



Summary brief

September 2021

High prevalence of multi-drug resistant Urinary Tract Infections in a tertiary care hospital in Kathmandu

Reference:

Shakya S, Edwards J, Gupte HA, Shrestha S, Shakya BM, Parajuli K, Kattel HP, Shrestha PS, Ghimire R, Thekkur P. High multidrug resistance in urinary tract infections in a tertiary hospital, Kathmandu, Nepal. 2021. doi:10.5588/pha.21.0035

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Key Messages

- We found alarmingly high drug resistance (single - 84%, multi-drug resistance [MDR]-54%) among both outpatients and inpatients with Urinary Tract Infections (UTIs) in Tribhuvan University Teaching hospital, Kathmandu.
- We observed high resistance among two key drug-bug combinations recognized by the World Health Organization (WHO).
- There was high prevalence of resistance to levofloxacin, ciprofloxacin and cotrimoxazole – commonly prescribed antibiotics for UTI.
- The hospital should ensure regular surveillance and application of updated antibiograms. It should adopt standard treatment protocol for UTI.

What is the problem and why is it important?

UTI has become a global burden occurring in 150 million persons per year. This leads to increased antibiotic usage, including both self-administration and inappropriate prescribing. This inappropriate empirical therapy can lead to prolonged treatments, hospital stays, increased costs and higher mortality. Drug resistance, which has been among the top 10 global health threats, is also a rapidly emerging problem in Nepal. Urinary pathogens are among the most frequently resistant organisms. There is a lack of reliable information on AMR in Nepal, where it has become a crucial issue. There is an urgent need to understand the resistance pattern for commonly used antibiotics both in inpatient and outpatient settings in tertiary care centers.

How did we measure it?

From May to October 2019, we reviewed routine hospital laboratory records and included all positive bacterial isolates (1,865) from the urine samples (11,776) of adult (>18 years) outpatients and inpatients and performed descriptive analysis of bacterial isolates and drug

WHO AWaRe category:

'Access': used against a wide range of commonly encountered susceptible bacteria.

'Watch': should not be used unless 'Access' antibiotics are not effective.

'Reserve': "last resort" options, when all alternatives have failed or are not suitable.

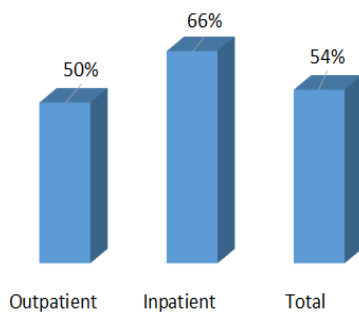


Figure 1: Multi-drug resistance among adults with urinary tract infection

resistance. We considered isolates as MDR if they showed resistance to at least one drug in three or more classes of antibiotics.

What did we find?

- Among 1,865 bacterial isolates, 75% were from outpatients and *E. coli* was the predominant isolate (62%).
- About 84% showed resistance to at least one antibiotic (90% inpatient, 83% outpatients) and 54% had MDR (66% inpatient, 50% outpatients). We found a high proportion of extended spectrum beta-lactamase (ESBL) *E. coli* (83%) and ESBL *K. pneumoniae* (96%) - high priority drug-bug combinations.
- In both inpatients and outpatients, we observed high resistance to levofloxacin (68% and 65%), ciprofloxacin (63% and 53%) and cotrimoxazole (61% and 49%). In *E. coli*, high resistance was seen with levofloxacin (77%) and amoxicillin/ampicillin (75%).
- Most of the drugs showing high resistance were from the WHO 'Watch' category followed by 'Access' category.

Recommendations

- The Hospital Management Committee should closely monitor high resistant drug-bug combinations found in the study. It should ensure stringent implementation of standard treatment protocols for UTI management and reorient staff on optimal antibiotic usage.
- The Infection Prevention and Control Committee and the Microbiology department should advocate against irrational prescription of antibiotics like cotrimoxazole and fluoroquinolones.
- The Department of Microbiology should regularly share the findings of antibiograms with the respective departments and the hospital management.
- The Department of Drug Administration should execute strict policy on self prescription and over-the-counter drug sales. We recommend routine antimicrobial surveillance systems and further studies by researchers and hospital staff on antibiotic prescription in community settings.