Infection prevention and antimicrobial stewardship: important in all settings

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Abstract. The application of epidemiologic and scientific principles together with statistical analysis to prevent or reduce the rates of infection defines infection control and has been shown to be cost-effective. However, infection control in acute hospitals is only the very beginning. In order to effectively prevent infection, infection control programs need to expand to other settings. This themed edition of Healthcare Infection highlights issues relevant to infection control and antimicrobial stewardship (AMS) outside of the acute hospital setting.

Sia and Levy describe the problem posed by the not infrequent and illicit practice of tattooing in prisons. Tattooing with makeshift equipment has been shown to pose a risk for bloodborne virus transmission and bloodstream infection and has been linked to injecting drug use within the prison system. As highlighted by the authors, harm reduction strategies in prisons, which include elements such as bloodborne virus testing and condom provision, do require expansion to incorporate infection control standards for regulated and safer tattooing practices.

Also in this edition, Stuart and her colleagues present the results of a pilot study of nurse-led antimicrobial stewardship (AMS) within residential aged care facilities (RACFs). High rates of antibiotic use in RACFs promote colonisation and infection with multidrug-resistant (MDR) organisms, and as a result these facilities serve as an important reservoir for resistant bacteria. This pilot study is very timely as the widespread and inappropriate use of antibiotics in RACFs has been reported in Australia, and international guidelines for infection control and prevention have strongly recommended the initiation of AMS programs in the RACF setting.

The intervention described by Stuart et al. utilised an infection control clinical nurse consultant and comprised education, monitoring of pathology results, discussions between general practitioners and an infectious diseases specialist and twice-weekly ward rounds. The educational program placed special emphasis on avoiding treatment of asymptomatic bacteriuria, which has been highlighted as a key area to be targeted by AMS in RACFs. This pilot study demonstrated a significant reduction in total days of antimicrobials prescribed, especially for urinary tract infection (UTI) and skin and soft tissue infection. While the authors do not elaborate on the costs of such a nurse-led AMS program, it is likely that this type of AMS in RACFs is broadly applicable to the Australian setting. Furthermore, nursing staff may be in the best position to champion AMS programs in RACFs as they have the most consistent presence and can act as intermediaries between specialist clinicians, GPs and nurses.

Also in this themed edition of Healthcare Infection, Pasay and others describe the prominent themes that emerged through a focus group project with pharmacists on AMS policies and resources. These Canadian researchers found that there were many challenges and barriers to AMS, including the need to establish AMS teams, provide education about prescribing and disseminate the content of AMS policies. In this focus group, pharmacists saw AMS as an additional duty in which their ability to influence antimicrobial utilisation was dependent on relationships with prescribers. Consistent with other AMS experts, focus group members were especially concerned about antimicrobial utilisation in the outpatient setting, in surgery and in treatment for UTI.
Another important aspect of infection prevention is environmental cleaning and disinfection,1 but monitoring of cleaning effectiveness by visual inspection does not provide a reliable assessment of either the level of contamination or infection risk for patients.22 ATP (ATP) is an enzyme present in all living cells, and ATP bioluminescence assay has been validated as an effective tool for monitoring the cleanliness of hospital surfaces.23,24 Colbert and colleagues have studied the use of the ATP bioluminescence assay in confirming surface disinfection with vapourised hydrogen peroxide (VHP).25 This study of VHP disinfection against experimental contamination with Acinetobacter baumannii, MRSA and Klebsiella pneumoniae illustrated multiple log-reductions in these bacteria using standard culture, however ATP bioluminescence failed to demonstrate a large difference in reductions in these bacteria using standard culture, however ATP bioluminescence failed to demonstrate a large difference in reducing MRSA and Klebsiella pneumoniae as a positive correlation has been found between ATP levels and surface contamination.26 The core principles of infection prevention and optimal treatment are important in both non-hospital healthcare settings and within acute care hospitals, and resources and commitment to the application of these principles in all settings is urgedly needed.

This themed edition of Healthcare Infection highlights several issues relevant to infection control and AMS in multiple settings. The enormous extent of the scope of practice for infection control practitioners has been highlighted by Hall and others, and serves as a cautionary tale about the potential difficulties with further role expansion in implementing national policy with current staffing levels.26 The core principles of infection prevention and optimal treatment are important in both non-hospital healthcare settings and within acute care hospitals, and resources and commitment to the application of these principles in all settings is urgently needed.

Conflicts of interest
None declared.

References


