Improving patient care by reducing the risk of hospital acquired infection: A progress report

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
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Summary

1 In February 2000 our report *The Management and Control of Hospital Acquired Infection in NHS Acute Trusts in England (HC 230 Session 1999-00)* noted that at any one time, 9 per cent of patients had an infection that had been acquired during their hospital stay. The effects varied from extended length of stay and discomfort to prolonged or permanent disability and, in at least 5,000 patients a year, death. These infections were costing the NHS as much as £1 billion a year and around 15 per cent could be prevented by better application of good practice, releasing resources of £150 million for alternative NHS use.[1]

2 We found that good practice with respect to the prevention, control and management of hospital acquired infection needed to be more widely known and that there was a lack of basic comparative information on infection rates. We were concerned that there appeared to be a growing mismatch between what was expected of infection control teams and the staffing and other resources allocated to them, and identified considerable scope to improve performance.[1]

3 The Committee of Public Accounts (the Committee) concluded in November 2000 that the lack of grip on the extent and costs of hospital acquired infections impeded NHS trusts in targeting activity and resources to best effect. In addition, the Committee said that a root and branch shift towards prevention would be needed at all levels of the NHS if hospital acquired infection were to be kept under control. Such a shift would require commitment from everyone involved, and a philosophy that prevention is everyone's business, not just the specialists.[2]

4 Since then the Department of Health (the Department) has issued various guidance and established a range of national advisory structures and expert committees to increase the priority given to this issue (Appendix 1). Yet, in the Chief Medical Officer's December 2003 report, *Winning Ways*[3], he stated that such data as are available show that the degree of improvement has been small.

5 We therefore examined whether our and the Committee's (Appendix 2) recommendations have been implemented, whether the management and control of hospital acquired infection in NHS acute trusts has improved, and whether there have been any discernible changes in patient outcomes. We also examined how other countries are addressing these issues (Appendix 3 and 4). The study methodology is summarised at Appendix 5.

Overall Conclusion

6 Implementation of our and the Committee's recommendations has been patchy. There has been notable progress at trust level in putting the systems and processes in place and in strengthening infection control teams, but wider factors continue to impede good infection control practice and there has been limited progress in improving information on the extent and costs of hospital acquired infections. Progress in preventing and reducing the number of infections acquired whilst in hospital is dependent on changing staff behaviour, but change continues to be constrained by the lack of data, limited progress in implementing a national mandatory surveillance programme that meets the needs of the NHS, and a lack of evidence of the impact of different intervention strategies. More specifically:

i hospital acquired infection now has a much higher profile and, at the central strategic level, has been accorded a higher priority with the launch of a number of key requirements;

ii at trust level, higher priority is now generally given to hospital acquired infection, but the pursuit of other key policies and priorities can adversely affect attempts to improve infection control, a task made harder by the emergence of strains of multi-resistant bacteria, increasing antibiotic resistance, and an increase in the number of outbreaks such as Norovirus reported by trusts;

iii despite some local improvements in information, the NHS still lacks sufficient information on the extent and cost of hospital acquired infection;

iv further action is required using a range of approaches to change staff behaviour to reduce the risks of hospital acquired infection.

Actions taken by the Department have increased the priority given to infection control

7 Increasing priority has been given to the management and control of hospital acquired infection at the national level, with the launch of a number of high profile initiatives culminating in December 2003 with *Winning Ways*, which aims to bring this issue into the mainstream of service developments. The 1999-2000 clinical governance[4] and controls assurance initiatives[5] have been particularly instrumental in requiring NHS trusts to put systems and processes in place to improve infection control, and in providing a framework for clinical quality improvement.

8 External reviews and inspections of trusts infection control arrangements have increased. Whilst raising the profile of infection control there is some overlap and duplication, with a focus on structures and processes, and a limited emphasis on evaluating changes in patient care. The different assessment processes can also result in contradictory findings. *Winning Ways* notes that the Department has asked the Commission for Healthcare Audit and Inspection (now known as the Healthcare Commission) to give priority to this, and they have included this in their 2004 star ratings assessment, but again the focus is on processes and procedures.

Actions have been taken by trusts but wider factors impede good practice

9 Infection control is a higher priority, with trusts making improvements to their infection control management arrangements and increasing their trust boards' involvement. Infection control team staffing levels have also increased, although wide variations between trusts remain. More teams have separate infection control budgets but the amounts vary and 24 per cent claim that their budgets have decreased in real terms. Increased demands on infection control teams with more surveillance and external inspections has meant that there remains a mismatch between expectations placed on the teams and resources allocated to them. Implementing the action areas in *Winning Ways*, whilst aimed at all NHS staff, is likely to place further demands on infection control teams. New risks, but also potential opportunities may arise from the changes to funding flows in the NHS under the Departmental initiatives *Shifting the Balance of Power*[6]*, Patient Choice*[7]*, and Payment by Results*[8].

10 The continuing problem of increasing antibiotic resistance, and the emergence of strains of multi-resistant bacteria has increased the complexity of managing and controlling infection. During the 1990s the number of reported cases of *Staphylococcus aureus* bacteraemias (bloodstream infections) have increased year on year with the number of cases of methicillin resistant (MRSA) bacteraemias increasing from less than 2 per cent in 1994 to around 35 per cent in 2001. In the three years since the Department introduced mandatory reporting in April 2001, the number of reported *Staphylococcus aureus* bacteraemias have increased from 17,933 to 19,311 (8 per cent) and the number that are methicillin resistant have risen from 7,250 to 7,647 (a 5 per cent increase). The overall proportion that is MRSA stands at 40 per cent. European Antimicrobial Resistance Surveillance System data for 2002 showed that the United Kingdom has amongst the worst rates in Europe[9]. Our survey of NHS acute trusts found that there has also been an increase in the number of infection outbreaks which have led to more wards and bays being closed for the purpose of outbreak control.

11 Preventing infections continue to be adversely affected by other NHS trust-wide policies and priorities as identified in our original report. The increased throughput of patients to meet performance targets has resulted in considerable pressure towards higher bed occupancy, which is not always consistent with good infection control and bed management practices. Seventy-one per cent of trusts are still operating with bed occupancy levels higher than the 82 per cent target that the Department told the Committee it hoped to achieve by 2003-04 after this issue was highlighted in our 2000 report. The lack of suitable isolation facilities also remains a concern for trusts, as does the increase in frequency of moving patients and a lack of sufficient beds to separate elective and trauma patients.

The NHS still lacks sufficient information on the extent and cost of hospital acquired infection

12 In contast to the Committee's recommendation that the Nosocomial Infection National Surveillance Scheme (NINSS) should be made mandatory, the Department decided to set up a Healthcare Associated Infection Surveillance Steering Group (HAISSG), to provide them with urgent recommendations on infection surveillance. The Group proposed a revised approach to mandatory surveillance, and their first action was to introduce new mandatory laboratory based MRSA bacteraemia surveillance from April 2001. In September 2002 the Group was disbanded, and responsibility for taking forward surveillance was transferred to the Public Health Laboratory Service (PHLS) which is now part of the Health Protection Agency (HPA) under a service level agreement with the Department.

13 Since then, there has been limited progress in the development, implementation and audit of other strands of mandatory surveillance. As a result, robust comparable data other than on hospital wide MRSA bacteraemia data are therefore not currently available for the NHS in England, and it is impossible to quantify with any certainty if there have been any changes in NHS trusts' infection rates. There has also been no progress in introducing a national post-discharge surveillance scheme as recommended by the Committee.

14 Our international comparisons study showed that all the countries reviewed have established surveillance programmes, but variations in protocols and numbers and frequency of hospital participation make direct comparison unreliable. Nevertheless, national prevalence studies show rates of between 4 and 10 per cent (compared with 9 per cent in the UK). During 2003 Northern Ireland, Scotland and Wales have collaborated in combining their datasets on orthopaedic surgical site infections over the last three years, which represents a major joint initiative to provide support to clinical teams in this area. In England, the Health Protection Agency implemented, new mandatory orthopaedic surveillance from April 2004, under a service level agreement with the Department.

15 In our original report we calculated that hospital acquired infections were costing the NHS around £1 billion a year. Because of the complexities involved in identifying costs, few trusts have attempted to calculate their own costs nor have any attempts been made to refine or validate this estimate. Other countries have had similar problems in developing robust up-to-date evaluations of the economic impact of hospital acquired infection, but all conclude that the cost of introducing preventative measures is less than the cost of treating such infections.

Changing staff behaviour to reduce risks requires the adoption of multiple approaches to prevention

16 Despite the increasing profile of hospital acquired infection and the publication of guidelines on the measures required to contain the problem, there continues to be non-compliance with good infection control practices. To improve practice, a major change is required so that everyone accepts personal responsibility. Feedback of specific local infection rates to clinical staff is vital in engaging them in reviewing and changing their practice.

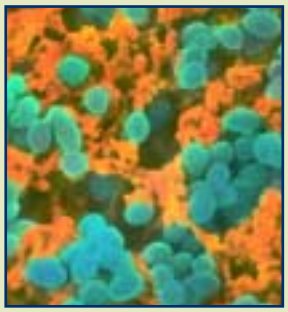
17 The new mandatory national surveillance schemes do not currently enable clinicians to identify and reduce risks within their own specialty. In the absence of ownership and access to such data, hospital acquired infection is still perceived as a problem for the infection control team to deal with, and consequently many of the issues identified as barriers to effective infection control practice in our original report still apply. Considerable improvements could therefore still be made in: the coverage of education and training in infection control to all groups of staff, particularly doctors; compliance with guidance on issues such as on hand hygiene, catheter care and aseptic technique; antibiotic prescribing in hospitals; hospital cleanliness; and consultation with the infection control team on wider trust activities such as new build projects.

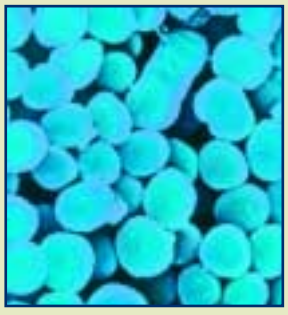
18 There is scope to improve awareness of, and improvements in, technological innovation to help engineer out risks, but there is a lack of clarity as to the evidence base required before new technologies are approved for use in the NHS. *Winning Ways* has acknowledged this, and as an initial step the Department announced that they would commission a rapid review of new procedures and products for which claims of effectiveness to prevent or control hospital acquired infection have been made.

19 *Winning Ways* sets out for the local NHS seven areas together with details of specific actions that, if implemented, should enable trusts to improve prevention and control, including:

- active surveillance and investigation of healthcare associated infection and antimicrobial resistant organisms;
- reducing infection risk by controlling the use of invasive devices, instruments and other equipment;
- reducing reservoirs of infection by improving bed management and isolation facilities;
- adoption of high standards of hygiene and clinical practice;
- prudent use of antibiotics to minimise the emergence of antibiotic resistant organisms;
- improving senior management commitment, local infrastructure and systems;
- research and development to ensure that technological breakthroughs in prevention and control are rapidly translated into benefits for patients.

Recommendations





20 Most of the above areas were included in our and the Committee's recommendations, and have also been trailed in previous guidance. But implementation and compliance has been patchy. Our recommendations are aimed at helping the Department, and NHS trusts to overcome some of the constraints and to improve implementation and compliance.

The Department should:

a clarify an implementation timetable for the various elements within the Action Areas in *Winning Ways*;

b work with the Health Protection Agency to expedite development of national mandatory surveillance in a way that meets the needs of the NHS, and which provides robust comparable data on hospital acquired infection, including information on high risk areas such as intensive care and renal units. Investment in such a system would be offset by savings from rate reductions;

c ensure that the national IT strategy accommodates the surveillance and other IT requirements of infection control with links between microbiology, prescribing and patient administration systems;

d in conjunction with the Health Protection Agency, evaluate the research in Case study C on managing outbreaks and our other findings, and commission research on bed management and isolation, and develop evidence based guidance to help trusts balance bed management and infection control requirements;

e expedite the publication of the staffing toolkit and the planned guidance on the roles and responsibilities of infection control teams. These should include clarification of the training, grade and experience required of the new Director of Infection Prevention and Control;

f actively engage with NHS commissioners to impress on them the importance that needs to be attached to trusts having effective infection control systems and processes in place and that commissioners should consider including information on infection rates in information provided under Patient Choice.

g use the opportunity from recommendations made by the Healthcare Concordat[i] to ensure that one inspection body takes the lead in assuring compliance with the new Healthcare Standards on infection control, and ensure that this is clearly linked to the Commission for Healthcare Audit and Inspection's (now known as the Healthcare Commission's) role as envisaged in Winning Ways;

h expedite the production of a national infection control manual, ensuring that it builds on the large amount of good practice that exists in individual trusts;

i continue to work with the Royal Colleges and professional bodies to ensure that infection control is a key component in undergraduate training;

j require infection control induction training to be mandatory for all staff, as for health and safety and fire safety training, and require records to be maintained on this and on regular update training; and

k as a matter of urgency, define how the rapid review process of new procedures and products is to be implemented, and how the findings will be promulgated so that they can be translated into practice at trust level with minimum delay.

i The Healthcare Concordat is a code of objectives and practices agreed by bodies inspecting health and healthcare bodies in England.

The Healthcare Commission should:

l in developing the assessment/review framework for evaluating the new Healthcare Standards, consult trusts on suitable performance indicators for infection control which measure outcomes rather than systems and processes;

m work with other bodies such as the NHS Modernisation Agency and the National Patient Safety Agency to identify and promulgate good practice.

NHS trusts should:

n clarify and explain accountabilities, including the role, membership and responsibilities of the Hospital Infection Control Committee;

o actively demonstrate the commitment from the trust board and senior management in supporting and implementing the action plans in Winning Ways by ensuring that infection control regularly features as a trust board agenda item, and consider the inclusion of compliance with infection control practice as one of the criteria in staff appraisals;

p review infection control team staffing and other resources, including the designation of the new Director of Infection Prevention and Control, and evaluate the adequacy of resources compared with the demands on the team (investment should provide commensurate improvements in rates releasing resources for alternative use);

q ensure participation in all mandatory surveillance schemes, obtaining buy in from clinical staff through shared responsibility and appropriate and timely feedback of results;

r make better use of existing data, for example on antibiotic prescribing, to gain a wider perspective of the extent of hospital acquired infection;

s ensure all staff receive induction and update training, and use the new Electronic Staff Records system to maintain records of staff education and training;

t require consultation with infection control teams to be a mandatory step in contract tendering procedures for new build projects, and for cleaning, laundry and catering services;

u demonstrate that infection control issues are included in patient and public consultations under the trusts clinical governance programme; and

v increase public awareness of and compliance with good infection control practice and encourage their active participation in improving staff and visitor compliance.