



Exploring and Reducing Healthcare Associated Infections on a Respiratory Ward

Keywords:

Healthcare associated infections, multidisciplinary team working, leadership

Duration of project:

September 2006 – February 2008
Report received for publication: January 2009

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Summary of project

This project aimed to reduce to an acceptable minimum, the risk of contracting a healthcare associated infection on a respiratory ward using a multidisciplinary approach. The key theme to emerge from a questionnaire to explore the values and beliefs of staff with regards to infection prevention and control was non-compliant behaviour around hand hygiene, cleaning of the environment and equipment, visitors within the ward setting and challenging bad practice. A variety of approaches were used to address each of these issues with largely positive outcomes.

This project highlights that it is not one change of practice but a group of interventions that can make a difference and demonstrates that everyone has to be striving to achieve an ongoing reduction in healthcare associated infections for continued success.

Background

In February 2000, the National Audit Office (NAO) published "The Management and Control of Hospital Acquired Infection in NHS Trusts in England." Whilst this was not the first report to highlight the issues of infection associated with healthcare, it drew attention to the widespread nature and cost of the problem. It also had a greater impact than previous reports (House of Lords Science and Technology Select Committee, 1998; Plowman et al., 1999) because of the NAO's role as the UK's spending watchdog, reporting directly to parliament. The NAO report (2000) identifies that at any one time, around 9% of hospital inpatients have an infection which has been acquired whilst in hospital and states that the annual cost of dealing with these 100,000 incidents a year amounts to £1 billion.

There can be considerable consequences for those people who become infected with a healthcare associated infection (HCAI) such as MRSA or Clostridium Difficile (C. difficile). Such infections cause pain and suffering for patients and their families and treating these HCAIs requires additional NHS resources (Department of Health, 2007). Although tackling HCAIs has been a high profile area in the NHS for several years, continued efforts are required to ensure that progress towards reducing HCAIs and improving cleanliness

are maintained (Department of Health, 2007). All acute Trusts have been set targets by the Department of Health:

- To reduce the MRSA bacteraemia rate by 50% over a three year period (2005 – 2008)
- To reduce annually the C. difficile rate by 25%

All wards and departments within the Royal Cornwall Hospitals Trust (RCHT) take part in monthly Saving Lives audits and produce action plans to address any areas of concern within the results. Saving Lives is a delivery programme to standardise the approach to reduce healthcare associated infections including MRSA. The ward involved in this project was Wellington ward. This ward consists of twenty eight beds (including four side rooms) specialising in respiratory medicine. There are two consultants based on the ward supported by all grades of medical staff and there is a strong multidisciplinary approach to providing care on the ward which is enabled by the presence of ward based physiotherapists, occupational therapists, a dietician and a pharmacist.

Aim of the project

The overall aim of the project was to reduce to an acceptable minimum, the risk of contracting a healthcare associated infection for all in patients on Wellington ward, using a multi disciplinary approach.

Exploring values and beliefs

When working in a team, identifying values and beliefs can form the foundation of the team's direction, aims and objectives (Warfield and Manley, 1990). It was therefore considered to be important at the outset of this project, to explore and establish the values and beliefs that staff held about infection control and prevention. This was achieved using a values clarification questionnaire based on a template developed by Warfield and Manley (1990).

Thirty five questionnaires were distributed to the multidisciplinary team by the ward receptionists and thirty one were completed (88.5%). The key theme to emerge from the responses was non-compliant behaviour around:

- Hand hygiene
- Cleaning of the environment and equipment
- Visitors within the ward setting
- Challenging bad practice regarding infection prevention and control.

The key theme and the associated sub-themes were then discussed at the first team meeting. Staff explored the factors that hindered compliant behaviour with regards to infection prevention and control. The following factors emerged:

- Staff too busy
- Poor staffing levels
- Not enough resources
- Poor staff morale
- No need to wash hands – 'I wear gloves'

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A discussion about the factors that could enable compliant behaviour followed. The following factors were identified:

- Education
- Legislation i.e. duty to adhere to policies and protocols
- Effective leadership – role models
- Regular feedback on infection rates

Staff then discussed ideas for moving forward with the project. They decided that rather than having a designated leader or champions for this work, that all staff should be involved to encourage ownership. To achieve this, the staff decided to focus on each of the areas that were identified in the values clarification questionnaire by working in small groups. The three monthly team meetings would continue to review progress and agree new actions and this would also be supported by a programme of education provided by the practice educator.

Hand hygiene

One of the team leaders volunteered to lead the hand hygiene work supported by a small group of staff. The following actions were agreed:

- To use the Infection Control Nurses Association (ICNA) hand-washing audit tool on a monthly basis
- That the ward housekeeper would monitor the amount of soap and alcohol-rub used within the ward setting to give an indication of compliant behaviour
- To put up new posters at the entrance of the ward advising everyone to use the alcohol hand-rub provided
- That staff would wear the **cleanyourhands** campaign badges which state: 'Ask me if I have washed my hands'

The initial ICNA hand-washing audit identified a compliance rate of 78% against the standards outlined in the tool. Several areas of concern were identified:

- A lot of clutter around the sinks (inappropriate items)
- Insufficient hand cream
- Staff not compliant with 'bare below the elbows'
- Posters promoting hand decontamination not displayed in areas visible to both staff and patients
- Poor facilities for patient hand hygiene
- Confusion around when to wash hands with soap and water and when to use alcohol hand gel.

Many of these issues were addressed during the education sessions, but also through practical hand washing sessions on the ward and subsequent hand hygiene audits demonstrated significant improvements in hand washing that were maintained.

The practice educator also used a questionnaire developed for the VA-Sigma project with the staff (Department of Veterans Affairs, National Patient Safety Center, 2005). This measures local perceptions and attitudes regarding hand hygiene in healthcare settings. This questionnaire revealed that 92% of staff had normal skin on their hands (i.e. no redness, blotching or rash) although 88% reported having dry areas of skin. The condition of the skin is important as this can be a problem with frequent hand washing. All staff agreed that there is a strong relationship between good hand hygiene practices and preventing healthcare associated infections. The overall compliance rate for hand washing was 92.7% (VA – 3M Six Sigma Project self assessment questionnaire). It was interesting to note that the percentage was greater (80%) for washing hands with soap and water than alcohol gel (20%). Since the start of the **cleanyourhands** campaign there has been greater emphasis on cleaning hands at the point of care using alcohol hand gel. However, from this audit the greater percentage (80%) of staff wash their hands with soap and water.

The findings from this questionnaire were backed up by the monthly monitoring of the usage of liquid soap. During the first six months of the project, fifty nine containers of soap were used but during the remaining six months, ninety containers were used representing an increase of 65%. Unfortunately, we were initially unaware that the alcohol was delivered to two wards so we were not able to monitor the actual usage on Wellington Ward over this same time period.

Cleaning of the environment and equipment

An initial audit of the general ward environment revealed that clutter was a big problem; there are no storage facilities for equipment, which meant that equipment was being stored inappropriately in bays and on the ward. A lot of clutter was also found around patients' lockers e.g. suitcases and outdoor shoes, which could go home with relatives and carers. This clutter was making the ward area look untidy and so it was decided to have a "de-clutter" week. A considerable improvement in the environment was achieved in a relatively short space of time, however the staff realise that to maintain this standard it has to be an ongoing process.

Davies (2005) found that having a designated cleaner on a ward resulted in a higher standard of cleanliness as there is greater ownership and commitment from that cleaner. We are fortunate to have designated cleaners within this Trust and the cleanliness of the environment is audited by the cleaning supervisor, the ward cleaner and whenever possible the ward manager, on a monthly basis. The results of the environment monitoring during 2007, showed that from June to August the levels of cleanliness within the audit were 80 - 85%. This was due to staffing problems. However the levels improved and were maintained from September when a new cleaner came in to post.

Sehabrun et al (2006) demonstrated that equipment has been implicated in outbreaks of infection. Discussions in team meetings revealed that there was poor compliance around cleaning of equipment. The findings from these discussions were supported by photographs that were taken around the ward showing equipment on the floor. Several key areas of concern were identified:

- Blood pressure (BP) cuffs are used very frequently but were not being cleaned between patient use
- Oxygen and nebulizer masks are used on a frequent basis and were often found on the floor
- Staff were confused about how to clean equipment as no guidance was available

The team agreed on actions that could be taken to address these concerns. Due to cost constraints, it was not possible to purchase individual BP cuffs for all beds, so it has been decided to have BP cuffs in each side room, but to be more aware around the cleaning of BP cuffs in the general bays. This was supported by establishing that all staff were responsible for cleaning any equipment that they had used and drawing up a cleaning protocol so that all staff knew how to clean this equipment. In addition, two hooks were placed in each bed space so that oxygen and nebuliser masks could be attached. From this change of practice there is now a cleaning register to monitor the cleaning of equipment.

Visitors within the ward setting

At the start of the project there was open visiting and this often caused problems, especially in the mornings when staff were trying to provide personal care for patients. This project gave the team the opportunity to look at visiting times and the presenting problems. The first change was to

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introduce a protected lunchtime of two hours between 12.00 noon and 2.00pm. This has now progressed to the visiting time being between 2.00pm and 8.00pm.

The team discussed the ways in which visitors could help with infection control and prevention and a code of conduct was created by staff using their experience of visitor's behaviour and requests:

- Only two visitors per patient at one time
- Please don't sit on beds
- Please do not visit if you are unwell e.g. coughs and colds, diarrhoea and vomiting
- Please use the alcohol hand gel on entry and exit to ward

Laminated notices were created to inform patients of the visiting times and the ways in which they could help infection control and prevention on the ward.

To evaluate the effectiveness of this approach and to gain other visitor views on infection control, the practice educator devised a questionnaire for visitors. This questionnaire was given to fifty visitors and fifty were returned. The responses demonstrated that most areas within the code of conduct for visitors have been realised. Visitors pointed out that often there were not enough chairs so this has been addressed. It was disappointing that 89% of visitors reported that they had not been challenged for sitting on beds however; this may be because the majority of visitors reported not sitting on beds and therefore did not need to be challenged. The code of conduct for visitors is still displayed along the ward entrance corridor and it would be interesting to repeat this questionnaire to evaluate the ongoing level of compliance.

Challenging bad practice

The team felt that all staff should take responsibility for challenging bad practice.

However some of the team felt that they would need help with this change of practice so two training sessions were developed to meet these needs. The sessions started by exploring views and perspectives on the following questions:

- What is good practice in relation to infection prevention and control?
- What is bad practice?
- What authority do participants feel to challenge others?

The discussions that developed as a result of this activity helped all staff but especially the junior members of the team and the hotel services staff who had wondered if it was appropriate for them to challenge doctors.

The staff then reflected on the personal skills and attributes required to challenge bad practice by considering:

- Have you ever been challenged and how did it feel (good points/bad points)?
- What approaches work and why?

Staff then got a chance to practice new skills through role play using case scenarios. This allowed them to explore different tactics and approaches of challenging bad practice that will have a positive impact and change behaviours. Although some participants initially found this difficult, the feedback from staff demonstrates their increased confidence and the positive outcomes for infection prevention and control. To evaluate the impact of these sessions, over the following weeks, all staff were given an opportunity to convey their experience of challenging bad practice to the practice educator either verbally or in writing. A selection of these comments are included in Box 1.

Box 1. Staff experiences of challenging bad practice

'The project has helped me to feel more confident in challenging poor practice. I have challenged several situations. I have encouraged visitors to use chairs rather than sit on beds. I do this by taking a chair to them and stating the infection risk. Additionally I have explained to medics the reasons for isolating the patient and effective hand washing; this was well received. At times it can be difficult challenging people; however I have never experienced conflict. I will continue to challenge bad practice following the project.'

'I noticed that staff were coming out from the sluice wearing their gloves and aprons. They were handling samples of faeces at the nurses' station whilst getting patient's labels. I challenged the staff concerned and asked them not to bring samples to the nurses' station. I explained to them it would make more sense to get the labels first thus preventing any contamination, also not walking across the ward area wearing gloves and aprons. The staff found this acceptable. It has not happened again.'

'During a day shift I came across a visitor who was sitting on a patient's bed. I approached the visitor and asked them if they would mind sitting on a chair. I began explaining the reasons why stating that we were trying to reduce infections not just on our ward but also throughout the hospital. The gentleman in question was happy with my rationale for this and was pleased that I explained it to him. He said he would pass this information to the rest of his family if they should visit anytime.'

'A situation arose on a ward round with a doctor whom obviously had a cold as he was blowing his nose using a tissue. He then sneezed into his gloveless hands and did not wash them before moving on to the next patient. When I drew his attention to this, he then washed his hands but made me feel very uncomfortable that I had the nerve to mention this matter. He tried to make a joke of it, but I did say "patients and their families did see that". I felt that I got my point across. Also other junior doctors were present and I felt that it was a good lesson to everyone.'

Staff perceptions of project outcomes

Towards the end of the project, a questionnaire was developed by the practice educator to gain the views of staff about what had been achieved. Thirty questionnaires were given out at the team meeting and completed by nurses, cleaners, pharmacist, doctors and healthcare assistants.

95% of staff reported that the project had made a difference within the ward setting to infection prevention and control. All staff reported that they had made changes to their practice, and the majority of staff felt that they had a greater awareness of good practice, were more able to challenge bad practice and had enhanced knowledge regarding infection control.

Understanding the causes of infection

During the period January 2006 – March 2008, the number of new cases of MRSA (colonised/infections) and *C. difficile* on the ward ranged from zero to seven cases per month. There are many reasons why patients may be colonised or infected with organisms on admission to hospital. The reduction in healthcare associated infections is complex and the data that is collected has to be examined to find out the cause of the infection. The majority of the patients on

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Wellington ward are elderly with underlying disease, having had many admissions to hospital, repeated antibiotic therapy and invasive procedures such as chest drains. All this makes them susceptible to infection but they also may present with infection on admission. Patients may be started on inappropriate antibiotics within the community which can cause problems especially with *C. difficile*; consequently some patients may already be carrying an infection when admitted to hospital.

It is not one change of practice that will make a difference to the infection rate but the use of a group of interventions. This can be achieved by all staff being compliant with hand hygiene and the cleaning of equipment, prudent antibiotic prescribing and the prompt isolation of the patient with an infection, especially diarrhoea and vomiting. There is need to work across all healthcare settings making sure that all staff adhere to standard universal precautions, comply with policies regarding invasive procedures and the antibiotic formulae and have a readiness to work together to reduce healthcare associated infections.

Reflections

Reflecting on the project, it is possible to identify those factors which enabled change and those which challenged change.

Factors that enabled changes in practice

The multidisciplinary team approach to providing care on the ward made it easier to involve all staff in aspects of the project, thereby acknowledging that infection prevention and control is the responsibility of all. This approach was supported by the regular team meetings which provided an excellent forum for all staff to be involved in discussions and decision making with regards to actions.

Staff education sessions provided an opportunity for staff to increase their knowledge about the ways in which infections can be prevented and controlled. They were interactive, multidisciplinary sessions that could address the issues that had been highlighted by staff in previous team meetings. These sessions included hand hygiene, the wearing of personal protective equipment, the safe use of sharps, waste and laundry management, outbreak management around diarrhoea and vomiting, *C difficile* and MRSA. They provided an opportunity to explore roles, responsibilities and team working and challenge practices in relation to aseptic technique, dressings and documentation.

Challenges

The staffing levels on Wellington ward have been variable during the period of the project and at times the team have experienced high vacancy levels (vacancies have varied from 2.31 to 7.79 whole time equivalent staff). Lower staffing levels had an obvious impact on working practice and morale. Further recruitment is currently addressing this issue.

The ward has also experienced frequent changes in ward management over recent years and the current manager is there in an 'acting' capacity. At the outset of the project when staff was asked to complete the values clarification questionnaire, some staff commented that in the past they had filled out questionnaires and 'nothing had happened.' Staff may have felt disillusioned because previously there had been no change due to the management changes. Leaders have a key role in enabling change (Rycroft-Malone et al, 2002) and although leadership for this project was provided by the practice educator and team leader through encouraging inclusive decision-making, role modelling and teaching, a more stable management structure may have enabled greater change.

Conclusion

This project has demonstrated the value of using a multidisciplinary approach in reducing healthcare associated infections, embracing the culture that infection prevention and control is everyone's business. The challenge for us all is to sustain this change of practice, and to encourage role models within the clinical setting. Effective leadership is central for making infection prevention and control an integral part of all clinical care in order to reduce healthcare associated infections.

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Further reading

A copy of the original full report is available to download from the Foundation of Nursing Studies website: www.fons.org/ahcp/grants2006/HATruo.asp

Acknowledgements

To the multidisciplinary team on Wellington Ward for their co-operation in this project.

To the Foundation of Nursing Studies for supporting the implementation and dissemination of this project.

How to reference this report

Varney, J. (2009) Exploring and Reducing Healthcare Acquired Infections on a Respiratory Ward. In Sanders, K. and Shaw, T. (Eds) *Foundation of Nursing Studies Dissemination Series*. Vol. 5. No. 1.

The Foundation of Nursing Studies Dissemination Series

ISSN 1478-4106

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