External review of *Clostridium difficile* infection (CDI) prevention and control practice at South Tees Hospitals NHS Foundation Trust (STH)
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Background
An external review of practice was requested to assure the STH Trust that current measures to prevent and control CDI are appropriate, and to determine if other interventions/approaches could be adopted to enhance these measures. I carried out a review in December 2013; my report contained recommendations grouped under 8 headings.

Unfortunately, before the recommendations in my 2013 report could be implemented, it became clear that the incidence of CDI had increased, notably including evidence of three case clusters. These comprised 11 (+5 retrospectively linked) *C. difficile* 027 cases, 3 *C. difficile* 015 cases and 2 *C. difficile* 005 cases, which had not occurred prior to December 2013 (other than the 5 retrospectively linked 027 cases) prior to December 2013. This demonstrates the value of the use of ribotyping and enhanced fingerprinting to detect transmission of *C. difficile* between cases. Having demonstrated such transmission, investigations by the infection prevention and control team revealed several examples of poor practice due to complacency regarding CDI. In response, a 5-point action plan has been developed.

The present review was carried out following meetings/discussions at STH on 21/07/14 with the following:

Richard Bellamy, Infection Control Doctor
Julie Barlow, Lead Nurse IPC
Ruth Holt, Director of Nursing & Quality Assurance
Dr Monika Kalra, Consultant Microbiologist
Debbie Lockwood, Antimicrobial Pharmacist
Myles McQuade, Head of Estates & Facilities
Rob Wilson, Medical Director.

It is my decision not to attribute any comments/points made to specific individuals within this report. Without exception, the interviewees were welcoming, helpful and very willing to discuss openly issues pertinent to my remit.

The following recommendations need to be taken alongside those made in my earlier report, noting that several of these have not yet been (fully) implemented.
Summary

- The experience in recognising, investigating and controlling the clusters of CDIs referred to above can be turned into a positive, especially given the opportunity to reinforce to staff that complacency can have clear consequences for HCAI control.
- However, the cases clusters have demonstrated areas of sub-optimal practice.
- Several of the interventions I recommended in my previous report have not been fully implemented. Some require longer term planning/execution, and the clusters of CDIs have taken up time and resource.
- A timescale should be drawn up and agreed for all recommendations with regular review to monitor progress.
- There is circumstantial evidence that estate issues continue to compromise CDI control efforts and these need to be addressed, particularly with decisions taken on what can be achieved in the short to medium term.
- Other issues relate in particular to the need to improve diarrhoea management, and compliance with good antimicrobial prescribing practice.
- I have reviewed below the eight areas that I discussed previously where alterations could be beneficial; for each, I have discussed progress and suggested appropriate actions.

1. Ownership of IPC issues, including root cause analysis practice

Since my previous report there is evidence of improvement in medical engagement with HCAI challenges in the trust. Consultant attendance at RCAs has improved. However, the panel meetings that are held to review RCAs are not happening in a timely fashion, with the result that these are sometimes occurring more than one month after the case occurred/after the RCA. Antibiotic audits are not part of the panel meetings, and so opportunities are being missed to determine if there are common trends in prescribing practice that need to be addressed.

Action:

Regular pre-set dates can be used to overcome the diary difficulties associated with planning RCA panel meetings. A fixed timescale should be used to carry out RCAs and follow on actions/meetings; the work involved should be shared with local and trust wide teams. Antibiotic audits should be part of the panel meetings to determine if there are common trends in prescribing practice that need to be addressed. Audits should be carried out to demonstrate that the CDI investigation processes are an effective learning tool for staff; for doctors, this could potentially be achieved by auditing how HCAI is addressed within appraisals. Examples of good practice and HCAI (medical) champions should be used to encourage peer compliance.

2. Optimisation of diarrhoea control

As stated in the Background to this report, CDI case to CDI case transmission of *C. difficile* has been demonstrated on multiple occasions within the past year. As set out in my previous report, the
optimisation of diarrhoea case management should be a trust priority; this requires timely recognition, isolation and assessment/investigation/testing and optimised management of patients with diarrhoea.

I understand that there has been discussion about the possible use of probiotics to reduce CDI risk. The evidence base to support the use of probiotics for CDI prevention is not robust. A very large study has recently failed to show any benefit for a probiotic to prevent antibiotic associated diarrhoea or CDI (see Allen et al. Lancet 2013). I believe that the measures recommended in this report are preferable to the use of probiotics as CDI control measures.

**Action:**

A tool to improve diarrhoea management has been developed but not piloted. This needs to be kept as simple as possible to ensure maximal coverage. The tool should be piloted, reviewed and rolled out with an agreed timescale. As before, consideration should be given to introducing a focussed performance management scheme around the optimisation of diarrhoea control. The data generated by the tool should be reviewed to ensure that patients with diarrhoea are assessed, isolated, sampled/tested and managed according to locally set policies and targets.

I previously recommended that all patients seen in A/E should be questioned about contact with individuals with symptoms that could represent gastrointestinal infection, and who therefore could be infectious/incubating infections. This information should be transmitted to ward staff so that decisions can be made about the isolation of such patients. I am unclear if this has been implemented.

The above recommendations are preferable to the implementation of widespread administration of probiotics to prevent diarrhoea/CDI.

**3. Estate quality**

It is well known that *C. difficile* contaminates the healthcare environment, particularly around symptomatic and elderly patients. It is clear that that quality of estate is variable across clinical areas. In my previous report I highlighted areas of poor working environment, including sub-optimal surface quality (e.g. multiple bare wood paint chipped areas; medical notes trolleys with bare wood edges). Clinical areas also were cluttered (especially, but not only, the non-renovated wards) due to inadequate provision of storage. I note that the recent CDI case clusters occurred primarily in older estate areas of the trust. This reinforces the mismatch across STH in terms of the standard of the estate (and isolation capacity) versus patient risk of HCAI.

Two areas of progress have occurred since my last report. Changes have been made to the way in which reporting of estate defects occurs. Secondly, a report has been produced (July 2014) on how to improve estate quality. This has major capital funding implications and has yet to be debated/actioned.
Action:

Data should be collected and analysed to show that reporting/remedying of estate defects has improved. Such data can be used to optimise the responses to defect reporting, and to demonstrate to staff that timely reporting of defects leads to action (and so is worthwhile).

The estate improvement report needs to be turned into an action plan with clear timescales. Serious consideration should be given to both moving higher HCAI risks units into better quality estate and to prioritising the first renovated areas for use by such units. Key parts of the estate action plan, with timescales, should be made widely available in the trust.

4. Faecal sample processing / CDI testing / typing

I was originally told that approximately one third of faecal samples submitted to Microbiology for testing are rejected (because of samples are not considered to represent diarrhoea). I understand now that this rate is markedly influenced by samples from general practice. An audit of 34 trust generated faecal samples received by Microbiology has been carried out; only 1/34 samples was rejected from testing despite fulfilling local criteria. Changes to way that CDI testing/reporting is carried out have been agreed (having determined what is happening across the region) but not yet implemented locally. A review of the use of ribotyping/fingerprinting took place and this helped to identify the case clusters referred to above.

Action:

Communication with GPs needs to be improved to address the high sample rejection rate (this is unlikely to affect CDI rates/control but will reduce inefficiency). The trust faecal sample rejection rate should be re-audited using a much larger cohort. The changes to testing/reporting need to be implemented and then audited. In conjunction with data obtained following the introduction of the diarrhoea management tool, testing/sampling practice should be reviewed to ensure that these are timely.

5. Antimicrobial prescribing practice

There remains considerable scope for improving the practice of antimicrobial prescribing. A new prescription chart will have boxes for indication and start / stop / review dates. Until this is introduced it is difficult to optimise these elements of prescribing practice. New audit tools have been developed, one of which has won a regional award. The antimicrobial pharmacist/technician are overloaded with (audit) data analysis. I understand that a request for more ward-based pharmacists has been made.

Action:
I remain doubtful that there is sufficient capacity with the IPC/pharmacy team to monitor/optimise antimicrobial prescribing. The roles/ways of working of the antimicrobial pharmacist and technician should be reviewed and capacity issues addressed. Consideration should be given for the antimicrobial pharmacist/technician to work more closely as part of the infection prevention team, including potentially co-locating staff.

As recommended before, and in conjunction with the new prescription chart, there should be a focus on improving compliance with national standards around antimicrobial prescribing. Such practice should be performance managed where necessary to improve compliance rapidly, and to explore whether sub-optimal antimicrobial practice is related to occurrence of some CDI cases. See above comments (1) about RCA panel review of antimicrobial prescribing.

Responsibility for demonstrating improved antimicrobial prescribing practice should lie with clinical teams. Antimicrobial prescribing practice should be a mandatory part of the medical audit programme.

6. **Shared learning**

A former helpful forum (HCAI steering group) has begun to meet again, and there is evidence of improvements to shared learning. CCG representatives do not attend RCA panel meetings.

**Action:**

There should be discussions with commissioners about how best to facilitate shared learning on HCAI between different acute and community trusts in the region, and whether CCG representatives should attend RCA panel meetings. The use of medical champions (as recommended in 1 above) should be used to facilitate awareness of and engagement with good practice recommendations.

7. **Hand hygiene compliance**

Hand hygiene compliance audits demonstrated that the very high rates recorded by ward staff are not accurate (e.g. compliance rates of 95% vs 55% recorded by ward and IPC staff, respectively). This is possible evidence of complacency/tiredness of message or that simply recording whether hand hygiene took place is not sufficient (instead, was it the correct hand hygiene practice). The hand hygiene audit tool has been revamped to ensure that at least 50% of observations must surround clinical procedures.

**Action:**

The quality of hand hygiene should be improved. Hand hygiene compliance audits should be delivered by staff not working in the clinical area being assessed. Staff carrying out hand hygiene audits need to be trained on the recording of both quantitative and qualitative aspects of practice. The new hand hygiene tool should be implemented and data reviewed and
disseminated to increase compliance with optimal practice. The Medical Director should be made aware if doctors are not complying with hand hygiene good practice.

8. Environmental cleanliness and decontamination strategy

Since my previous report, a business case has been developed to increase the capacity to deploy hydrogen peroxide environmental decontamination in the trust (as the preferred high level environmental disinfection method).

I previously commented on the use of different measurement/scoring systems in use across the trust to determine the quality of environmental cleaning. Also, the frequency of environmental cleanliness measurement/scoring was insufficient to assure the IPC team about the maintenance of optimal standards and how quickly deficiencies are remedied.

Action:

A decision is needed on the business case for increased use of hydrogen peroxide environmental decontamination. Ways of working need to be developed to ensure that use of such environmental decontamination is efficient and as minimally disruptive as possible to clinical practice.

As before, there should be consistency in measurement/scoring of environmental cleanliness across STH. The frequency of measurements should be reviewed and increased particularly to ensure that there is assurance that those areas of the trust with poor quality estate/high risk patients have consistently adequate standards of cleanliness.

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