Original article

Reduction in the incidence of hospital-acquired MRSA following the introduction of a chlorine dioxide 275ppm based disinfecting agent in a district general hospital

1. Geraldine Conlon-Bingham[1,2],
2. Mamoon Aldeyab[2],
3. Mary P Kearney[3],
4. Michael G Scott[2],
5. Naomi Baldwin[3],
6. James C McElnay[1]

Author affiliations

Abstract

Background Methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* are major nosocomial pathogens whose control relies on effective antimicrobial stewardship and infection control practices. This study evaluates the impact of a chlorine dioxide-based disinfectant (275 ppm) on the incidence of hospital-acquired (HA) MRSA and HA-*Clostridium difficile* infection (CDI) in a district general hospital.

Methods This study was carried out from November 2009 to September 2013. From November 2009 to October 2011 sodium dichloroisocyanurate was used for routine environmental disinfection. **In November 2011, this was changed to a chlorine dioxide 275 ppm based disinfectant. This product was introduced into the hospital in a phased manner with intensive training on its use provided to all nursing, nursing auxiliary and hotel services staff. The effect of this change on the incidence of HA-MRSA and HA-CDI was assessed using segmented regression analysis of interrupted time series. In addition, the potential cost savings as a result of this intervention were assessed.**

Results The HA-MRSA trend from November 2009 to October 2011 significantly increased (p=0.006). **Following the introduction of the chlorine dioxide-based disinfectant there was significant decrease in the HA-MRSA trend, with the monthly incidence being reduced by 0.003 cases/100 bed days (p=0.001), equating to an average of four cases per month after 12 months of use This resulted in an annual potential cost saving of £276 000.** No significant effect on the incidence of HA-CDI was observed (coefficient −0.03; p=0.873).

Conclusion This study highlights the importance of effective environmental inanimate surface decontamination in controlling the spread of MRSA and the potential cost savings that can be achieved through decreasing HA-MRSA rates.