

Establishing an infection control accreditation programme to control infection

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Abstract

Faced with increasing scrutiny from the Healthcare Commission, the Department of Health and the Strategic Health Authority, as well as a challenging Methicillin Resistant *Staphylococcus aureus* (MRSA) bacteraemias reduction target, the infection prevention and control team (IPCT) developed an accreditation programme designed to devolve ownership of infection prevention and control to clinical areas. The programme was devised as a quality improvement programme to improve patient care and has helped to ensure that evidence-based practice is embedded in everyday clinical activities within all clinical areas. The roll out of the programme started in high risk, medium risk and then low risk areas in the hospital and has contributed to significantly improved compliance with infection control policies, procedures and guidelines and a reduction in the MRSA bacteraemia rate by 39% in 2007/2008. Hospital acquired MRSA infections (detected from first isolates) also reduced by approximately 60% in 2007/2008. However, *Clostridium difficile* rates in 2007/2008 remained comparable with the previous year until early 2008, although a significant reduction is now evident.

Introduction

Sheffield Teaching Hospitals NHS Foundation Trust manages five adult hospitals in Sheffield with over 2200 in-patient beds and responsibility for a number of satellite units in the South Yorkshire region.

The hospital provides around 900,000 appointments and operations a year and offers regional specialty beds for neurosurgery, renal, ophthalmology, orthopaedic, heart and lung services and oncology, obstetrics and gynaecology, and spinal injury services. The majority of patients are from Sheffield and the surrounding areas, although around 5% of patients attend from

other parts of the country for specialist treatments. The hospitals specialise in adult care but also look after unwell newborn and premature babies. A limited specialist services for children is provided for treating around 4,500 children each year, mainly in the dental hospital and ophthalmology departments.

The team

In January 2007 the Infection Prevention and Control team (IPCT) included: eight Infection Control Nurses (ICNs); three part-time Infection Control Doctors; three Infection Control Assistants; a full-time Data Analyst (a new post in late 2007); and two part-time administration

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staff. The Director of Infection Prevention and Control (DIPC) role is shared by the Director of Nursing and the lead Infection Control Doctor who provide strong executive leadership.

The IPCT liaises daily and meets formally once a month. The nursing team also holds meetings with the infection control doctors daily and weekly. The whole IPCT meets monthly to discuss operational issues and to ensure that good communication is maintained within the team. Relevant interested parties, including representatives from occupational health, waste management and domestic services, are also involved.

Two antibiotic pharmacists were recently appointed to the hospital. The IPCT has been developing a close working relationship with them and they usually attend its monthly meetings. The ICNs have also a close working relationship with bed managers and attend daily bed management meetings during outbreaks and ward closures, as well as circulating electronic reports to the appropriate senior managers to ensure that everyone is kept updated.

The IPCT provides a quarterly infection control update for the hospital staff magazine and also the patient/visitor magazine. A monthly update, which is accessible to all staff, is also provided on progress towards the MRSA and *C. difficile* targets.

Challenges

The Department of Health (DH) had set the challenging target of reducing MRSA bacteraemias by 60%. This was a difficult target because of the size and complexity of the hospital and the large renal directorate, which includes five satellite units and a total of 52 inpatient beds and 160 outpatient haemodialysis beds. Dealing with 500 to 600 patients every week, renal units usually have the highest incidence rate of MRSA bacteraemias.

There had been several campaigns to improve infection control in recent years, particularly concerning hand hygiene and the management of MRSA-positive patients, but the success of these initiatives was patchy. All inpatient clinical areas had been asked to complete hand hygiene audits and some areas had utilised the Infection Control Nurses Association (ICNA) audit

tools, but use and feedback were inconsistent due to lack of local ownership of infection prevention and control issues.

Methods and interventions

The Infection Control Accreditation Programme
The IPCT identified the need for a formalised quality improvement programme to improve infection control practice within the hospital and to devolve ownership of infection control to individual clinical areas. An Infection Control Accreditation Programme was designed with the aim of setting minimum compliance requirements for infection control practice against nationally-recognised and local standards.

The IPCT used 'Saving Lives: a delivery programme to reduce healthcare associated infection including MRSA' (Department of Health, 2005) as the basis of the programme and identified additional elements following discussions within the team and with clinical colleagues. These additional elements included:

1. **The Saving Lives High Impact Interventions (HII)**
The HII consist of a series of interventions that reduce the risk of infection. The HII review tools needed to be completed as appropriate to clinical area until 100% compliance was achieved.
2. **Hand hygiene**
Assessment of hand hygiene compliance. The requirement for accreditation was at least two audits per year reaching a minimum of 75% compliance.
3. **Patient environment**
Assessment of the patient's environment, using the ICNA Environmental Audit tools, with a minimum of 75% compliance required.
4. **Infection control link workers**
Assessment of the competency of Infection Control Link Workers. Each clinical area had to identify at least one worker who should attend three out of four updates run by the IPCT per year to develop their confidence, competence, knowledge and skills.
5. **Cleanyourhands**
Each clinical area had to identify one or more cleanyourhands champion(s) and clearly display the staff champion poster to highlight to staff, patients and visitors the importance of hand hygiene.

6. Staff uniform

Assessment of compliance against staff uniform policy using a staff vectors audit tool designed locally.

7. Cleanliness

Evidence of three months satisfactory domestic services cleanliness audits required.

Accreditation

Clinical staff were able to assess their own areas against the standards and identify areas for improvement if minimum compliance failed to be met. Interim reviews and action plans were implemented if required. Covert and open surveillance was carried out by the IPCT. The ICN usually met with the ward manager, matron and IC Link Worker to review and assess the quality of evidence and standard accreditation was awarded once minimum compliance was met in all areas.

The programme would ensure that the audit cycle was consistently completed by re-auditing until minimum compliance was met in all areas, and then annually thereafter.

Results

Pilot Phase

The Accreditation Programme was piloted in the 168-bedded orthopaedic unit. This was chosen as a high

infection risk area and the pilot coincided with the introduction of an infection-free elective surgery ward. The unit matron, surveillance nurse and clinical educator were closely involved in the programme.

The initial audits showed shortfalls in environmental cleanliness, hand hygiene, uniform policy compliance and basic infection control knowledge. Educational sessions were provided by the clinical educator and the orthopaedic surveillance nurse in conjunction with the ICN. Repeat audits within six weeks demonstrated infection control practice had improved:

- Compliance with hand hygiene requirements had increased from 42% to consistently above 88%. This result included both ward-based staff, medical staff, patients and visitors.
- Compliance with dress code had also improved from 40% to 80%. Cleanliness audits were averaging at 86% and the High Impact Interventions were all successfully completed.
- For Wards successfully completing the Accreditation Programme a certificate signed by Trust Board of Executives was issued.
- The staff members were informed that they would be subject to covert and overt surveillance as a means of continually monitoring practice.



The team with the award for the third prize in 2007/08

Following completion of the programme the length of postoperative patient stay was reduced, as was the number of infections detected. It was also observed that staff motivation and pride in the wards had increased amongst all groups of staff.

The success of the pilot scheme prompted the roll out of the programme across the hospital, initially into high risk, then medium risk and then low risk areas.

Hospital-wide

In those areas that achieved Infection Control Accreditation in 2006/2007 there were noted measurable outcomes:

- Compliance with hand hygiene had increased from an average of 40% to consistently above 75%. Compliance with dress code improved from an average of 50% to consistently above 80%. Major problems of jewellery, wearing of nail varnish and false nails were identified, but the use of the audit tool significantly improved compliance.
- Domestic services cleanliness audits averaged over 85%.
- The Saving Lives HII had been successfully completed.
- Accredited areas had at least one highly motivated and knowledgeable IC link worker to update clinical staff on practice and assist the clinical managers and matrons in maintaining good infection control standards.
- Priorities for environmental improvements had been identified and a planned programme for refurbishments has been implemented.
- Empowerment of Matrons and Managers to take responsibility for IC practice
- Domestic Supervisors engaged more with clinical staff
- Positive feedback from patients' groups
- Improved morale
- Increased profile of the IPCT and improved infection control practice
- Infection control was now a regular agenda item at most clinical governance meetings allowing feedback on progress with accreditation to a multidisciplinary group

MRSA bacteraemias

One of the major indicator of the programme's impact on patient care is the decrease in MRSA bacteraemias across the hospital. MRSA bacteraemias have decreased year on year from 79 in 2005/6 to 59 in 2006/7 to 36 in 2007/8 (as of 31 March 2008). The hospital exceeded the DH target of 60% reduction by March 2008 by achieving more than a 66% reduction overall from 2005 to 2008.

Clinical improvement is most evident in the Renal Directorate whose bacteraemia rate has fallen from 16 in 2005/6 to 3 in 2006/7 to the current level of 0 in 2007/8 (as at 31st January 2008).

The rate of hospital-acquired MRSA (detected on first isolates) has also notably fallen during 2007:

- Hospital acquired MRSA colonisations have decreased by approximately 30%
- Hospital acquired infections have decreased by approximately 60%

C. difficile rates

2007/2008 was a challenging year for the IPCT and despite the positive impacts on MRSA bacteraemia rates and hospital-acquired MRSA infections, the *C. difficile* rates remained comparable with 2006/2007 up to December 2007 rather than reducing. This may have been down to an increase in patient activity across the hospital and an increase in the number of *C. difficile* type 027 isolates on previous years. However, since early this year a significant reduction is now evident.

The team continues to address the incidence of *C. difficile* with a number of initiatives including opening a cohort ward for nursing patients with confirmed *C. difficile* (June 2008); introduction of an antibiotic restriction policy to complement the existing antibiotic prescribing policy; a pre- and probiotic study to assess the merits of these products; the development of a new *C. difficile* nursing care guideline alongside a revised *C. difficile* treatment policy and a revised patient and staff information leaflet. New staff have also been employed by the IPCT (in February 2008) to manage a decontamination programme using Hydrogen Peroxide Vapour technology.

Future Developments

The IC Accreditation Programme has been reviewed and the new programme rolled out in April 2008 to include not only in-patient areas but all clinical areas including outpatient departments, radiology and theatres. The new programme includes increased frequencies and minimum compliance levels, such as monthly hand hygiene audits with a minimum of 90% compliance required and an increased cleanliness audit requirement of 85%. The new programme also includes a new aseptic technique audit as this was felt to be lacking.

The IPCT continue to develop and plan new initiatives including the development of an Assistant Practitioner role within the team.

Conclusions

Infection control is a quality issue and patients have a reasonable expectation that they should not acquire infection in hospital. The specialist IPCT can advise, monitor and educate but it is those staff that have responsibility for direct patient care who have to put principles into practice. The Infection Control Accreditation Programme is an excellent method of monitoring and improving practice and standards of care, motivating and rewarding staff by encouraging local ownership and drawing together the requirements of national and local directives. The programme was devised as a quality improvement programme to improve patient care and the results, including the reduction of the MRSA bacteraemia rate and hospital-acquired MRSA infections demonstrate its success. The programme has helped to ensure that evidence-based practice is embedded in everyday clinical activities within all clinical areas.