

PREVALENCE OF PATHOGENS AND ANTIMICROBIAL RESISTANCE GENES USING MULTIPLEX PCR (BIOFIRE FILMARRAY): INSIGHTS FROM A TERTIARY CARE HOSPITAL IN BANGLADESH

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Background: The purpose of this study was to determine the prevalence of infections and antibiotic resistance genes from different body fluids and positive blood culture samples with multiplex PCR (BioFire FilmArray) at a tertiary care hospital. **Methods:** A total of 130 upper and lower respiratory tract samples, 43 positive blood culture samples, and 8 cerebrospinal fluid (CSF) samples collected between June 2024 and July 2025 in this retrospective observational study. The BioFire FilmArray panel was used to identify resistance genes and pathogens. **Results:** *Klebsiella pneumoniae* (34.42%) was the most frequent pathogen in hospital-acquired lower respiratory tract samples, followed by *Streptococcus pneumoniae* (21.31%) (N = 61). *Escherichia coli* was the most commonly isolated pathogen among the positive blood culture samples (N=43) and *Streptococcus pneumoniae* in CSF samples (62.5%, N = 8). The most common resistance gene detected was CTX-M, followed by OXA-48 and NDM. Among lower respiratory tract samples, 63.93% were associated with resistance genes. In positive blood culture samples, 80% of *Klebsiella pneumoniae* (n = 5) and 40% of *E. coli* (n = 6) isolates were associated with resistance genes. **Conclusion:** The high prevalence of multidrug-resistant organisms emphasizes the urgent need for early, effective, targeted, and appropriate antimicrobial therapy for potentially life-threatening infections and sepsis. Continuous surveillance of pathogen prevalence and antimicrobial resistance patterns is essential to guide treatment protocols and inform local healthcare policies

Keywords: Multidrug-resistant organisms, BioFire FilmArray panel, Antimicrobial resistance genes

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