

Infection Prevention and Control

Current Awareness Bulletin

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1. Horizontal versus vertical strategies for infection prevention: current practices and controversies

Authors: Abbas, Salma and Stevens, Michael P.

Publication Date: /06/03/ ,2024

Journal: Current Opinion in Infectious Diseases

Abstract: Purpose of Review: Healthcare-associated infections (HAIs) represent a major burden on healthcare facilities. Effective infection prevention strategies are essential to prevent the spread of HAIs. These can be broadly classified as vertical and horizontal interventions. Through this review, we aim to assess the merits of these strategies.; Recent Findings: Vertical strategies include active surveillance testing and isolation for patients infected or colonized with a particular organism. These strategies are beneficial to curb the spread of emerging pathogens and during outbreaks. However, the routine use of contact precautions for organisms such as methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus* remains controversial. Horizontal interventions are larger-scale and reduce HAIs by targeting a common mode of transmission shared by multiple organisms. Among these, hand hygiene, chlorhexidine gluconate bathing of select patients and environmental decontamination are the most high-yield and must be incorporated into infection prevention programs. As antimicrobial stewardship is also an effective horizontal strategy, antimicrobial stewardship programs must operate in synergy with infection prevention programs for maximal impact.; Summary: Overall, horizontal interventions are considered more cost-effective and have a broader impact. Infection control programs may opt for a combination of vertical and horizontal strategies based on local epidemiology and available resources. (Copyright © 2024 Wolters Kluwer Health, Inc. All rights reserved.)

2. Climate change and resilience for antimicrobial stewardship and infection prevention

Authors: Abeles, Shira R.;Kline, Ahnika and Lee, Pamela

Publication Date: /06/06/ ,2024

Journal: Current Opinion in Infectious Diseases

Abstract: Purpose of Review: This review covers recent research regarding the challenges posed by climate change within the areas of antimicrobial stewardship and infection prevention, and ways to build resiliency in these fields.; Recent Findings: Infectious disease patterns are changing as microbes adapt to climate change and changing environmental factors. Capacity for testing and treating infectious diseases is challenged by newly emerging diseases, which exacerbate challenges to antimicrobial stewardship and infection prevention. Antimicrobial resistance is accelerated due to environmental factors including air pollution, plastic pollution, and chemicals used in food systems, which are all impacted by climate change. Climate change places infection prevention practices at risk in many ways including from major weather events, increased risk of epidemics, and societal disruptions causing conditions that can overwhelm health systems. Researchers are building resilience by advancing rapid diagnostics and disease modeling, and identifying highly reliable versus low

efficiency interventions.; Summary: Climate change and associated major weather and socioeconomic events will place significant strain on healthcare facilities. Work being done to advance rapid diagnostics, build supply chain resilience, improve predictive disease modeling and surveillance, and identify high reliability versus low yield interventions will help build resiliency in antimicrobial stewardship and infection prevention for escalating challenges due to climate change. (Copyright © 2024 Wolters Kluwer Health, Inc. All rights reserved.)

3. Contact precautions as a barrier to hand hygiene: The Plan-Do-Study-Act (PDSA) framework to improve compliance with gloved hand hygiene

Authors: Bailey, Pamela;Cooper, Kaila;Stevens, Michael P.;Bearman, Gonzalo and Doll, Michelle

Publication Date: /06// ,2024

Journal: Infection Control and Hospital Epidemiology 45(6), pp. 788-789

Abstract: In an identified quality improvement effort, nurses were observed regarding their workflow while in contact precaution rooms. Multiple opportunities for hand hygiene were missed while nurses were in gloves, predominantly while moving between "dirty" and "clean" tasks. An education initiative afterward did not show improvement in hand hygiene rates.

4. Dialysis-associated Infection Prevention and Surveillance trial: an easy, feasible, and effective bundle for infection prevention

Authors: Bartoletti, Michele;Bussini, Linda;Bavaro, Davide Fiore and Azzolini, Elena

Publication Date: /05/29/ ,2024

Journal: Clinical Microbiology and Infection : The Official Publication of the European Society of Clinical Microbiology and Infectious Diseases

5. Perceptions of infection control professionals toward electronic surveillance software supporting inpatient infections: A mixed methods study

Authors: Baudet, Alexandre;Brennstuhl, Marie-Jo;Lizon, Julie;Regad, Marie;Thilly, Nathalie;Demoré, Béatrice and Florentin, Arnaud

Publication Date: /06// ,2024

Journal: International Journal of Medical Informatics 186, pp. 105419

Abstract: Background: Electronic surveillance software (ESS) collects multiple patient data from hospital software to assist infection control professionals in the prevention and control of hospital-associated infections. This study aimed to understand the perceptions of end users (i.e., infection control professionals) and the facilitators and barriers related to a commercial ESS named ZINC and to assess its usability.; Methods: A mixed-method research approach

was adopted among infection control professionals 10 months after the implementation of commercial ESS in the university hospital of Nancy, France. A qualitative analysis based on individual semistructured interviews was conducted to collect professionals' perceptions of ESS and to understand barriers and facilitators. Qualitative data were systematically coded and thematically analyzed. A quantitative analysis was performed using the System Usability Scale (SUS).; Results: Thirteen infection control professionals were included. Qualitative analysis revealed technical, organizational and human barriers to the installation and use stages and five significant facilitators: the relevant design of the ESS, the improvement of infection prevention and control practices, the designation of a champion/superuser among professionals, training, and collaboration with the developer team. Quantitative analysis indicated that the evaluated ESS was a "good" system in terms of perceived ease of use, with an overall median SUS score of 85/100.; Conclusions: This study shows the value of ESS to support inpatient infections as perceived by infection control professionals. It reveals barriers and facilitators to the implementation and adoption of ESS. These barriers and facilitators should be considered to facilitate the installation of the software in other hospitals.; 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. (Copyright © 2024 The Authors. Published by Elsevier B.V. All rights reserved.)

6. Surgical site infection prevention bundles: a focus on preoperative skin decolonisation

Authors: Chiwera, Lilian

Publication Date: /05/09/ ,2024

Journal: British Journal of Nursing 33(9), pp. 430-434

7. Impacts of intelligent monitoring technology installation and additional modalities on hand hygiene compliance in a burn center: A quasi-experimental longitudinal trial

Authors: Gurbuz, Kayhan;Das, Koray;Demir, Mete;Suntur, Bedia Mutay;Ozlu, Ozer;Basaran, Abdulkadir;Cil, Merve Kilic and Golbol, Abdullah

Publication Date: /06// ,2024

Journal: Burns (03054179) 50(5), pp. 1307-1314

8. Navigating the future: machine learning's role in revolutionizing antimicrobial stewardship and infection prevention and control

Authors: Hanna, John J. and Medford, Richard J.

Publication Date: /06/03/ ,2024

Journal: Current Opinion in Infectious Diseases

Abstract: Purpose of Review: This review examines the current state and future prospects of machine learning (ML) in infection prevention and control (IPC) and antimicrobial stewardship (ASP), highlighting its potential to transform healthcare practices by enhancing the precision, efficiency, and effectiveness of interventions against infections and antimicrobial resistance.; Recent Findings: ML has shown promise in improving surveillance and detection of infections, predicting infection risk, and optimizing antimicrobial use through the development of predictive analytics, natural language processing, and personalized medicine approaches. However, challenges remain, including issues related to data quality, model interpretability, ethical considerations, and integration into clinical workflows.; Summary: Despite these challenges, the future of ML in IPC and ASP is promising, with interdisciplinary collaboration identified as a key factor in overcoming existing barriers. ML's role in advancing personalized medicine, real-time disease monitoring, and effective IPC and ASP strategies signifies a pivotal shift towards safer, more efficient healthcare environments and improved patient care in the face of global antimicrobial resistance challenges. (Copyright © 2024 Wolters Kluwer Health, Inc. All rights reserved.)

9. Why is sharing knowledge about hand hygiene and infection prevention and control still so important?

Authors: Kilpatrick, Claire;Tartari, Ermira;Storr, Julie;Pittet, Didier and Allegranzi, Benedetta

Publication Date: /07// ,2024

Journal: International Journal of Infectious Diseases : IJID : Official Publication of the International Society for Infectious Diseases 144, pp. 107063

Abstract: Competing Interests: Declarations of competing interest The authors have no competing interest to declare. The opinions expressed in this article are those of the authors and do not reflect the official position of the WHO. The WHO takes no responsibility for the information provided or the views expressed in this article.

10. Impact of the COVID-19 pandemic on infection control nurses: A path analysis of job stress, burnout, and turnover intention

Authors: Lee, Jae E.;Kim, Sung R. and Chun, Byung C.

Publication Date: /06// ,2024

Journal: American Journal of Infection Control 52(6), pp. 683-687

Abstract: Background: A infection control nurse (ICN) has played substantial roles in infection control and epidemiology programs in hospitals to protect patients and coworkers during the coronavirus disease 2019 (COVID-19) pandemic. This study aimed to explore the association between intention to leave in ICNs and job stress and burnout.; Methods: This cross-sectional study was conducted among ICNs working in hospitals with ≥ 200 beds in South Korea from October 1 to 22, 2021. Variables included were related to general and job characteristics specific to COVID-19, as well as measures of job stress, burnout, and turnover intention for ICNs from previous studies. Path analysis was used to examine the relationships between job

stress, burnout, turnover intention, and COVID-19-related work characteristics.; Results: A total of 203 participants were included, of whom 95% were women. The results showed that work intensity in COVID-19 infection control was significantly associated with job stress ($P < .001$) and burnout ($P = .035$). Furthermore, job stress ($P = .019$) and burnout ($P < .001$) were positively correlated with turnover intention.; Conclusions: In a pandemic with emerging infectious diseases, strategies to reduce turnover among ICNs and ensure a sufficient workforce are crucial to reducing work intensity, considering the factors that affect job stress and burnout. (Copyright © 2024 The Authors. Published by Elsevier Inc. All rights reserved.)

11. Resource sustainability and challenges in the supply chain: implications for infection prevention

Authors: Mehrotra, Preeti and Desai, Angel

Publication Date: /06/06/ ,2024

Journal: Current Opinion in Infectious Diseases

Abstract: Purpose of Review: Infection prevention and control practices remain the bedrock of healthcare associated infection prevention and outbreak and epidemic control efforts. However, issues in supply chain management can hinder these efforts, as exemplified by various public health emergencies. This review explores the key role of supply chains in infection prevention and explores specific challenges.; Recent Findings: In all of the critical components of infection prevention and control - hand hygiene, personal protective equipment, sterile supplies, environmental disinfection, and waste management - disruptions in supply chains have led to limited availability and dissemination.; Summary: Strategies to mitigate these resource constraints in the inter-epidemic period will also be highlighted. The infection prevention workforce is well poised to inform supply chain dynamics. Without robust and adequate supply chains, infection prevention and control efforts suffer which perpetuates healthcare-associated infections, clusters, and epidemics. (Copyright © 2024 Wolters Kluwer Health, Inc. All rights reserved.)

12. The experience of infection prevention and control nurse (IPCN) in conducting post-discharge surveillance (PDS) of surgical site infections (SSI): A qualitative study

Authors: Rahmawati, Siti;Setyawati, Andina and Tahir, Takdir

Publication Date: /06/03/ ,2024

Journal: Infection, Disease & Health

Abstract: Background: Surgical Site infections (SSI) are healthcare-associated infections (HAI) resulting from surgical procedures, which can increase morbidity, mortality, and economic burden. SSI surveillance is useful for detecting the magnitude of SSI cases and evaluating the impact of SSI prevention implementation. Post-discharge surveillance (PDS) of SSIs may identify more significant cases. To the best of our knowledge, there is no research exploring the experiences of Infection Prevention and Control Nurse (IPCN) in conducting PDS of SSI.; Methods: To explore the experience of IPCN in conducting PDS of SSI. A qualitative

transcendent phenomenological (descriptive) research, using a purposive sampling technique with 15 informants from 9 hospitals in Indonesia. Data were collected through in-depth direct and semi-structured interviews and analyzed using thematic analysis through Nvivo 12 plus software.; Results: Five themes were generated, including the stages of PDS of SSI, the collaborative role of PDS of SSI officers, inhibiting factors of PDS of SSI, supporting factors of PDS of SSI, and optimization of PDS of SSI.; Conclusion: This study provides a deep understanding of the implementation PDS of SSI through an exploration of IPCN experiences, offering insights into the execution and various challenges faced by hospitals in conducting PDS of SSI. (Copyright © 2024 Australasian College for Infection Prevention and Control. Published by Elsevier B.V. All rights reserved.)

13. Effect of topical vancomycin powder on surgical site infection prevention in major orthopaedic surgery: A systematic review and meta-analysis of randomised controlled trials with trial sequential analysis

Authors: Saka, Natsumi; Yamada, Koji; Ono, Kumiko; Iwata, Eiichiro; Mihara, Takahiro; Uchiyama, Katsufumi; Watanabe, Yoshinobu and Matsushita, Kazuhiko

Publication Date: /05/31/ ,2024

Journal: The Journal of Hospital Infection

Abstract: Background: Evidence were mixed regarding the effect of topical vancomycin (VCM) powder in reducing surgical site infection (SSI).; Aim: To clarify the effect of topical VCM powder for the prevention of in major orthopaedic surgeries.; Methods: The MEDLINE, Embase, CENTRAL, ICTRP, and ClinicalTrials.gov databases were searched from their inception to 25 September 2023. We included randomised controlled trials comparing topical VCM powder and controls for the prevention of SSI in major orthopaedic surgeries. Two reviewers independently screened the title and abstract and extracted relevant data, followed by the assessment of the risk of bias and the certainty of the evidence. Main outcome measure were Overall SSI, reoperation, and adverse events. Summary results were obtained using random-effects meta-analysis. We performed trial sequential analysis (TSA).; Findings: Eight randomised controlled trials provided data on 4,307 participants. VCM powder showed no difference in reducing overall SSI. The cumulative number of patients did not exceed the required information size of 19,233 in our TSA, and the Z-curves did not cross the trial sequential monitoring or futility boundary, suggesting an inconclusive result of the meta-analysis. No difference was found for reoperation. Among SSI, VCM powder showed statistically significant difference in reducing gram-positive cocci SSI. However, the certainty of this evidence was very low.; Conclusions: This systematic review and meta-analysis suggests inconclusive results regarding the effect of VCM powder in reducing SSI in major orthopaedic surgeries. Further trials using rigorous methodologies are required to elucidate the effect of this intervention.; Competing Interests: Declaration of Competing Interest Dr. Yamada reports personal lecture fees from Johnson&Johnson K.K., personal lecture fees from 3M Japan, personal lecture fees from Taisho Toyama Pharmaceutical, personal lecture fees from Kaken Pharmaceutical, personal lecture fees from Astellas Pharma Inc., personal lecture fees from DAIICHI SANKYO COMPANY, personal lecture fees from Agilis Co.,Ltd., personal lecture fees from Asahi Kasei Pharma Corporation, personal lecture fees from MEDICEO CORPORATION, personal lecture fees from AMGEN Inc. outside the submitted work. Dr.Watanabe reports

honoraria for educational materials from MSD (Merck Sharp and Dohme) outside the submitted work. Other authors declare no conflict of interest. (Copyright © 2024 The Author(s). Published by Elsevier Ltd.. All rights reserved.)

14. Human resource management to assist infection prevention and control professionals: a scoping review

Authors: Ülgüt, R.;Tomsic, I.;Chaberny, I. F. and von Lengerke, T.

Publication Date: /06// ,2024

Journal: The Journal of Hospital Infection 148, pp. 145-154

Abstract: Infection prevention and control (IPC) professionals are key intermediaries between hospital managers and frontline staff. During the novel coronavirus disease pandemic, IPC professionals faced new challenges. Unfortunately, research on human resource management (HRM) to support IPC during and between pandemics is lacking. Therefore, this scoping review aimed to elucidate the existing knowledge on HRM measures in this context and thus contribute to the pandemic preparedness of healthcare facilities. It was conducted as part of the "PREparedness and PAndemic REsponse in Germany (PREPARED)" project within the Network University Medicine (NUM), using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) checklist. PubMed was searched without time restriction until 2023 (filter: English, German). Two reviewers assessed titles/abstracts and full texts, respectively. A total of nine publications were included, eight of which were published in the USA. All publications reported survey data (quantitative: six). Measures targeting personnel development and the qualification of IPC personnel were reported in six studies, i.e., almost two-thirds of the studies, of which five focused on the tasks of IPC professionals. In contrast, management of personnel costs and remuneration systems were reported less frequently (three studies), and only regarding issues around retention, compensation and dismissal. In conclusion, research gaps include trials on implementation and effectiveness of HRM for IPC. Given the increasing shortage of IPC professionals, HRM measures during and between pandemics become more important for establishing pandemic preparedness. (Copyright © 2024 The Authors. Published by Elsevier Ltd.. All rights reserved.)

15. Improving infection prevention could avoid 750 000 deaths a year, say experts

Authors: Wise, Jacqui

Publication Date: /05/28/ ,2024

Journal: BMJ (Clinical Research Ed.) 385, pp. q1163

16. Statistical Outcomes Guiding Periprosthetic Joint Infection Prevention and Revision Are Fragile: A Systematic Review of Randomized Controlled Trials

Authors: Yendluri, Avanish;Gonzalez, Christopher;Cordero, John K.;Hayden, Brett L.;Moucha, Calin S. and Parisien, Robert L.

Publication Date: /07// ,2024

Journal: Journal of Arthroplasty 39(7), pp. 1869-1875

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