

## **Predictive Factors of Healthcare-Associated Infections and Antibiotic Use Patterns: A Cross-Sectional Survey at the Charles Nicolle Hospital of Tunis**

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**Abstract :** Background and aims: Healthcare-associated infections (HAI) represent a major public health problem worldwide. They represent one of the most serious adverse events in health care. The objectives of our study were to estimate the prevalence of HAI at the Charles Nicolle Hospital (CNH) and to identify the main associated factors as well as to estimate the frequency of antibiotic use. Methods: It was a cross-sectional study at the CNH with a unique passage per department (October-December 2018). All patients present at the wards for more than 48 hours were included. All patients from outpatient consultations, emergency, and dialysis departments were not included. The site definitions of infections proposed by the Centers for Disease Control and Prevention (CDC) were used. Only clinically and/or microbiologically confirmed active HAIs were included. Results: A total of 318 patients were included, with a mean age of 52 years and a sex ratio (female/male) of 1.05. A total of 41 patients had one or more active HAIs, corresponding to a prevalence of 13.1% (95% CI: 9.3%-16.9%). The most frequent site infections were urinary tract infections and pneumonia. Multivariate analysis among adult patients ( $\geq 18$  years) ( $n=261$ ) revealed that infection on admission ( $p=0.01$ ), alcoholism ( $p=0.01$ ), high blood pressure ( $p=0.008$ ), having at least one invasive device inserted ( $p=0.004$ ), and history of recent surgery ( $p=0.03$ ), increased the risk of HAIs significantly. More than 1 of 3 patients (35.4%) were under antibiotics on the day of the survey, of which more than half (57.4%) were under two or more types of antibiotics. Conclusion: The prevalence of HAIs and antibiotic prescriptions at the CNH were considerably high. An infection prevention and control committee, as well as the development of an antibiotic stewardship program with continuous monitoring using repeated prevalence surveys, must be implemented to limit the frequency of these infections effectively.

**Keywords :** prevalence, healthcare associated infection, antibiotic, Tunisia

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