlah jenis antibiotik dengan peningkatan proporsi resistensi bervariasi antarspesies, tertinggi pada *K. pneumoniae* (15 jenis) dan terendah pada *P. aeruginosa* (5 jenis). Peningkatan resistensi dari 2022 ke 2025 paling besar terjadi pada *A. baumannii* (rerata +15,30 poin persentase), *E. coli* (+12,73 pp), *A. calcoaceticus* (+9,69 pp), *K. pneumoniae* (+7,40 pp), *P. aeruginosa* (+7,12 pp), dan *E. cloacae* (+6,46 pp).

Kesimpulan: *K. pneumoniae* merupakan bakteri paling dominan pada sampel sputum. Seluruh spesies uji menunjukkan resistensi penuh (100%) terhadap setidaknya satu jenis antibiotik (*E. coli*), hingga delapan jenis antibiotik (*P. aeruginosa*). Semua spesies juga mengalami tren peningkatan resistensi terhadap 5–15 jenis antibiotik selama periode 2022–2025, menandakan perlunya penguatan strategi pengendalian AMR.

Kata Kunci: Resistensi; AMR; Sputum; Pneumonia; ESBL

ABSTRACT

Background: Antimicrobial resistance (AMR) poses a serious health threat, particularly in developing countries like Indonesia. Antimicrobial susceptibility testing (AST) on sputum isolates is crucial for guiding therapy and monitoring local AMR trends.

Objective: To describe the antimicrobial resistance patterns of bacteria isolated from sputum samples at Panembahan Senopati Regional General Hospital (RSUD), Bantul, from 2022 to 2025.

Methods: This retrospective descriptive study utilized AST data obtained from the BD Phoenix™ automated system. A total of 954 sputum isolates representing six Gram-negative bacterial species (*A. baumannii*, *A. calcoaceticus*, *E. cloacae*, *E. coli*, *K. pneumoniae*, and *P. aeruginosa*) were analyzed against 20 antimicrobial agents spanning nine pharmacological classes.

Results: *K. pneumoniae* was the most prevalent pathogen (45.6%), *P. aeruginosa* (13.5%), *A. baumannii* (13%), *E. cloacae* (10.4%), *E. coli* (10%), and *A. calcoaceticus* (7.5%). The number of antibiotics showing increased resistance proportions varied by species, from 15 in *K. pneumoniae* to 5 in *P. aeruginosa*. The greatest increases in resistance during the study period were observed in *A. baumannii* (mean +15.30 percentage points), followed by *E. coli* (+12.73 pp), *A. calcoaceticus* (+9.69 pp), *K. pneumoniae* (+7.40 pp), *P. aeruginosa* (+7.12 pp), and *E. cloacae* (+6.46 pp).

Conclusion: *K. pneumoniae* was the most dominant bacterium in the sputum samples. All tested species exhibited complete resistance to at least one antibiotic (*E. coli*) and up to eight (*P. aeruginosa*). All species exhibited an increasing trend in resistance to 5–15 antibiotics during the 2022–2025 period, highlighting the need to strengthen AMR control strategies.

Keywords: Resistance; AMR; Sputum; Pneumonia; ESBL.