

# Controlling healthcare-associated infections in the NHS

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**ABSTRACT** – The prevention and control of healthcare-associated infection (HCAI) is a priority for the NHS. The delivery of national targets for reducing methicillin resistant *Staphylococcus aureus* bacteraemias and *Clostridium difficile* infection are supported by enhanced mandatory surveillance through the Health Protection Agency and a Department of Health improvement programme that promotes policies and protocols for enhancing clinical procedures and places infection prevention and control at the centre of clinical and corporate governance. The Health Act 2006 Code of Practice makes such policies and protocols a legal requirement and compliance will be assessed by the Healthcare Commission. Clinicians must recognise their responsibilities for patient safety and take a lead role in ensuring good practice to reduce HCAI.

**KEY WORDS:** care bundles, *Clostridium difficile*, Code of Practice, healthcare-associated infections, methicillin resistant *Staphylococcus aureus*, NHS targets

The challenge of healthcare-associated infections (HCAIs) in the NHS is clear. As headline examples, there were 6,381 reports of methicillin resistant *Staphylococcus aureus* (MRSA) bacteraemia in England in 2006–7, an encouraging reduction from the previous five years of mandatory surveillance which had peaked at 7,700 in 2003–4. The Health Protection Agency’s (HPA) voluntary reporting scheme for all bacteraemias had shown an exponential rise in MRSA cases through the 1990s. Reporting of *Clostridium difficile* infection (CDI) had also shown a rapid rise; from less than 1,000 in 1990, reports from England, Wales and Northern Ireland had reached 22,000 by 2001, and almost 50,000 by 2005. Mandatory reporting of CDI in patients over 65 years old in England was introduced in 2004 and there were 55,681 reports in 2006. Patients over 65 years old represent around 80% of all CDI cases.

Addressing these challenges brings together a combination of biology, clinical medicine, politics and performance management. Who carries responsibility for HCAI? Clinicians have a direct responsibility to deliver safe care for their patients. The diagnosis, treatment, prevention and control of infections in patients are a clinical professional

responsibility. Similarly, hospital (NHS trust) managers have a responsibility for providing an environment and facilities within which safe care can be delivered, and operational systems that focus attention on staff delivering best clinical practice in infection prevention and control. The government and Department of Health (DH) also have responsibilities. They need to set standards for clinical care and ensure that infection prevention and control is a priority within NHS management, to have systems in place to monitor outcome and to ensure that the risk of infection is minimised through legislation and performance management.

Why have we reached this state? Part of the reason has been a failure to recognise the impact and importance of infection on medical care overall for the last quarter of the 20th century. A dichotomy developed between infection specialists and many other aspects of modern medicine and at a general policy level, infection was considered to be conquered (by antibiotics and vaccines) and no longer a priority. Microbiologists and infection specialists were kept busy: there were new antibiotics; new societies were formed and new journals published; guidelines on infection prevention and control were developed; and at least 25 new infectious diseases were identified in that period. But infection investigation, prevention and control were left to the medical microbiologists, infectious disease physicians and infection control practitioners. Elsewhere in medicine, modern developments delivered increased life expectancy (and more vulnerable elderly patients); cancer treatment became increasingly effective (but with many more immunosuppressed patients); complex surgery became increasingly successful in fields such as cardiac, orthopaedic and neurosurgery; and there was greater success in controlling chronic illnesses. Infection was a nuisance, sometimes a frustration, against this background of major medical advances.

The biology did not support the view that infection was no longer important. Infection differs from other medical problems because it spreads and for any infection there is an important element of public health and infection control as well as individual patient care. The biology of infection is fascinating because of the interactions between microbial and human populations, and the impact of human behaviour on those interactions.

Knowing the size of the problem is essential for

developing a control strategy. The Nosocomial Infections National Surveillance Scheme (NINSS) began in 1977 and sought voluntary reporting of data on bacteraemias and surgical site infections. Concern about the increasing problems of HCAI led to the introduction of mandatory surveillance of MRSA bacteraemias in 2001, followed in 2004 by CDI in patients over 65 years old (extended to all ages by 2007), glycopeptide-resistant enterococcal bacteraemias and orthopaedic surgical site infections. Infection was reinstated as a priority area for the NHS in the Chief Medical Officer's (CMO) strategy for infectious diseases in 2002.<sup>1</sup> This identified HCAI, tuberculosis, blood-borne and sexually transmitted infections, and antimicrobial resistance as the key priorities. Healthcare-associated infections then became a major media and political issue. The CMO's strategy for HCAI was published in December 2003<sup>2</sup> and in July 2004 the National Audit Office published a follow up to its 2000 report on hospital infection which was critical of slow progress.<sup>3</sup> The DH response was an action plan entitled *Towards cleaner hospitals and lower rates of infection* which included the decision to create an NHS target to 'halve MRSA infections by 2008', specifically MRSA bacteraemias reported under the mandatory scheme.<sup>4</sup> There was also a three-year improvement programme to support target delivery. The target depends upon accurate data returns and NHS trusts have to provide monthly returns of their MRSA bacteraemia numbers to the HPA. These returns, along with those for CDI, are now published every three months.

Although the focus of the 2008 national target is MRSA, local targets for reduction in CDI were introduced in April 2007 and April 2008 sees the introduction of a national target to reduce CDI by (at least) 30% by 2011. The DH programme also recognises the need to be vigilant and to prevent and control infection with other agents such as glycopeptide-resistant enterococci, *Escherichia coli* that produce extended spectrum beta-lactamases, *Acinetobacter baumannii* and norovirus.

The importance of infections beyond MRSA came to the fore in June 2005 with media reports of the outbreaks of CDI at Stoke Mandeville Hospital and elsewhere. Guidance on the prevention and management of CDI had been issued by DH and the Public Health Laboratory Service in 1994 and was still generally appropriate,<sup>5</sup> but it was clear that it was not being applied effectively. A survey of NHS trusts by the Healthcare Commission (HCC) and the HPA published in December 2005 showed that many trusts were not compliant with one or more of the following: antibiotic policies; prevention; management; infection control; or reporting.<sup>6</sup> An advisory letter from the CMO and the Chief Nursing Officer (CNO) to all trusts in December 2005 reminded them of the key issues in controlling CDI.<sup>7</sup> The HCC had been asked by the Secretary of State to investigate the Stoke Mandeville outbreaks and its report was published in July 2006.<sup>8</sup> A further letter was issued to the NHS from the CMO, the CNO, the Chief Pharmacist and the Chief Executive of the NHS in December 2006.<sup>9</sup> This gave more detailed advice on the need for prudent antibiotic prescribing, prompt diagnosis of CDI, prompt and effective isolation or cohorting of patients with CDI, improved infection control

measures and enhanced environmental cleaning in areas where there are CDI patients. The further report from the HCC on CDI at Maidstone and Tonbridge Wells NHS Trust in October 2007 reinforced the message that much still needs to be done.<sup>10</sup>

The aim of the HCAI programme can be seen as changing the mindset of clinicians and managers in the NHS from a focus that creates an expert system to deliver specialist clinical care within which measures should then be taken to prevent infection, to a system that initially provides a safe environment for patient care and then delivers the specialist care within that environment. This needs to be coupled with improving clinical and management practices.

The HPA enhanced surveillance system provides more details of where and when infections are occurring and in what types of patients. Clinical practice protocols have been developed to reduce the risk of infection while delivering healthcare. There has been an increased emphasis on cleanliness and hygiene focused on hand hygiene, through the use of alcohol handrubs as well as hand washing, and environmental cleaning with disinfection in areas where there are, or have been, infected patients. The management systems within the NHS have been impelled to place much greater emphasis on infection control, including HCAI reduction in personal development plans and objectives, and training has become an essential requirement for all NHS staff.

A key role of the DH's HCAI programme and partner agencies is to provide the NHS with tools to address HCAI. The National Patient Safety Agency's (NPSA) *cleanyourhands* campaign has raised awareness and improved compliance with hand hygiene.<sup>11</sup> Results are still not perfect and continual reinforcement is needed among clinical staff. The Patient Environment Action Team inspections for cleanliness in NHS trusts have shown significant improvements in cleanliness over recent years. Probably the most important aspect of preventing HCAI, however, is ensuring that clinical procedures performed on patients are done properly and with appropriate infection control precautions on every occasion. The *Saving lives* toolkit was first issued in June 2005 and revised in 2007.<sup>12</sup> It comprises a self-assessment tool for trusts to assess their state of managerial and clinical performance in infection prevention and control, and a set of high impact interventions based on the care bundle approach. Trusts have to score their performance in the 11 core duties of the 2006 Code of Practice. The high impact interventions are simple guides to the five or six key elements of a clinical procedure that need to be performed properly to minimise infection risks. The procedures covered include: the insertion and management of central vascular catheters, peripheral venous lines, and haemodialysis catheters; management of surgical sites; urinary catheter insertion and care; ventilation management; and the prevention and control of CDI. *Essential steps*, issued in 2006, provides a similar approach for healthcare settings outside hospitals<sup>13</sup> and is complemented by updated infection control guidance for nursing and care homes.<sup>14</sup> A bacteraemia-specific root cause analysis tool from the NPSA also enables clinical staff to investigate the underlying causes promptly for all MRSA bacteraemias.<sup>15</sup> Updated guidance on

MRSA diagnosis, treatment prevention and control from working parties of the professional societies, commissioned by the DH, was published in three parts between January and March 2006,<sup>16–18</sup> and the second edition of the evidence-based practice in infection control (EPIC) guidelines on preventing HCAI was published in February 2007.<sup>19</sup> A further approach to breaking the chain of transmission of MRSA was advice on screening for carriage in patients entering hospital, issued in October 2006 and guidance on antimicrobial stewardship was produced in June 2007.<sup>20</sup>

It is now clearly established within the NHS that HCAI is not just the responsibility of the infection control team and the microbiologists. The board and chief executive have responsibility for leadership and management and there has to be clinical ownership of responsibility for infection at all levels. The prevention and control of infection is a responsibility of all staff within an organisation. *Winning ways*<sup>2</sup> required the appointment of a director of infection prevention and control in every NHS trust, a senior appointment reporting directly to the chief executive and board, who has the responsibility for infection prevention and control, has the clinical expertise and managerial authority to be effective, and is sufficiently senior to influence resource allocation.

The importance placed upon reducing the impact of HCAI in the NHS was shown by the inclusion in the Health Act 2006 of a Code of Practice for the Prevention and Control of HCAI.<sup>21</sup> This sets out a series of statutory requirements on all NHS bodies. Compliance with the code will be assessed by the HCC which has the authority and responsibility for issuing improvement notices requiring action to any NHS bodies deemed to be in breach of their responsibilities. The code covers areas of management, organisation and the environment, clinical care policies and protocols, and training in infection control for all healthcare workers.

The control of HCAI and the reduction of MRSA bacteraemias and CDI have been placed firmly within the performance management structure of the DH and the NHS. The DH Recovery and Support Unit has a task force that works with strategic health authority (SHA) performance managers to review the MRSA bacteraemia and CDI figures, monitor the programme activities and identify trusts for review of their *Saving lives* self-assessments and for improvement visits. For these visits, expert teams of (usually) four spend two days conducting detailed interviews with clinical and management staff with the aim to develop a local action and recovery plan to reduce the cases of MRSA and CDI. They then receive ongoing support from these teams with the help of the SHA.

Within healthcare settings, infection prevention and control is the responsibility of all clinical staff. The consultant body must take on this responsibility and be the role models and examples to junior colleagues and non-medical staff. Consultants should demonstrate their commitment to hand hygiene and aseptic clinical procedures and ensure compliance with these measures and with the care bundle approach to invasive procedures by their junior staff. They should also advocate and ensure the prompt isolation/segregation of their patients who are known or

suspected to be infected. They should be the role models for presenting a professional dress code for safe patient care that is now a requirement in all trusts – short sleeved shirts or tunics, no ties, and no wrist watches or hand jewellery (except a plain wedding ring) – for clinical duties involving direct patient contact. The basic purpose of this is to support proper hand hygiene and aseptic practice. Infection prevention and control should be central to clinical activities and training at all levels; included in all induction programmes; part of all assessments from foundation years (F)1 and F2; throughout specialist training and as part of professional qualifications; and a requirement in the continuing professional development programmes of all specialties. The responsibility for infection prevention and control should be included in consultant contracts with specific objectives that are assessed as part of annual appraisal and individual performance reviews. In this way it can be embedded as a core element of medical practice.

The focus on HCAI has been a wake-up call for the NHS. There has been a tendency to accept these infections as ‘normal’ but patients can be very ill, some can die, many stay in hospital longer than they should, and some need major surgery. Apart from the human aspects of improving medical care and reducing illness, significant NHS resources could be better used. To this end, the aim of this programme is to use the political imperative, the measurement provided by mandatory surveillance, target setting, professional support, performance management and legislation, to change human behaviour (both clinical and managerial) and overcome the biological challenge of HCAI.

### Further information

The Royal College of Physicians has established a cross-disciplinary working group on healthcare-associated infections. For further details please contact Simon Land (simon.land@rcplondon.ac.uk). For further details on HCAI please see [www.rcplondon.ac.uk/news/hcai.asp](http://www.rcplondon.ac.uk/news/hcai.asp)

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