Improving antibiotic surgical prophylaxis

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Aim Statement
Within 12 months, 100% of antibiotic surgical prophylaxis will be prescribed appropriately

Driver Diagram

Background
Increasing antimicrobial resistance is a major public health concern. While rates of antimicrobial resistance are increasing, few new antibiotics are being developed. One of the drivers of antimicrobial resistance is inappropriate antibiotic use. In addition to resistance, inappropriate antibiotic use results in poor patient outcomes, increased side effects, and increased healthcare costs. Inappropriate antibiotic use may be unnecessary prescription of antibiotics for viral infections, using broad-spectrum agents when a narrow spectrum agent would be effective, using incorrect dose or duration of antibiotics, as well as prolonging, incorrectly timed or unnecessary surgical prophylaxis.

Surgical prophylaxis has been the commonest reason for antimicrobial prescribing in hospitals for the past 5 years in a national survey (NAPSS). Evidence shows that, for certain indications, prophylactic antibiotics can reduce the rates of surgical site infections, and guidelines for surgical antibiotic prophylaxis have been issued by a number of professional bodies. However, a recent national survey showed that 43.4% of surgical prophylaxis prescriptions in Australian hospitals were inappropriate. An survey performed at The Tweed Hospital showed similar results: see figures below.

National Standard 3
As part of National Standard 3, health facilities are required to have an Antimicrobial Stewardship (AMS) program in place. The AMS program must include monitoring of antimicrobial prophylaxis and evidence of action to taken to improve antimicrobial prophylaxis prescribing.

Plan-Do-Study-Act Cycles
1. Develop local surgical prophylaxis guidelines – collaborative approach
   - Previously there have been no local surgical prophylaxis guidelines at TTH
   - Practice variable between surgeons
   - Therefore guidelines were developed and feedback sought from surgical teams and LHD AMS teams
   - To be followed by implementation with education to medical and nursing staff.

2. Meet with surgeons to address specific issues
   - Outlying prescribers identified by audit
   - Meeting arranged with surgeons and literature review performed to address specific concerns
   - Ongoing monitoring and feedback

3. Standardise MSSA/MRSA screening before joint replacement
   - Previously screening for Staph colonisation not routine
   - Liaison with orthopaedic team and preadmission clinic
   - Implementation of guidelines

4. Change from vancomycin to telcoplanin for MRSA cover
   - Identified that vancomycin not given appropriately in majority of cases due to long infusion times.
   - Telcoplanin is an alternative that can be given as a push
   - Guidelines developed for telcoplanin use, to be submitted to Drug and Therapeutics Committee
   - Monitoring of appropriateness of prescribing, costs and adverse effects

For this quality improvement project, we aimed to improve antimicrobial prophylaxis prescribing at the Tweed Hospital.

Results
Within 6 months of implementation, the following process, outcome and balancing measures will be reviewed

Process:
- Surgical National Antimicrobial Prescribing Survey (SNAPS)
- Survey of clinician awareness of guidelines
- Audit of MSSA/MRSA screening and load reduction

Outcome:
- Surgical site infection and TKR and THR infection
- C. difficile rates

Balancing:
- Surgical site infections
- Cost and adverse reaction secondary to telcoplanin

Plans to sustain and spread change
To ensure that change is sustained longer term, the following measures will be put in place:

- Sustaining knowledge
  - Education about prophylaxis guidelines included in orientation programs (included in Infectious Diseases orientation)
  - Development of laminard and cheat sheets for clinicians
  - Promotion of guidelines during Antibiotic Awareness Week activities

- Sustaining monitoring
  - Standing agenda item on AMS committee meetings
  - 6 monthly SNAPS (Surgical National Antimicrobial Prescribing Survey) undertaken by surgical trainees.
  - Surgical site infection and C. difficile rates already monitored by Infection Control. Improved systems for detecting infection have been developed

- Sustaining feedback and collaboration
  - 6 monthly SNAPS presented at surgical M&M meetings and emailed to heads of surgical departments
  - Appointment of junior doctor AMS champion

Team members
Project Team
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