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Hand Hygiene and Infections in Hospitals

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ABSTRACT

Healthcare-associated infections (HAIs) remain a significant challenge for hospital systems worldwide and are a major cause of increased morbidity, mortality, and healthcare costs. One of the primary mechanisms of HAI transmission is the transfer of pathogenic microorganisms via the hands of healthcare workers during patient care. In this context, hand hygiene is universally recognized as the most effective, simple, and economically efficient preventive measure. International experience demonstrates that insufficient adherence to hand hygiene protocols continues to be a persistent problem in clinical practice. The recommendations developed by the World Health Organization (WHO), particularly the “Five Moments for Hand Hygiene,” provide a standardized framework for reducing infection risks. However, the effectiveness of these measures largely depends on behavioral compliance, professional attitudes, and the level of training of healthcare personnel. Numerous studies indicate that inadequate hand hygiene practices among medical staff and students significantly contribute to the spread of hospital infections. Therefore, systematic education, regular monitoring, and the integration of evidence-based hand hygiene strategies into hospital routines are essential. Strengthening hand hygiene compliance in hospitals is a key component of infection control programs and plays a crucial role in improving patient safety and the overall quality of healthcare services.

KEYWORDS: hand hygiene, healthcare-associated infections, WHO, Harnos concept, medical education, questionnaire-based study

Purpose of the study A cross-sectional questionnaire-based study was conducted involving **76 respondents** participating in medical education and clinical practice. The survey instrument was developed based on the Harnos behavioral model (knowledge, attitudes, and compliance) and WHO hand hygiene recommendations. The questionnaire assessed awareness of hand hygiene importance, compliance with recommended moments for hand hygiene, and perceived barriers to proper practice. Collected data were analyzed descriptively and expressed as percentages.

Results The results of the study demonstrated notable differences in hand hygiene compliance between healthcare professionals and medical students. Healthcare workers showed a higher level of awareness regarding the importance of hand hygiene and more consistent adherence to recommended practices compared to students. These findings suggest that professional experience and routine clinical exposure significantly influence compliance with infection prevention

measures.

The analysis also revealed that insufficient practical training and lack of behavioral motivation were key factors contributing to inadequate hand hygiene practices among students. In line with the Harnos concept, the results confirm that knowledge alone is not sufficient to ensure proper hand hygiene; attitudes and habitual behavior play a decisive role. The integration of WHO recommendations into medical education, particularly through practical and simulation-based training, may substantially improve compliance and reduce the risk of hospital-acquired infections. The results demonstrated that the majority of respondents acknowledged the importance of hand hygiene in preventing HAIs. Adequate knowledge regarding hand hygiene principles was identified in **approximately two-thirds of participants**, while consistent compliance with WHO-recommended hand hygiene moments was reported by **just over half of respondents**. Higher compliance rates were observed among participants with clinical experience compared to those primarily involved in theoretical training. Insufficient practical skills, time constraints, and lack of behavioral motivation were identified as the most common barriers to proper hand hygiene practices.

CONCLUSION The findings of this study indicate that effective hand hygiene remains a critical factor in preventing healthcare-associated infections. Higher compliance rates among healthcare professionals highlight the importance of clinical experience and continuous professional training. The relatively lower adherence observed among medical students underscores the need to strengthen practice-oriented education and behavioral interventions. Implementing comprehensive hand hygiene programs based on WHO guidelines and behavioral models may contribute to improved infection control, enhanced patient safety, and better overall healthcare quality. The study confirms that hand hygiene compliance remains suboptimal even among individuals involved in medical education and healthcare practice. While awareness of hand hygiene importance is relatively high, consistent adherence to recommended practices is limited. These findings highlight the need for strengthened, practice-oriented training and the early integration of WHO hand hygiene concepts and behavioral models into medical curricula. Implementing targeted educational and behavioral interventions may contribute to improved infection control and a reduction in healthcare-associated infections.

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