

Research at the cutting edge of practice

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Accepted for publication: 19 November 2005

Key words: Healthcare-associated infections, infection prevention and control, HCAI Research Network, MRSA, statistical process control, clinical effectiveness, education and training, systematic reviews

Summary

Success in reducing the rate of preventable healthcare-associated infections in the NHS can only occur if infection prevention and control practice is firmly based on the best available evidence of effectiveness. We know best evidence when we see it, because we have systematically searched for it, appraised its methodological quality and assessed its clinical relevance. Without evidence, we would be back in the dark ages of practice, being guided only by diverse expert opinion and ritual. Identifying evidence and processing it so that the best available evidence can be incorporated into everyday clinical practice is an essential component of HCAI research. Developing new areas of enquiry to expand the evidence base for preventing infection during health care is equally important. As the Department of Health this month establishes a national HCAI Research Network in the Richard Wells Research Centre at Thames Valley University (TVU) London, this review describes the work of the only nursing research centre in a British university focused on preventing HCAI.

Introduction

The Department of Health chief medical officer's report *Winning Ways* (Department of Health, 2003) set out the priorities for healthcare-associated infection (HCAI) research, including the need to develop a national network for this research. In response to this requirement, the Department of Health is transferring the responsibility for the management of Department of Health-funded HCAI-related research to a newly established national HCAI Research Network at TVU.

The network will be directed by Professor Robert Pratt and supported by a group of senior research staff. The initial aims of the network have been agreed (Box 1) and, with the appointment of a principal research officer to manage day-to-day business, the network will become operational in January 2006.

Professional research consortium

Research in our centre always involves close collaboration with specialist organisations and associations, especially the Infection Control Nurses Association (ICNA). We are now leading the establishment of a research consortium that will bring together the ICNA, the Hospital Infection Society (HIS) and the British Society for Antimicrobial Chemotherapy (BSAC) in a collabora-

Box 1: The aims of the HCAI Research Network

- Establish a focus for the strategic development of HCAI research
- Explore with other research funders how best to bring relevant research into the managed Network
- Provide a resource for the management of Department of Health-funded HCAI-related research
- Provide advice and assistance with the development of specific Department of Health research topics
- Develop research at TVU that supports the Department of Health HCAI action plan.

tion that will influence and contribute to the Department of Health policy research programme and initiate other funded research (Box 2).

The epic initiative

This initiative is a series of long-term government commissioned research projects focused on contributing to the development of the evidence base that underpins infection prevention and control practice in the NHS.

Funded principally by the Department of Health, all phases of epic involve extensive collaboration with key stakeholders in this field, especially the ICNA, the HIS, and the Health Protection Agency (HPA).

epic update

The original national evidence-based guidelines for preventing HCAI in hospitals and acute care facilities in England (the epic guidelines) were commissioned by the Department of Health and developed by us four years ago (Pratt, 2001). Following this, we were then commissioned by the National Institute for Health and Clinical Excellence (NICE) to develop a similar set of evidence-based guidelines focused on preventing HCAI in primary and community care settings (National Institute for Clinical Excellence, 2003; Pellowe, 2003).

A central feature of evidence-based guidelines is that the underpinning evidence is reviewed and updated on a regular basis. Consequently, last year we conducted multiple systematic reviews and published relevant new evidence pertinent to the

Box 2: The prime interests of the Professional Research Consortium

- Influence the commissioning of research to inform the prevention and management of HCAI in healthcare settings
- Undertake clinically based research projects that provide contextual evidence of effective measures that are both practical and cost-effective in preventing HCAI
- Undertake research that assesses the sustainability of interventions and provides an understanding of the organisational and individual factors that facilitate success in preventing HCAI
- Evaluate the impact of HCAI policy initiatives on the knowledge, understanding and practice of healthcare staff
- Provide ongoing systematic reviews of the quality of evidence for the prevention of HCAI and translation into clinically relevant and useable evidence-based guidance.

epic guidelines (Pellowe, 2004).

Since then the Department of Health has commissioned us to update and rewrite these guidelines. Final systematic reviews are now taking place and the updated epic guidelines will be published in early 2006.

epic evidence review of the microbiological and social significance of uniforms and uniform policy in the prevention and control of HCAI

This review was commissioned by the Department of Health to inform the development of evidence-based policy and guidance for minimising potential risks of transmitting or acquiring infections from contaminated uniforms and clothing worn during healthcare activities (Box 3).

It will include both a review of literature appearing in peer reviewed journals and data produced by national governments, professional organisations and learned societies that are available as hard copy or can be accessed electronically or through personal communication. The review team will report to the Department of Health by the end of February 2006.

epic – enhancing the evidence base for infection prevention and control practices in the UK (CHART)

In February 2003 we commenced the initial planning stage of a two year national clinical trial to ascertain if the incidence of hospital-acquired methicillin-resistant *Staphylococcus aureus* (MRSA) colonisation/infection could be reduced by using statistical process control (SPC) feedback and a structured diagnosis of the underlying causes of MRSA acquisition.

Known as CHART, this study is funded by the Department of Health and builds on preliminary findings from a study conducted previously by some of the members of the research team that found SPC feedback could lead to a reduction in the incidence of MRSA acquisition (Curran, 2002).

In collaboration with the ICNA and 24 NHS trusts throughout the UK, this study commenced in April 2004 with the monthly data collection and reporting from three wards in each of the 24 recruited centres – 72 hospital wards in all.

One ward in each centre receives SPC feedback alone, another receives SPC feedback and is using Pareto and Fishbone charts to aid their problem diagnosis and decision making, and the third is acting as a control ward by continuing to use the same infection control procedures as all the other wards in that centre.

Using a multi-centre controlled experimental design, this study is being conducted over 24 months and the results will be pub-

lished in 2006 in a research report to the Department of Health and as a peer reviewed journal article. In addition, we published a project update in 2004 (Harper, 2004) and the overall findings will be presented at national and international scientific conferences.

This project is important because it uses a 'surveillance with feedback methodology' to address a serious public health concern along with tools to diagnose the significance of local infection control problems.

This study also aims to systematically explore the complex dynamics of decision-making and actions taken by practitioners in response to surveillance data feedback.

epic MRSA evidence review – systematic review of interventions to prevent the transmission of MRSA in hospitals

This systematic review, commissioned by Department of Health on behalf of the Joint MRSA Working Party, was undertaken to inform the development of the new national guidelines for preventing MRSA transmission in hospitals.

The review assessed the quality of evidence published between 1996 and 2004 on the effectiveness, and associated economic costs, of a range of interventions to prevent and control the transmission of MRSA in hospital settings and included environmental hygiene, feedback of surveillance data, patient isolation, the use of decolonisation strategies, and screening interventions. The full review will be published in the *Journal of Hospital Infection* in early 2006.

epic continuous evidence reviews

Evidence-based guidelines provide healthcare managers and professionals with a distilled version of the best available evidence in a particular field of care. However, advances in technology and new research mean that the evidence base for a range of clinical interventions is constantly changing.

The Department of Health has commissioned us to develop processes that will ensure that clinicians and policymakers have access to timely reviews of emerging evidence related to the prevention and control of HCAI, and a mechanism for rapid responses to queries raised by ministers and policymakers surrounding the evidence base for particular interventions or aspects of clinical practice.

We will use two processes to identify and provide this evidence. First, we will conduct scheduled continuous evidence reviews which will allow us to identify, appraise and synthesise new evidence. A summary of the changes in evidence will be published annually.

In addition, we will use a rapid ad hoc review of specific issues where we will identify and synthesise relevant evidence in response to Department of Health or other government agency enquiries, such as the effectiveness of using antimicrobial-impregnated or coated urinary catheters to prevent catheter-related urinary tract infections.

Box 3: The aims of the Uniform Evidence Review

- Evaluate published evidence of the association between contaminated uniforms and other clothing worn during health care and HCAI
- Compare current national guidance on uniform dress code and levels of compliance with the effective laundering of uniforms;
- Identify contemporary data concerning the provision of staff changing facilities and services for the laundering of staff uniforms within NHS trusts
- Explore the public's perception of uniforms, professional appearance and perceived quality of care.

epic evidence-based National Infection Prevention and Control Training

At the ICNA annual conference in Torquay this year, Professor Christine Beasley, the chief nursing officer for England, launched the new National Infection Control Training programme for England.

This blended e-learning programme, based on current evidence-based guidelines for preventing and controlling HCAI (Pratt, 2001; Pellowe, 2003) was developed by us in association with Intuition Publishing Ltd (Dublin) on behalf of the Department of Health (Pratt, 2005).

Course 1 is aimed at all staff within the NHS whether clinical or non-clinical and covers an overview of HCAI, the risk to patients and standard principles. The course emphasises the importance of everyone making infection control their business. It is available in both e-learning and face-to-face formats.

Courses 2 and 3 are aimed exclusively at non-clinical staff, particularly porters, domestic cleaners and hospitality workers. Course 2 covers standard principles in greater detail with modules on hand hygiene, personal protective clothing, wastes and sharps, and environmental cleanliness. This too is available in e-learning and face-to-face formats.

Course 3 focuses on local policies and systems of working and uses video scenarios to test understanding of good practice. This course is only available in face-to-face format.

The National Infection Control Training Programme is now available online and free of charge to all NHS employees at the www.infectioncontrol.nhs.uk website.

The Richard Wells Research Centre

The Richard Wells Research Centre was established at Thames Valley University London to develop a coherent national research programme focused on providing the best evidence for preventing and controlling HCAI in the NHS.

The centre was named after Richard Wells, one of the foremost nursing leaders of our time. During his professional career at the Royal Marsden Hospital and the Royal College of Nursing, Richard was an early promoter of evidence-based practice, especially in caring for patients with HIV disease and cancer. His teaching and advocacy inspired and influenced a generation of nurses, encouraging them to strive for clinical excellence. Like Richard, we also endeavour to support nurses and other health-care workers to use the best available evidence to constantly improve the clinical effectiveness of their infection prevention and control practice.

During the last decade our success in increasing the evidence base for preventing infections during healthcare has been made possible by our extensive collaboration with infection control nurses and doctors throughout the UK.

We have benefited immensely from our close association with the ICNA, the HIS, the Department of Health in England and other professional organisations and agencies. We firmly believe that relevant research promoting clinically effective practice will make the defining difference in protecting all employees and patients in the NHS from the threat of preventable infections.

For further information on the Richard Wells Research Centre visit www.richardwellsresearch.com and www.epic.tvu.ac.uk

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