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Infection Prevention and Control

Current Awareness Bulletin

July 2025

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Book a session today at https://forms.office.com/e/HyiSXfDaYV (these sessions will be held on a monthly basis)

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1. **Impact of an electronic hand hygiene monitoring system on hand hygiene compliance**

Authors: Acree, Kelly;Ferrelli, Juliet and Li, Jenna

Publication Date: 2025

Journal: American Journal of Infection Control 53(8), pp. 828–833

Abstract: Background: Health care worker hand hygiene (HH) is suboptimal. Electronic hand hygiene monitoring systems (EHHMS) record real-time HH events and may improve HH compliance. We evaluated if an EHHMS affected HH compliance.; Methods: HH compliance of 6,711 inpatient health care workers was recorded in 9 hospitals for 30months using an EHHMS. Badge-wearing ratios (BWRs: number of staff wearing their monitoring badge/number of staff given a badge) and HH compliance rates were compared. Linear regression analysis and multivariate models compared BWRs across health care worker types and analyzed the interaction between BWRs and location.; Results: There was a 1.9% increase in HH compliance for every 10-unit increase in BWR (t=6.65, P value <.001). Hospital location, health care worker type, and shift type significantly influenced HH compliance (F=115.7, df=19,986], P value <.001, R 2 =0.69). BWRs and HH compliance were higher in hospitals that provided additional incentives to their health care workers.; Conclusions: Improved EHHMS badge-wearing correlated with increased HH compliance. Hospitals that provided incentives and placed a greater focus on HH had the most-improved HH compliance.

2. **Optimizing infection control: Evaluating nurses' knowledge and practices for preventing infections in mechanically ventilated patients**

Authors: Alotaibi, Safar Awadh;AlOtaibi, Maha;Alrashedi, Hadiya Nassar;Ali S Alasmari, Huda;Hendy, Abdelaziz and Ibrahim, Rasha Kadri

Publication Date: 2025

Journal: Infection, Disease & Health 30(3), pp. 194–202

Abstract: Competing Interests: Declaration of competing interest The authors do not have any conflicts of interest to declare; this article does not concern any commercial product.; Introduction: Infection control is crucial in healthcare, particularly in intensive care units (ICUs), where patients are at high risk of infection due to mechanical ventilation. Ventilator-associated pneumonia (VAP) is one of the most common hospital-acquired infections in ICUs, leading to increased morbidity, prolonged hospital stays, and elevated healthcare costs. Nurses are essential in implementing infection control measures to prevent these infections. Evaluating their knowledge and practices is key to identifying areas for improvement.; Aim: This study assesses ICU nurses' knowledge and practices regarding infection control, particularly in preventing VAP in mechanically ventilated patients.; Methods: A descriptive observational study was conducted at a governmental Hospital in Cairo, Egypt. Participants were selected using purposive sampling based on their experience and direct care responsibilities. Data were collected using a self-report questionnaire and an observational checklist. The questionnaire assessed knowledge across domains such as infection control principles and VAP prevention, while the checklist evaluated practices like hand hygiene and adherence to VAP bundles.; Results: The study found that 61.2 % of nurses demonstrated satisfactory infection control practices, with hand hygiene showing the highest compliance (81.8 %). However, VAP bundle adherence was low (42.4 %). Knowledge gaps were also identified, especially in VAP prevention and oral care.; Conclusion: The findings suggest a need for targeted educational programs to improve infection control practices among ICU nurses. Enhanced training could address observed gaps in knowledge and practice, particularly in VAP prevention and oral care, ultimately improving patient outcomes.

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3. **Improving Hand Hygiene in Hospitals: A Comparative Study Using Body-Worn Cameras and Direct Observation**

Authors: Belman, D.;Ben-Chetrit, E.;Belman, C. and Levin, P. D.

Publication Date: 2025

Journal: American Journal of Infection Control

Abstract: Background: Hand hygiene (HH) prevents infections, but traditional monitoring is limited by office hours and the Hawthorne effect. This study used body-worn cameras in ICUs to compare video with direct observation.; Methods: After ethics approval, healthcare personnel wore a GoPro™ on the upper abdomen to record HH during patient care. A trained observer documented opportunities and performance simultaneously. A blinded researcher

later analyzed the video. Both methods were compared across four parameters: opportunities, compliance, performance, and duration.; Results: Seventeen paired video and observer data sets captured 166 HH opportunities and 147 events. Of these, 118/147 (80%) were performed in response to a hand hygiene opportunity and 29/147 not (20%). Including HH performance related to events, overall HH compliance was 118/166 (71%). Both methods identified 80% of opportunities. The video detected 11.5% of missed opportunities, while the observer identified 8.5% missed by the video. Mean duration was comparable (Video: 11.3±9.2 sec, Observer: 12.0±9.8 sec, p=0.55).; Discussion: Body-worn cameras effectively identified HH opportunities, performance, and duration, capturing events missed by observers ~20% of the time. However, video analysis had flaws, revealing missed events upon review. Observer data, long considered the gold standard, showed only 80% accuracy.; Conclusions: Body-worn cameras are a feasible tool for HH monitoring, but are labor-intensive. Automating video analysis could enhance feasibility for routine use.

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4. **Enhancing hand hygiene compliance through the long-lasting antimicrobial effects of nitric oxide-releasing hand sanitizer gel**

Authors: Chug, Manjyot Kaur;Aluisio, Gabrielle;Bousquet, Cole;Garren, Mark;Qian, Yun;Campbell, Joseph H. and Brisbois, Elizabeth J.

Publication Date: 2025

Journal: Biomaterials Science 13(14), pp. 3915–3928

Abstract: Effective hand hygiene is crucial for reducing the transmission of disease-causing pathogens. While alcohol-based hand sanitizers have become popular, their increased usage during the COVID-19 pandemic raised concerns about their short-lived activity and potential side effects. The increased application of hand sanitizers and harmful side effects has necessitated an effective alternative with prolonged and enhanced antimicrobial properties which could result in a reduced number of sanitizer applications. To address these issues and improve antimicrobial efficacy, this study developed a nitric oxide (NO)-releasing hand sanitizer (NORel) gel enriched with other antimicrobial and moisturizing ingredients like ethanol, tea tree oil, and glycerin. The NORel gel underwent comprehensive analysis, including assessments of pH for 60 d, rheology, NO release, cytocompatibility, and in vitro and ex vivo antimicrobial effectiveness on rabbit skin proving its ability to eliminate over 97% of bacteria and fungi, including antibiotic-resistant strains. One NORel gel formulation, NORel2, demonstrated antimicrobial activity comparable to a commercial alcohol-based gel containing 62% ethyl alcohol, achieving a reduction of more than 5 logs in S. aureus bacteria on a rabbit skin model. Additionally, the NORel gel significantly outperformed the commercial alcohol gel by maintaining its antimicrobial efficacy on infected rabbit skin, showing a persistent activity with a 1.6-log reduction in viable S. aureus 2 h after application. This research introduces a biocompatible NO-releasing gel with superior antimicrobial properties compared to common alcohol-based sanitizers, making it an effective hand hygiene solution to reduce infections, especially in high-risk environments.

5. **Exploring radiographers' practice and decision-making relating to infection prevention and control in the CT environment: An observation study in a simulated environment**

Authors: Jimenez, Yobelli Alexandra;Hill, Suzanne;Lewis, Sarah and Awwad, Dania Abu

Publication Date: 2025

Journal: American Journal of Infection Control 53(7), pp. 760–766

Abstract: Contrast media use is high in computed tomography (CT). This study aimed to explore radiographers' decision-making process when using contrast media injectors in the CT environment, with a focus on infection prevention and control (IPC). A qualitative study using observation within a think-aloud methodology in a simulated environment was undertaken. Participants performed all the steps to undertake a contrast-enhanced CT scan, while verbalizing their actions and process. CT radiographers (n = 20) participated in this study. Variations were observed across all stages of CT scanning. Gloves were used by a large proportion of participants while connecting the patient (n = 16, 80%), followed by disconnecting from the patient (n = 18, 90%). To the best of our knowledge, this is the first study to map steps and explore radiographers' decision-making relating to contrast-enhanced CT procedures. Justification of practice centered around patient care and self-protection factors, using routine IPC practice and awareness of IPC risks. There was inconsistency between participants in terms of workflow and order of steps setting up a patient in CT, along with variations in IPC practices. The lack of universal guidelines specific to IPC in CT has manifested as variations in practice across CT departments. • Radiographers demonstrated inconsistent workflow and IPC practice when setting up a patient in a simulated CT environment. • Justification of practice centred around patient care and self-protection factors, using routine IPC practice and awareness of IPC risks. • Participants discussed IPC practice variation as a 'normal' part of practice in medical imaging.

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6. **Development of the initial Leapfrog Group's hand hygiene standard**

Authors: Joshi, Preeti;Boyce, John;Larson, Elaine;Landon, Emily;Bearman, Gonzalo;Stewart, Kathryn Burggraf;Derk, Jordan;Danforth, Melissa and Matthew Austin, J.

Publication Date: 2025

Journal: American Journal of Infection Control 53(8), pp. 813–817

Abstract: Background: Health care-associated infections (HAIs) remain a major concern in US hospitals, contributing to significant patient mortality and medical costs. Studies indicate that up to 70% of HAIs are preventable, with proper hand hygiene the most effective method of preventing transmission. Despite this, adherence to hand hygiene in hospitals remains low.; Methods: This article describes the process of developing, testing, and refining a standard to improve hand hygiene adherence in US hospitals. Building on the published literature and guidance from a national expert panel, Leapfrog developed a standard with 5 key domains.; Results: In 2019, 1,698 hospitals pilot tested an initial set of survey questions intended to measure hospital performance against the hand hygiene standard. Responses were not

scored, but reviewed to make refinements. The scoring of hospital responses to the survey questions and the public reporting of hospitals' performance on meeting the hand hygiene standard began in 2020. From 2020 to 2023, the percentage of reporting hospitals that have met each domain of the hand hygiene standard and fully achieved Leapfrog's hand hygiene standard continued to grow.; Conclusions: Leapfrog's hand hygiene standard provides hospitals with a "how-to guide" for best practices to promote hand hygiene and prevent HAIs.

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7. **Training of the global health workforce in antimicrobial stewardship and infection prevention and control: an approach to combat antimicrobial resistance**

Authors: Kamara, I. F.;Fofanah, B. D.;Kamara, R. Z.;Abiri, O. T.;Lakoh, S.;Kanu, J. S. and Tengbe, S. M.

Publication Date: 2025

Journal: Journal of Hospital Infection 161, pp. 52–54

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8. **The Mediating Effects of COVID-19 Infection Control Fatigue on Quiet Quitting: Focusing on Organisational Justice, Role Ambiguity and Job Satisfaction**

Authors: Kang, Jaejin;Jeong, Wonseok and Kim, Seungju

Publication Date: 2025

Journal: Journal of Advanced Nursing (John Wiley & Sons, Inc.) 81(7), pp. 3952–3961

Abstract: Aim: This study explored the mediating effects of organisational justice, role ambiguity and job satisfaction on the relationship between infection control-associated fatigue and quiet quitting. Design: This study used an exploratory cross-sectional survey design. Methods: Between 1 February and 29 February 2024, data were collected from 323 nurses—who worked in general or tertiary hospitals during the pandemic—using an online self-report questionnaire distributed via a popular nursing community platform. Path analysis was used to evaluate the mediating effect of infection control fatigue on quiet quitting. Results: Correlation analysis showed a negative relationship between quiet quitting and organisational justice and positive relationships with job satisfaction, role ambiguity and infection control fatigue. Infection control-associated fatigue was associated with quiet quitting (B = 0.1117, p < 0.05). Job satisfaction (IE = 0.1397, 95% confidence intervalCI]: 0.0795–0.2031) and organisational justice (IE = −0.0455, 95% CI: −0.0938 to −0.0051) mediated the relationship between infection control-associated fatigue and quiet quitting, whereas role ambiguity did not. The total indirect effect of mediators on quiet quitting was positive (IEtotal = 0.0978, 95% confidence interval: 0.0357–0.1623). Conclusion: Quiet quitting increased among nurses experiencing infection control fatigue during the coronavirus disease 2019 pandemic, with job satisfaction and organisational justice acting as mediators. Implications for the Profession and/or Patient Care: Increasing job satisfaction and achieving organisational justice may help improve the quality of nursing and mitigate quiet quitting. Hospitals must find ways to improve nurses' work

and increase their satisfaction. No Patient or Public Contribution.

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9. **Why do staff comply? A study to determine factors influencing staff adherence to PPE and hand hygiene policy and standards within an acute healthcare setting**

Authors: Kaye, Graham and Marais, Debbi

Publication Date: 2025

Journal: Journal of Infection Prevention 26(4), pp. 161–166

Abstract: Background: Hand hygiene is commonly regarded as being the single most important method in preventing various healthcare-associated infections which cause an estimated 37,000 deaths in Europe and 100,000 deaths in the United States annually. Despite this, infection prevention and control audits regularly demonstrate that staff are missing hand hygiene opportunities, and that personal protective equipment (PPE) is being used inappropriately, clearly highlighting that policies are not being conformed to. Aim: The aim of this was to identify factors that facilitate and hinder staff in their compliance with hand hygiene and PPE standards and policies. Methods: A mixed methods approach sequential explanatory design was used to investigate levels of compliance and staff identified barriers and facilitators. Quantitative data was obtained regarding COVID-19 cases, hand hygiene, and PPE compliance over a 10-month period in all inpatient wards (approximately 750 beds) across an acute Trust. Following a review of this data, two wards were selected. Four participants on each ward, covering various grades of staff, were interviewed to explore their perceptions of compliance (qualitative data), and a thematic analysis was conducted to determine themes of facilitators and barriers. Results: When compared to COVID-19 cases, hand hygiene and PPE compliance showed a downward trend over the study period. Barriers and facilitators to compliance identified by staff were time, information, training, safety, and accessibility. Time was the most common theme, with compliance to policy being deemed as too time consuming. Conclusion: Patient safety was identified as the most influential aspect on staff being compliant with time being the one aspect that would contribute most to non-compliance.

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10. **The experiences and roles of infection prevention and control professionals working in residential care facilities during global outbreaks: An integrative review**

Authors: Lee, Hyunji;van de Mortel, Thea,F. and Zimmerman, Peta-Anne

Publication Date: 2025

Journal: Infection, Disease & Health 30(3), pp. 248–259

Abstract: Competing Interests: Declaration of competing interest Nil.; Background: The escalating threat of global infectious disease outbreaks has underscored the imperative for robust infection prevention and control (IPC) measures, particularly within the high-risk context of residential care facilities. This research aimed to investigate the experiences and roles of IPC professionals (IPCPs) in such settings during global outbreaks.; Methods: Utilising an integrative review methodology, four electronic databases - Medline, CINAHL, Embase, and

Scopus - were searched from 2003 onwards for relevant papers. A two-tiered independent screening approach was employed to select eligible articles, followed by a consensus-based appraisal and thematic analysis of included studies.; Results: The final review encompassed eight articles. IPCPs faced systemic organisational and ground-level operational hurdles, including inequitable access to resources, and lack of training and outbreak preparedness. External and internal variables impacted the effectiveness of outbreak responses, affecting resident and occupational health, and perceptions of IPC over time.; Conclusions: The review identified systemic challenges IPCPs face in residential care during outbreaks, including resource inequity and lack of standardised training. Centralised resources and standardised educational benchmarks may help to mitigate these issues. Policy changes are required to enhance healthcare readiness, quality, and research in residential care settings.

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11. **Religious influences on infection prevention and control practices in healthcare settings: A scoping review**

Authors: Mason, Matt;Wakefield, Jacinta;Sparke, Vanessa;Basseal, Jocelyne M. and Zimmerman, Peta-Anne

Publication Date: 2025

Journal: Infection, Disease & Health 30(3), pp. 234–247

Abstract: Competing Interests: Declaration of competing interest The authors declare no conflict of interests related to this work.; Background: Healthcare-associated infections pose a significant global health challenge. While evidence-based infection prevention and control (IPC) interventions are widely implemented, their implementation may be influenced by religious factors. This scoping review aimed to examine the religious factors that influence IPC practices among healthcare providers.; Method: A systematic search was conducted in CINAHL, Emcare, Scopus, and Web of Science databases. Given the anticipated paucity of literature, there were no date limiters. Articles demonstrating a direct relationship between religion and IPC practices in healthcare settings were included. Data extraction and quality appraisal were performed independently by multiple researchers.; Results: Thirteen articles met the inclusion criteria. Three main themes emerged: 1) religious rituals and influence, 2) use of alcohol, and 3) "bare below the elbows" principle. Religious practices were found to act as both enablers and barriers to IPC compliance. The use of alcohol-based hand rubs presented challenges for some religious groups, while religious dress codes conflicted with the "bare below the elbows" principle.; Conclusion: This review highlights the complex interplay between religion and IPC practices. Findings suggest the need for culturally sensitive IPC strategies that respect religious beliefs while maintaining effective IPC measures. Further research is needed to develop inclusive policies and educational programs that address these religious factors in healthcare settings.

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12. **Nursing students'knowledge and effectiveness of teaching in infection prevention and control**

Authors: Mohammedi, Stephanie Bouget;Gillois, Pierre and Landelle, Caroline

Publication Date: 2025

Journal: BMC Nursing 24(1), pp. 850

Abstract: Competing Interests: Declarations. Ethics approval and consent to participate: Research was conducted in compliance with the Helsinki Declaration. The clinical research direction of Grenoble Alps University Hospital in France classified the survey as a RNIPH (Research Not Involving the Human Person) according to the French research methodology (MR-004). Only informed consent to participate was obtained from all of the participants. Consent for publication: Not available. Competing interests: The authors declare no competing interests.; Introduction: In order to prevent healthcare-associated infections, infection prevention and control (IPC) is taught to nursing students in France as soon as they enter the nursing training institutes. The primary objective of this study was to assess the knowledge of standard precautions and hand hygiene of French nursing students before and after training. Secondary objectives were to measure factors predicting success on knowledge tests, and to investigate the effectiveness of the different teaching techniques used.; Materials and Methods: A quantitative study using online self-administered questionnaires was performed between September 1, 2022 and March 7, 2023 in French nursing training institutes. Three self-administered questionnaires were administered: the first to IPC trainers on their teaching methods, and the next two to nursing students on their knowledge and socio-demographic characteristics, with one questionnaire before and one after IPC training.; Results: Fifty-nine nursing training institutes took part in the study. Before and after IPC training, 3,739 and 2,378 nursing students participated, respectively. At the start of training, the mean score on the knowledge test was 35.67 out of 50 (35.53-35.77] sd = 3.76), i.e. a moderate level of knowledge. After IPC training, the mean score on the knowledge test was 37.55 out of 50 (37.40-37.68] sd = 3.48), i.e. a good level of knowledge. Students with a Nursing Auxiliary Diploma (NAD) scored significantly better than no NAD students, both before ($p<0.001$) and after ($p<0.001$) IPC training. The teaching techniques used were varied and combined, but only practice audits significantly improved students' knowledge after training ($p = 0.050$).; Discussion: Nursing students' knowledge of IPC before training is heterogeneous and moderate. After training, knowledge had improved little but significantly. Only auditing was effective to improve students' level of knowledge of IPC. Audits should be included in the IPC training program. (© 2025. The Author(s).)

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13. **Lights out for Superbugs: Is antimicrobial blue light a potential approach for future infection Control?**

Authors: Ozdemir, Gizem D.;Dos Anjos, Carolina;Ozdemir, Mehmet A.;Leanse, Leon G. and Dai, Tianhong

Publication Date: 2025

Journal: Advanced Drug Delivery Reviews , pp. 115654

Abstract: Competing Interests: Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.; The rise of antimicrobial resistance (AMR) poses a significant threat to global health, as traditional antimicrobials are increasingly

losing efficacy against a broad spectrum of pathogens. Antimicrobial blue light (aBL), an innovative light-based approach that utilizes wavelengths between 405 and 470 nm, has emerged as a prominent alternative. Unlike conventional antimicrobials, aBL inactivates microorganisms without promoting resistance by targeting endogenous chromophores within pathogens to generate reactive oxygen species (ROS). This review first provides an in-depth analysis of aBL's mechanisms of action, highlighting its unique ROS-driven effects on microbial membranes, DNA, and proteins. Moreover, we discussed recent developments in aBL's applications across bacterial, viral, and fungal pathogens and evaluated its effectiveness in biofilm eradication and combinational therapies with conventional antimicrobials as well as with multimodal innovations. This review also examines the safety and regulatory considerations associated with aBL. While aBL holds tremendous potential, challenges remain in its clinical translation, including optimizing dosages, ensuring safety in complex biological systems, and advancing device design. Future research must address these gaps to facilitate the clinical translation of aBL and expand its role in combating resistant infections.

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14. **Leveraging agents of change to improve the use of an electronic hand hygiene monitoring system**

Authors: Romeiser, Jamie L.;Elliott, Rachel;Allis, Nicholas;Briggs, Julie;Glidden, Matthew;Luke, Elizabeth;Rivé, Veronica;Shaw, Jana;Suits, Paul and Stewart, Telisa

Publication Date: 2025

Journal: American Journal of Infection Control 53(8), pp. 818–827

Abstract: Background: We evaluated the effectiveness of an "agents of change" intervention in enhancing hand hygiene compliance (HHC) with an electronic hand hygiene monitoring system (EHHMS), and improving perceptions of the EHHMS among health care workers.; Methods: Two intervention units and 1 control unit were selected. Thirteen agents received training, then worked independently on the intervention units to improve their colleagues' perceptions and behaviors toward the EHHMS. Agents and unit health care workers were surveyed before and after the intervention to measure perceptions of the EHHMS and impact of the intervention. HHC was electronically monitored across all units 8weeks before, 5weeks during, and 8weeks after the intervention.; Results: Postintervention, 70% of agents believed they influenced their colleagues' behaviors, but 50% felt they changed attitudes. Unit-level surveys confirmed minimal change in attitudes and culture. Average HHC rates increased by 6.8% and 5% in the intervention units during the intervention (both P<.01), whereas the control did not. One intervention unit maintained improvement in the post period, whereas the other returned to baseline. Compliance rates for all units were similar in the post period.; Conclusions: Implementing an agents of change program to target EHHMS compliance is feasible, but sustained improvement is less certain. (Copyright © 2025 Association for Professionals in Infection Control and Epidemiology, Inc. Published by Elsevier Inc. All rights reserved.)

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