A review of indeterminate *Clostridium Difficile* cases & their antibiotic management

**Define**

We investigated antibiotic treatment of inpatients with indeterminate *Clostridium difficile* results (Glutamate dehydrogenase (GDH) positive, Toxin negative) over the period October 2014 to May 2015 within one 609 bedded Acute Trust. We found that out of 67 patients identified with indeterminate *C. difficile* results, 26 (40%) were treated for *C. difficile* infection including 5 who tested negative by Polymerase chain reaction (PCR) (Gene Expert) and were therefore treated inappropriately with antibiotics.

**Multi-disciplinary Team**

- Joanne Prince - Infection Control Nurse
- Dr Layth Alsaffar - Infection Control Doctor
- Paul Bolton - Senior Infection Control Nurse

**Improvements**

The management of indeterminate *C. difficile* cases was reviewed and a revised plan was implemented.

- All indeterminate *C. difficile* results would have a further PCR test
- Samples that were PCR positive would have a repeat toxin A/B test on further samples obtained at 48 and 96 hours after the original sample
- Antibiotics would only be commenced if these subsequent tests were toxin positive or if *C. difficile* seemed the most likely clinical diagnosis based on raised WCC, Bristol score type 5 to 7 > 3 times per day or evidence of acute renal failure (creatinine > 50% above baseline) following review by the Infection Prevention and Control (IPC) team
- Indeterminate cases that were PCR negative were not recommended for treatment

**Measurements**

Evaluation of these changes was carried out by reviewing patients with indeterminate *C. difficile* results from September 2015 to April 2016.

**Outcomes & Lessons Learnt**

- From September 2015 to April 2016 only 19% (12/64) indeterminate patients were treated with antibiotics, a decrease of 21%. This shows an increase in awareness of appropriate antibiotic prescribing
- From October 2014 to May 2015 £206.08 was spend on antibiotic treatment of indeterminate *C. difficile* compared to £12.49 from September 2015 to April 2016, a saving of £193.59 (94%)
- An incidental finding was that the average length of stay for these patients decreased by 5 days and the average length of diarrhoeal symptoms decreased by 1 day (as defined as passing a Bristol score type 1 to type 4 and 48 hours symptom free)

**For more details, contact:** The Infection Prevention & Control Team— infectioncontrolnurses@rbch.nhs.uk