UK healthcare workers’ knowledge of meticillin-resistant *Staphylococcus aureus* practice guidelines; a questionnaire study

R.R.W. Brady a,*, C. McDermott b, F. Cameron c, C. Graham d, A.P. Gibb e

a Academic Coloproctology, University of Edinburgh, UK
b College of Medicine and Veterinary Medicine, University of Edinburgh, UK
c NHS Lothian Infection Control Services, St John’s Hospital, Livingston, UK
d Epidemiology and Statistics Core, Wellcome Trust Clinical Research Facility, University of Edinburgh, UK
e Department of Microbiology, Royal Infirmary of Edinburgh, UK

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**Summary**
Effective infection control practice requires knowledge of and adherence to contemporary infection control guidelines. Utilising a novel questionnaire tool, we evaluated knowledge of recently published guidelines on meticillin-resistant *Staphylococcus aureus* (MRSA) precautions in a number of relevant healthcare worker (HCW) populations. The questionnaire was developed from national UK MRSA practice guidelines and consisted of 10 ‘true or false’ statements. The questionnaire was utilised to assess knowledge in 293 participants from HCW and control populations. The participants included 188 doctors attending the British Medical Association’s Annual Representatives Meeting, 52 trainee surgeons attending the Association of Surgeons in Training annual conference, 30 members of a non-clinical control population and 23 infection control nurses (ICNs). The mean (SD) score for knowledge levels obtained from doctors was 6.6 (1.68), for non-clinical control population was 4.7 (1.8) and for ICNs, 8.4 (1.12). There were significant differences in knowledge levels between different population groups (*P* < 0.001), UK employment region of the participant (*P* = 0.01) and the doctors’ medical specialty (*P* = 0.02). Career seniority and gender of the participant were not significantly associated with differences in levels of knowledge. This questionnaire study evaluates a novel discriminatory questionnaire tool which differentiates knowledge.
levels of MRSA practice guidelines among a non-clinical population, HCWs and specialist infection control staff, thus providing a means for the rapid assessment of MRSA educational interventions. We identify demographics within HCW target populations which are associated with low levels of such knowledge. Consideration towards revising current HCW educational programmes to improve knowledge and best practice in MRSA prevention is required.

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Introduction

Research suggests that healthcare workers (HCWs) who are compliant with standard precautions in infection control are more likely to have adequate knowledge of those precautions, compared with their non-compliant colleagues.1–3 Influencing knowledge has a more sustainable effect than indirect manipulation of behaviour alone, and therefore, improvements in generic knowledge of infection control and use of evidence-based guidelines, should be a priority for those aiming to change HCW behaviours towards best practice.4,5 Over the last decade, the increased health burden associated with meticillin-resistant Staphylococcus aureus (MRSA) hospital-acquired infections (HAIs) has resulted in the production of specific national guidelines outlining MRSA infection control practices in many different countries, including the UK.6,7 Despite this, knowledge of and compliance with infection control guidelines among HCWs remains consistently poor.5–8

Assessing levels of HCW knowledge of MRSA guidelines is currently non-standardised, thus preventing comparisons between individuals, HCW populations and those in different healthcare institutions or receiving differing educational interventions. Here, we aimed to develop a rapid and simple questionnaire tool to evaluate the knowledge levels of national contemporary MRSA practice guidelines, among a large cohort of UK HCWs. We also aimed to identify specific HCW demographics and variables associated with poor knowledge levels of MRSA practice guidelines which would be of interest to those planning future infection control educational programmes.

Methods

The investigators generated 20 true or false statements based on text from contemporary evidence-based UK MRSA practice guidelines.7 Statements were forwarded to three external and independent experts in microbiology and infection control (see Acknowledgements). Eleven of the 20 statements reached unanimous consensus among the experts as containing information at a level that was clinically relevant and evaluated a reasonable expectation of knowledge of MRSA practice guidelines in a HCW population.

The 11-statement questionnaire was initially trialed in a pilot study of 52 surgical trainees attending the 2007 Association of Surgeons in Training conference (ASIT) in Belfast, Northern Ireland.9 Subsequent to this pilot study, a review of the acceptability of the questionnaire occurred. Feedback from participants during the study suggested the removal of one statement which had proven contentious, as it referred to issues outside of the hospital environment, referring to cross-contamination within ambulances. All other statements were deemed appropriate and acceptable by the vast majority of the studied populations. Surgical trainee questionnaires were then reanalysed, excluding the redundant statement, to generate scores relevant to a 10-statement questionnaire (Box 1).

Using the 10-statement questionnaire, the questionnaire was then trialed in a large cohort of doctors from a broad spectrum of medical specialities at the 2008 British Medical Association Annual Representative Meeting (BMA ARM) in Edinburgh, UK. Of the 461 delegates attending, 188 (40.8%) participated in completing the questionnaire. Data on participants’ gender, country of employment, medical specialty and seniority were obtained.

In order to provide positive and negative control populations with respective assumed high and low levels of knowledge of MRSA clinical practice guidelines, 30 non-clinical research and scientific staff at the Medical Research Council Human Genetics Unit (MRC HGU), Edinburgh, were asked to complete the questionnaire tool. All of those approached participated in completing a questionnaire. This targeted population was chosen from those who were scientifically literate but had not received previous infection control training, medical or clinical experience. To provide a positive