

## Spectrum and Antibiotic Resistance in the Community and Hospital-Acquired Urinary Tract Infected Adults

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### ABSTRACT

**Background:** Urinary tract infection (UTI) is the most common infection in the community. The causative agents and antibiotic resistance differ between community-acquired and hospital-acquired urinary tract infections.

**Objectives:** This study aimed at identifying the etiologic agents in both community-acquired as well as hospital-acquired urinary tract infections and to determine the antibiotic resistance pattern of the most frequent organisms.

**Methods:** This is a retrospective cross sectional study of positive urine cultures of adult patients attending An-Najah National University Hospital (NNUH) between the period of Jan 2019 and Dec 2020.

Each patient's age, sex, and urine culture results were obtained from the microbiology lab of NNUH. Microbiology reports included the isolated microorganisms and their antibiotic susceptibility patterns.

**Results:** A total of 798 patients were included in the study, of which 472 (59.1%) were female. *Escherichia coli* was the most common uropathogen, accounting for 37.8% of the CAUTI and 25.1% of the HAUTI. In CAUTI, *E. coli* was followed by *E. faecalis* (16.4%), *Klebsiella pneumoniae* (13.7%), *E. faecium* (6.5%), and *Streptococcus agalactiae* (4.9%). Among HAUTIs, the second most common was *Klebsiella pneumoniae* (21.4%) followed by *E. faecium* (19.3%), *E. faecalis* (13.4%), and *Pseudomonas aeruginosa* (7%). The rates of ESBL-producing strains of *E. coli* were similar between CAUTI (54.1%) and HAUTI (53.2%).

*E. coli* from CAUTI and HAUTI was sensitive to carbapenems, amikacin, and nitrofurantoin. The antibiotics with the highest resistance rates were ampicillin, cefuroxime, cotrimoxazole, and ciprofloxacin. Resistance rates were higher in HAUTI than in CAUTI.

**Conclusions:** The UTI etiological profiles and antibiotic resistance patterns varied between CAUTI and HAUTI; thus, a different antibiotic therapy for various categories should be considered when initiating empirical antimicrobial therapies.

**Keywords:** Adults, Urinary tract infection, Hospital-acquired urinary tract infection, Community-acquired urinary tract infection, Antibiotic resistance