

Antimicrobial Stewardship of Surgical Patients in a District General Hospital: The Role of the Audit Process in Improving Outcomes



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BACKGROUND

Antimicrobial stewardship has become an important topic in medical practice, leading to improved outcomes and decreased resistance. We evaluated antimicrobial use within the department of General Surgery at Wexham Park Hospital, Slough, a district general NHS hospital located in Southeast England.

According to the Centers for Disease Control and Prevention (CDC) there are three broad interventions to improve antimicrobial use:

Antibiotic "Time Outs"

Does this patient have an infection that will respond to antibiotics? If so, is the patient on the right antibiotic(s), dose, and route of administration? Can a more targeted antibiotic be used to treat the infection (de-escalate)? How long should the patient receive the antibiotic(s)?

Prior Authorization

Authorization needs to be completed in a timely manner by an expert in antibiotic use and infectious diseases.

Prospective Audit and Feedback

External reviews of antibiotic therapy by an expert in antibiotic use. Audits are conducted by staff other than the treating team.

MATERIALS AND METHODS

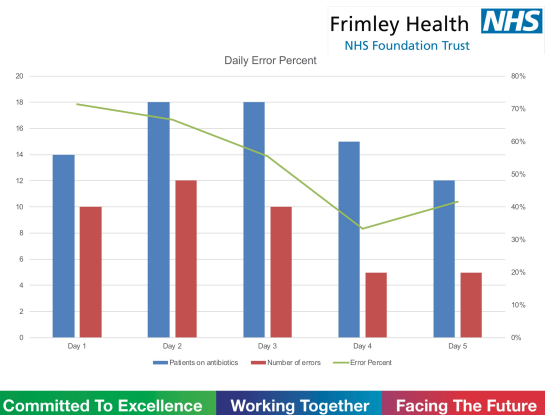
In this audit, we focused on proper antimicrobial use, dosages, durations, and timely review according to the hospital's guidelines.

Surgical emergency admissions were started on therapeutic regimens before and after surgery, which involved intravenous Amoxicillin, Metronidazole, and Gentamicin for broad-spectrum coverage referred to as 'triple therapy' for intra-abdominal sepsis. Conversely, elective patients were given a dose of prophylactic antimicrobials peri-operatively and were only enhanced to triple therapy protocol with signs of intra-abdominal infection. Patients in both groups were then ideally switched to a narrow spectrum antimicrobial after cultures grew an organism and sensitivity analysis performed.

RESULTS

We reviewed 155 patients' prescription charts over a two-week period and found that over 50% of patients had an active antimicrobial prescription at any one time. Of these patients, 55% had an avoidable error in prescribing. The most common errors included incorrect dosage and lack of prescription review.

Through this period, we found that physicians prescribed with fewer errors (38% reduction) as the audit period progressed, revealing that the audit process itself acted as an intervention to improve clinical practice.



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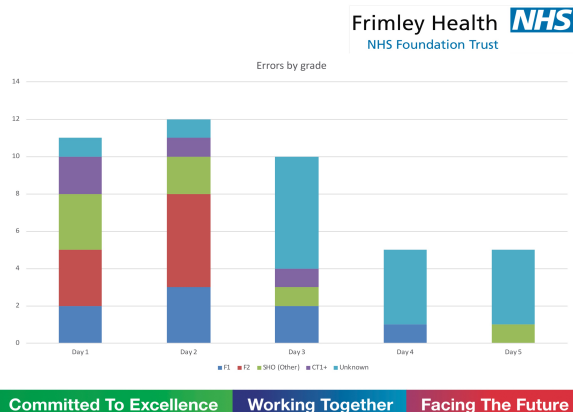
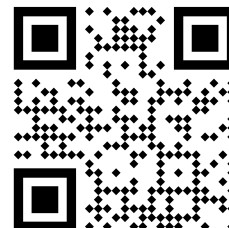
CONCLUSIONS

Before the audit period, doctors in the general surgery department were trained on the key principles of the Antibiotic "Time Out". Usual practice was to obtain authorization for antibiotics outside the hospital guidelines.

We found that the institution of the first two broad interventions alone did not show a significant decrease in prescribing errors. On implementation of the last broad intervention we saw a significant decrease in prescribing errors across the department.

By instituting a continual antimicrobial stewardship program, we can improve patient outcomes while decreasing adverse effects including resistance, changes in flora, and increases in length of stay.

Poster, References, and Contact Information



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