Improving compliance with the C. difficile root cause analysis tool to reduce incidence

Encouraging better use of root cause analysis to reduce C. difficile rates

INTRODUCTION
In Essential Steps to Safe, Clean Care (Department of Health, 2007a), healthcare-associated infections (HCAs) are defined as infections that are acquired in hospitals or as a result of healthcare interventions. The DH has set measurable targets to achieve reductions in HCAs.

The DH (2007b) said that organisations that demonstrate the greatest success in reducing infections have instigated systems to monitor the effectiveness of the clinical process. They also understand the benefit of using compliance and infection data to focus their improvement work effectively.

The Health Protection Agency (HPA) requires mandatory reporting of all patients diagnosed with an MRSA bacteraemia. This includes the completion of a root cause analysis (RCA) tool. The RCA’s purpose is to identify any omissions in care or problems with practice that may have contributed to the infection. This allows an action plan to be formulated and implemented.

Clostridium difficile is the most important cause of infectious nosocomial diarrhoea in the UK (HPA, 2008). NHS organisations are required to have a policy in place that makes provision for appropriate infection-control procedures (DH, 2006). The NHS Operating Framework for 2008–2009 stipulates a national reduction target for C. difficile infection of 30%, to be achieved by 2011 (DH, 2007c).

To comply with the national target, it is essential to minimise risk factors and manage cases when they occur. To meet the standards, a modified RCA tool, based on that used for MRSA bacteraemia, was adopted by the trust. It was hoped that this would enable ward managers and clinicians to review patient care when C. difficile infection was detected and identify any necessary modification to practice, education or training.

RCA PROJECT
The RCA tool was piloted on medical elderly wards before being introduced across the trust. During the six-month pilot, support staff from the infection prevention and control team monitored completion of the tool and contacted any ward which failed to return an RCA – a time-consuming and impractical task trust-wide. It was important that wards took individual ownership and responsibility for completing the tool (DH, 2003).

It seems reasonable to assume that the wards used to using RCA, in this case medical elderly wards, would have reduced their infection rates. During March and April 2008, 21% of all C. difficile infections were acquired on these wards, compared with 20% for the same period in 2007, suggesting the introduction of the RCA tool had not had an impact.

When the submitted RCAs were analysed, the overall compliance rate across the trust was found to be 42%, with a compliance rate in the original pilot wards of 44%, suggesting that familiarity with the tool had little impact on response rate. The data also suggested a poor response to the use of RCA.

Better compliance would give specific details to individual wards on the main risk factors contributing to C. difficile infection and identify what changes would prevent reoccurrence. Current use of the RCA tool did not appear to be fulfilling these objectives. The content of RCA forms submitted in March and April was analysed, which highlighted sections that were poorly completed and which might have presented some difficulty, or which staff perceived as lacking relevance. Demographic details and recording of objective information, such as antibiotic prescribing and appropriate isolation, appeared to be straightforward. Least successfully completed were subjective questions that required reflection on the information collected and making recommendations for future action.

These findings were not surprising given there had been little formal training in completing the RCA, leading to a system of trial and error. Undertaking RCA is deceptively difficult because it is assumed that the skill of critical thinking and problem-solving comes naturally (Garavaglia, 2008).

IMPROVEMENT
When data is of poor quality, inaccurate or incomplete, there is a reluctance to use it because of concerns over reliability (NHS Institute for Innovation and Improvement, 2007). After critically appraising current use of the RCA tool, it was apparent that an improvement plan was needed.

The aims of the plan were:
- To identify why staff compliance with using RCA was low;
- To gain staff commitment to the principles of RCA, raise understanding of the reasons for
completing the tool and increase the perception that RCA can be an aid to improving practice;
- For clinicians to learn why infections were occurring and use this knowledge to develop robust and practical action plans to reduce rates of *C. difficile* infection.

**Planning**

It was decided to implement the project on a few wards. These changes could be adopted more widely if they proved to be successful. *C. difficile* is particularly prevalent in the over-65 age group; therefore the six medical elderly wards were identified as units that might benefit from this intervention.

Kotter (1996) said that one mistake when trying to make any change is failing to engage the participants. One problem that this improvement plan had to overcome was that there had been few organised awareness events to promote the tool’s initial use and ensure that staff signed up to its introduction. Despite the increased time commitment, better forward planning would have raised awareness and understanding and staff would have been more conversant with both the concept and practical application of RCA.

This lack of initial introduction of the RCA may explain some of the present poor compliance. Gladwell (2001) argued that small changes can have dramatic effects. If this theory is correct, then a small intervention to encourage completion of the RCA should have a discernible effect on compliance. It was hoped that targeting the intervention at identified ward managers would be significant enough to achieve a discernible improvement.

A reaction to change tends to be resistance (Hiatt, 2006). Even when staff understand the reasons for completing the RCA, they may remain reluctant and need motivation.

Many improvement projects in the NHS have focused on knowledge through education, training and raising awareness, often by using poster campaigns. Shapiro (2003) suggested these interventions might result in short-term improvements but are sustained only when attitudes are altered and staff become committed to a project, are convinced it is relevant and persuaded that it has a real value.

**Approach**

An interview was carried out with senior staff on each participating ward, together with the matron for the unit. The aim was to build a rapport through semi-structured interviews and allow staff, through critical reflection, to consider all aspects of the RCA tool.

Each interview was in three parts:
- A discussion to review the present situation and explain the reasons for completing the RCA, current *C. difficile* infection rates and compliance data were used to outline why improvement was necessary and the benefits of undertaking RCA to gather information which, when used effectively, should result in improved quality of care, cost and time efficiency (Harth, 2007);
- As a lack of knowledge about *C. difficile* might contribute to poor compliance with the RCA, a questionnaire was used to identify knowledge levels in staff completing it. This questionnaire had previously been used in a trust-wide audit of clinical staff knowledge about managing *C. difficile* infection (Madeo et al, 2008). Answers to the questionnaire demonstrated that all respondents appeared to have a good understanding about *C. difficile*;
- Respondents were asked to appraise and analyse the RCA tool and openly express their feelings about its completion. They were encouraged to consider practical issues such as clarity of instructions and ease of use and to discuss whether they found any aspects difficult to undertake.

They were asked what they hoped to achieve by using RCA and whether its use encouraged critical reflection about caring for patients with *C. difficile* infection. Each respondent was asked whether a formal action plan was subsequently developed and shared with ward staff to improve performance. Although some staff initially said they viewed completing the RCA as a compulsory piece of paperwork – necessary because an infection had occurred but with little real benefit – it was hoped that during the course of the interaction some change was made to their original stance.

Implementing the plan had to involve fostering better communication that would be sustained throughout the study period and beyond.

Attention was focused on relevant details in a way that ensured knowledge and ability but which also encouraged the use of the RCA tool more confidently and purposefully.

The style of the intervention was intended to allow an exchange of information without participants feeling threatened and ensuring they felt able to ask questions.

All charge nurses and matrons work to strict local and national targets to reduce infection rates. It was important they realised that the RCA could be a positive aid in achieving these. Shapiro (2003) highlighted the need for ongoing effort in any improvement project. In addition to setting up the initial intervention, it was equally important to sustain the commitment and engagement of the charge nurses. Good relationships are more significant than the slickest systems and processes (Glanfield, 2003). To sustain initial motivation, frequent informal visits were made to all six wards, to raise the profile of the infection prevention and control team and establish the feeling that support was accessible and available.

**RESULTS**

RCA data from the six medical elderly wards submitted during March and April 2008 was used as a comparative baseline against which the impact of the planned intervention could be measured.

After implementing the improvement plan, data relating to compliance with the RCA tool was monitored over a comparable two-month period to evaluate the project’s effectiveness. The plan was to feed back these results to wards and to audiences such as the charge nurses’ meeting.

A comparison of the study wards before and after intervention established that:
- Compliance with the RCA improved from 44% to 67%;
- Patients acquiring *C. difficile* infection on medical elderly wards reduced from 21% of the trust total to 9% (Table 1, p16);
- Analysis of RCA showed better quality of data reporting, compared with the baseline period (Table 2, p16).

Comparing both compliance with the RCA tool and the rate of *C. difficile* infection before and
Practice changing practice

**TABLE 1. COMPARISON OF RESULTS PRE AND POST INTERVENTION**

<table>
<thead>
<tr>
<th></th>
<th>C. difficile patients on non-intervention wards</th>
<th>C. difficile patients on intervention wards</th>
<th>Medical elderly patients rate as % of trust total</th>
<th>Trust RCA compliance</th>
<th>Medical elderly ward compliance with RCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre intervention</td>
<td>34</td>
<td>9</td>
<td>21%</td>
<td>42%</td>
<td>44%</td>
</tr>
<tr>
<td>(March/April)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Post intervention</td>
<td>31</td>
<td>3</td>
<td>9%</td>
<td>55%</td>
<td>67%</td>
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<td>(July/August)</td>
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**TABLE 2. COMPARISON OF QUALITY OF DATA REPORTING ON RCA TOOL PRE AND POST INTERVENTION**

<table>
<thead>
<tr>
<th>Data recorded</th>
<th>Pre intervention (% of forms)</th>
<th>Post intervention (% of forms)</th>
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</thead>
<tbody>
<tr>
<td>Ward cleanliness (including monitoring officer’s score)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Hand hygiene (with compliance score)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Reflection on practice:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Comprehensively completed</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>● Completed with some omissions</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>● Not completed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Future recommendations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Satisfactorily completed</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>● Some recommendations made</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>● Not completed</td>
<td>75</td>
<td>0</td>
</tr>
</tbody>
</table>

After intervention, using a chi-square test, showed there was a statistically significant difference in both cases (p < 0.001).

These results suggest that the trial intervention had improved compliance with undertaking and completing RCA. It could also be postulated that the reduced rates of infection are attributed to the increased awareness of C. difficile on the wards that took part. The real test of success will be whether these initial improvements are sustained.

**REFLECTION**

The goals for our infection prevention and control team now include giving leadership to staff committed to reducing HCAI, rather than accepting sole responsibility for lowering infection rates (Murphy, 2002).

To initiate improvement it was necessary to capture the ‘hearts and minds’ of staff completing the tool (Shapiro, 2003).

Reflection and action planning underpins the concept of RCA and is crucial for learning and improving patient safety. All respondents stated that this was challenging. The interaction with charge nurses was key to explaining and promoting the use of RCA. The objective was to empower improvement without making staff dependent on the infection prevention and control team.

The plan was to initiate a degree of input that would achieve a measurable impact. Any ongoing intervention had to be sustainable in terms of work and time commitment for the infection prevention and control team. This ensured that if this innovation achieved its aims, it would be possible to spread the project to other wards with high incidence of C. difficile infection.

Central to this work has been good clinical engagement. It was reassuring that staff were receptive to the initial approach made to them. Glanfield (2003) pointed out that any improvement effort will produce additional unanticipated benefits. Even if RCA compliance is not sustained, professional relationships on the study wards have strengthened, and attitudes towards infection control have improved.

Every clinician has the potential to reduce the risk of infection to their patients by complying with evidence-based practice and guidelines. The Saving Lives programme (DH, 2007b) pointed out that safety and reliability are the most important components of high-quality health care. Effective use of the RCA tool is one way to ensure this.

**CONCLUSION**

Healthcare workers must see benefits in directives if they are expected to comply with them. This project demonstrates an early improvement in compliance that suggests engaging with clinicians and explaining the benefits of RCA is recommended.

What remains to be identified is whether this improved compliance can be sustained and whether C. difficile infection can be reduced as a result of subsequent system changes.

**REFERENCES**


Garavaglia, B. (2008) The problem with root cause analysis: it’s a buzzword that can very easily become meaningless because not all problems have a single root cause. Nursing Homes; 57: 38.


