National Audit Office

WORKSHOPS ON IMPROVING THE MANAGEMENT OF HOSPITAL ACQUIRED INFECTIONS

October 2002

Background information

1. During October 2002, the National Audit Office (NAO) ran a series of workshops to identify the key concerns facing the NHS in attempting to improve the management of hospital acquired infection. Seven multi-disciplinary workshops were organised as part of the methodology for our follow-up study of our 1999-2000 report on The Management and Control of Hospital Acquired Infection in Acute NHS Trusts in England (HC 230 Session 1999-00).

2. The overall aim of these workshops was to ascertain the views of clinicians and other healthcare professionals, who have demonstrated an interest in preventing and reducing healthcare associated infections**.** The Committee of Public Accounts charged the NAO with finding out whether the recommendations they made in their report, (Treasury Minute on the Forty-second Report: Session 1999-2000) had been implemented, and to what extent this had helped reduce the risk of hospital acquired infection, and improved patient care. Views were sought on ways in which specific examples of changes in practice, control strategies and other contributory factors, might affect the management and control of infections in hospitalised patients. Also, how any observed changes might be explained, and their impact on patient outcomes.

3. Seven workshops were attended by by sixty-seven experts from various clinical disciplines (Figure 1):

    i. Group A workshops focussed on specific categories of clean surgery where the risk of infection is generally low and where an infection would have significant implications for the patient. The three categories of surgery were also ones on which the Nosocomial Infection National Surveillance Scheme had collected surveillance data over the previous five or so years.

    ii. Group B covered specific issues that were felt to be significant in the management and control of hospital acquired infections.

Figure 1

Group A Workshops – clean surgical procedures:

1. Orthopaedic surgery: hips and knees
2. Coronary artery by-pass graft and vascular surgery
3. Abdominal hysterectomy and Caesarean

Group B Workshops – miscellaneous topics related to the control and management of hospital acquired infections:

4. Hospital acquired bacteraemia including methicillin resistant *Staphylococcus aureus* (MRSA) and intravenous line associated bacteraemia.
5. Antibiotic resistance surveillance and hospital acquired infection.
6. Informatics (information technology and information management)
7. Experience from other countries' management of hospital acquired infection, and the merits of national evidence based guidelines.

Key professional groups represented were:
Epidemiologists;
Specialists in Public Health;
Medical Microbiologists;
Consultant Physicians and Surgeons;
Midwifery and Nursing staff;
Infection Control Nurses;
Informatics staff;
Medical/Nursing academics;
Clinical Pharmacist.

4. The key working objectives were to:

    i. identify key infection control issues in the specific area covered by the workshop;
    ii. develop questions and outcome measures for each of the areas of hospital acquired infection activity covered by the workshop;
    iii. identify any specific examples of changes arising from implementation of the recommendations made in the National Audit Office [1] and the Committee of Public Accounts [2] reports published in 2000, on the management and control of hospital acquired infection;
    iv. evaluate what is known collectively about outcomes;
    v. compare the commonality and differences in the findings from each workshop;
    vi. use the information from the workshops to help design the questions for the census of acute NHS trusts, which formed the main methodology for the full study stage of the investigation

5. Findings on issues examined by Group A workshops were:

    i. Whether the organisation and management arrangement for the surgical procedures (e.g. hips/knees; vascular/coronary artery by pass surgery;

abdominal hysterectomy/caesarean section) are conducive to the effective prevention and control of hospital acquired infections.

ii. Whether there are adequate data/information available to surgeons to allow them to understand the extent and cost of hospital acquired infections.

iii. The extent to which specific interventions have led to improvements in patient outcomes (including reductions in rates of infection/reduced length of stay/readmission rates etc.).

6. Because of the considerable differences in subject matter in the Group B workshops, participants were asked to consider a series of questions focused around similar issues to Group A.

Summary of workshop findings

7. Key points from the three surgical workshops (Group A).

- The surgeons participating in these groups all agreed that it was necessary to measure rates of infection but that this should be carried out as part of the continuous measurement of all postoperative complications.
- The orthopaedic and cardiothoracic surgeons preferred the concept of single national schemes for each of their specialties that would record all significant complications including surgical wound infections.
- There was also a general consensus that surgeon specific rates should be part of the clinicians' appraisal system.
- All surgeons felt that there should be ownership of these schemes by the surgeons and that it was important that there was regular feedback of results to them.
- All the surgeons present considered that superficial wound infections were of no great concern to them. However the Obstetrician present was concerned about the inappropriate diagnosis and treatment (i.e. antimicrobial therapy), in particular by General Practitioners, of non/minor infections.
- The surgeons stated that surveillance that allowed for comparison with other similar specialist units had identified higher than expected rates of infection in some instances and this had initiated audit processes and changes in practice leading to a reduction in the infection rates.
- Post discharge surveillance should be part of all complications but needed agreement on a cost effective standard methodology.
- The absence of national protocols and consequent inconsistent advice from microbiology colleagues on infection control interventions e.g. antibiotic prophylaxis, screening for MRSA and use of isolation facilities has seemingly led to widely differing practices between Trusts.
- Clear guidance on evidence based and agreed appropriate antibiotic prophylaxis regimens would be appreciated by surgeons.
- Current high bed occupancy in hospitals and patients sent to inappropriate wards (outliers) was felt to increase the risk of cross infection.
- It was considered important in ensuring a high quality of care and minimising risks that obstetric patients were cared for in a controlled environment i.e. good levels of staffing, higher ratios of trained staff, no outliers.

8. Taking each workshop in Group B individually, the key findings are as follows:

i. Hospital acquired bacteraemia including methicillin resistant *Staphylococcus aureus* (MRSA) and intravenous line associated bacteraemia.

- Chief Executive Office are aware of the mandatory MRSA surveillance scheme and consider the results (i.e. high rates of infection) to be the problem for the Infection Control Team rather than the clinicians.
- Action by the Trust was only thought necessary if rates were high despite possible opportunity to reduce mid-percentile rates.
- MRSA bacteraemia surveillance rates needed to be part of star rating if the information is to be taken seriously. However it was felt that these rates alone were not an indicator of the efficacy of infection control programmes as the infections were not necessarily acquired in the hospital.
- The mandatory MRSA bacteraemia surveillance had increased the profile of hospital acquired infection and of hand hygiene as an intervention. Concerns were raised however although *Staphylococcus aureus* accounts for 25% of hospital acquired bacteraemias, there was disproportionate emphasis on MRSA when Gram negative bacteraemia has a bigger mortality.
- Almost two thirds of bacteraemias of a known source are associated with an intravascular device or other invasive medical device (e.g.urinary catheters/ventilators) with central IV catheters as the commonest source.
- General hospital wide rates of infection are not useful to clinicians as they need individual specialty information that allows them to target prevention strategies, including long line insertion and management.

ii. Antibiotic resistance surveillance and hospital acquired infection.

- Concerns were raised that there are various methods for sensitivity testing therefore results are not comparable. Participants would like to see the development of standardised methodologies.
- There is also no agreement over a core set of antibiotics tested for groups of isolates.
- No Standard Operating Procedure to ensure species identification of innately resistant Gram negative organisms.
- In many Trusts pharmacy prescribing systems are unable to be linked to laboratory data via the hospital information system.
- Feedback of trend data in bacteria sensitivity patterns to hospital doctors and General Practitioners is highly variable across the NHS.
- There is a general lack of adherence to agreed clinical protocols on the use of prophylactic antibiotics for surgery however there is also a lack of an evidence base of the efficacy of specific antibiotics for prophylactic regimens.
- These problems over adherence to the proper use of prophylactic antibiotics is further compounded by conflicts in understanding between public health epidemiologists and clinicians of the value of prophylaxis to an individual versus the risk of increasing resistance within a population.
- Clinicians should share the responsibility for antibiotic surveillance and hospital acquired infection with the Infection Control Team and the Clinical Pharmacists .

iii. Informatics (information technology and information management (IM&T)

- There is a need to define what surveillance information is important for clinical and managerial needs.
- There is a need for an analysis of user requirements in their entirety to build a model of these requirements (including data and processes) The information could then be used as the basis by which to judge existing systems, future specifications and in-house builds.
- These defined needs then must be incorporated into Trust information systems including the Integrated Care Record Service.
- Infection control guidance should be supported by a Decision Support Systems as part of the healthcare record.
- The slow pace of IM&T developments in the majority of Trusts, and the lack of availability of denominator datasets from Trust systems, are detrimental to improving surveillance.

The final workshop in Group B was divided into two half day sessions. The subject discussed in the first session and the key findings are as follows:

iv. Evidence based guidelines and experience from other countries' management of hospital acquired infection.

- Comparison of national and specific intervention guidance of considerable potential use.
- Comparison of outcomes more complex and problematic because of variations in definitions, ascertainment and health care practice.
- Value seen in making comparison of national/regional surveillance infrastructure and approach to the management and control systems/protocols for hospital acquired infection including surveillance of antibiotic resistance.
- Collaboration between countries could lead to long term rewards.

The subject discussed in the second session and the key findings were as follows:

v. The merits of national, evidence based, guidelines.

- Agreement over the value to NHS staff of producing national guidelines that could be adapted for local and specialty use.
- There is a need for templates to facilitate local adaptation of national guidelines as there is evidence of local variability to use existing guidelines.
- Local protocols need to be developed from national guidelines by multidisciplinary teams from within Trusts.
- There is a need for further evidence based guidance.