

Infection awareness in the NHS: winners and losers

Professor Robert J Pratt CBE FRCN, president of the Infection Control Nurses Association of the British Isles, examines the issues surrounding the continual problems caused by healthcare-associated infections in UK's National Health Service.

Healthcare-associated infections are a major problem in hospitals and other healthcare systems throughout the world. The emergence of multi-drug resistant strains of bacteria, such as methicillin-resistant staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE) and penicillin-resistant streptococcus pneumonia, are causing increased risk to many vulnerable patients.

The prevalence of healthcare-associated infections in National Health Service (NHS) hospitals in England has hardly declined over the last decade, affecting approximately 9 per cent of all hospital in-patients annually. This equals an estimated 321,000 hospital infections each year, which cost the NHS approximately £1bn every year. These infections also add an extra 11 days of hospitalisation to infected patients, which causes further delay to others waiting for admission. In addition, healthcare-associated infections directly cause the deaths of 5000 patients and contribute to the deaths of a further 15,000 patients each year.

Nosocomial infections associated with the use of medical devices, for example urinary catheters, central venous catheters and endotracheal tubes used in patients requiring mechanical ventilation, are responsible for the majority of infections acquired in hospitals. In Europe, the USA and Australasia, catheter-related urinary tract infections (CR-UTI) are among the most common healthcare-associated infections encountered in hospitals; central venous catheter-related bloodstream infections (CR-BSI) and ventilator-associated pneumonia (VAP) are among the most serious.

When patients are harmed as a result of medical and nursing interventions or lack of effective preventative measures, they lose confidence in the ability of their health service to care for them safely. As society becomes more litigious, this loss of faith and sense of injury may increasingly drive many to seek redress in the courts.

Introduction of evidence-based guidelines

Although not all healthcare-associated infections can be avoided, many can and it has been estimated that up to a third of these infections could be prevented. The introduction

of clinical governance into the NHS to facilitate continuous quality improvements in clinical care has accelerated an increasing emphasis on patient safety. This includes renewed effort to minimise the risk to patients of acquiring a new infection as a result of healthcare. However, the real impetus for prioritising infection prevention and control in the NHS was a new Department of Health strategy for combating infectious diseases.

Clinical effectiveness is an important feature of clinical governance and requires that clinical care and the delivery of services is based on the best available evidence of clinical and cost effectiveness. This prompted the commissioning of national evidence-based guidelines for preventing healthcare-associated infections, which were developed and subsequently issued by the Department of Health and the National Institute for Clinical Excellence (NICE). These guidelines, designed to influence more detailed local protocols, are systematically developed broad statements of good practice based on the best available evidence. They describe standard principles for preventing infections, which can be used in all general care settings. They also provide guidance for preventing infections associated with the use of select medical devices, for example urinary catheters, central venous catheters and enteral feeding systems. Evidence-based guidelines for preventing healthcare pneumonia, including VAP, have recently been produced by the Centers for Disease Control and Prevention (CDC) in the USA.

It is intended that the availability of high-quality evidence-based infection prevention and control guidelines for preventing many of the most common and serious healthcare-associated infections will encourage more clinically effective practice, which in turn will result in a reduction in infection rates and enhanced patient safety. However, it is unlikely that the passive dissemination of sound scientific evidence in the form of practice guidelines will by itself result in a reduction of healthcare-associated infections.

Ensuring that evidence is acted upon

For evidence to influence clinical practice, it must first

become actively disseminated throughout a healthcare organisation. It needs to be assessed for its applicability to the context of the local healthcare environment, and then appropriately assimilated into detailed local guidelines (protocols). These need to be developed by a representative group of users, in other words clinicians who will actually implement them and who have insight into how evidence is obtained, appraised, graded and appropriately integrated into local clinical practice guidelines.

Following the production of local guidelines, healthcare practitioners and support personnel then require ongoing in-service education and training to ensure that they understand how to incorporate guideline recommendations into everyday, routine infection prevention and control practice. Adherence to the detailed practices and standards described in local guidelines needs to be audited and audit results imaginatively fed back to staff and in-service trainers. In England, the evidence-base for national guidelines produced by NICE is updated on a regular basis, usually every two to four years. New evidence, or a re-appraisal of previous evidence, may indicate that the guidelines require adjusting. If so, that process commences, as a central feature of evidence-based guidelines is that they are reviewed and, if necessary, renewed, on a timely basis. When newly updated national guidelines are issued, they need to be disseminated to all healthcare organisations and the cycle of integrating new evidence into local guidelines, as described above, begins all over again.

Problems of non-compliance

Some healthcare organisations are very successful at incorporating evidence into clinical practice – some are not. For example, the above guidelines make recommendations for using proven preventative practices to reduce the infection risks associated with the use of common medical devices. Yet findings from a study conducted by the UK National Audit Office in 2000 concluded that there was further scope for improvement in audit and compliance with infection control guidelines. Studies in the USA have also found that non-adherence to evidence-based recommendations was common.

It seems so simple – the best evidence to better protect our patients from the threat of healthcare-associated infections is systematically searched for, retrieved, scientifically appraised, categorised and then carefully distilled into evidence-based practice guidelines. It is then used by practitioners to improve infection prevention practice and the rates of healthcare-

associated infections decrease; end of story. But it is not – it is more complex than this and we often do not really comprehend the organisational and individual behaviours involved in being aware of evidence, understanding it and using it consistently in clinical practice to protect patients.

We need to develop a better understanding of the factors that influence some NHS organisations to translate successfully and effectively evolving best evidence for efficacy into local clinical practice. We also need to know how those factors operate or do not operate in organisations that lack success in consistently using evidence continuously to improve the quality of their infection prevention, control practices and service. We need to learn the characteristics of ‘winning’ and ‘failing’ healthcare organisations so that we can adapt and support those positive characteristics and organisation traits throughout the service that will result in more healthcare organisations becoming ‘infection aware’: enthusiastically and consistently using best evidence to prevent healthcare-associated infections and enhancing patient safety.

Technological developments help fight infection

New technologies and products that may help minimise the risks to patients of acquiring infections during periods of healthcare are constantly emerging. Some, such as alcohol hand decontamination preparations, have already been tested in large trials, found effective and have now entered clinical practice. Evidence is emerging that silver alloy coated urinary catheters may be both effective (and cost-effective) in preventing CR-UTI. Likewise, antiseptic or antimicrobial-impregnated central venous catheters have demonstrated cost-effectiveness and efficacy in preventing CR-BSI in some circumstances. Engineering out the potential for human error remains a prime goal of commercial innovation and undoubtedly more products and devices will come forward that will require careful appraisal for both clinical efficacy and cost-effectiveness. But when that appraisal reliably demonstrates their value, they should be quickly introduced into the service.

Time is moving on and we have long past the point where we tolerated a situation where our patients developed a preventable infection as a result of our care (or lack of it). We understand the evidence that underpins effective measures to prevent healthcare-associated infections, we just do not understand the complex dynamics of why evidence in guideline recommendations is not universally incorporated into clinical practice. It is time we did. [ehd](#)