Waterford: Antimicrobial Guidelines - Antimicrobial Guideline: Principles of Surgical Antibiotic Prophylaxis

Indication for Prophylaxis

Indication for prophylaxis [5]

Do not use antibiotic prophylaxis routinely for clean surgery that does not involve a prosthesis.

Give antibiotic prophylaxis to patients before:

- Clean surgery involving the placement of a prosthesis or implant
- Clean-contaminated
- Contaminated
- Dirty of infected surgical procedures (antibiotic treatment course in addition to prophylaxis)

Class	Definition
Clean	An incision in which no inflammation is encountered in a surgical procedure, without a break in sterile technique, and during which the respiratory, alimentary or genitourinary tracts are not entered.
Clean-contaminated	An incision through which the respiratory, alimentary, or genitourinary tract is entered under controlled conditions but with no contamination encountered.
Contaminated	An incision undertaken during an operation in which there is a major break in sterile technique or gross spillage from the gastrointestinal tract, or an incision in which acute, non-purulent inflammation is encountered. Open traumatic wounds that are more than 12 to 24 hours old also fall into this category.
Dirty or infected	An incision undertaken during an operation in which the viscera are perforated or when acute inflammation with pus is encountered (for example, emergency surgery for faecal peritonitis), and for traumatic wounds if treatment is delayed, there is faecal contamination, or devitalised tissue is present

Choice of Prophylactic Agent

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Choice of antimicrobial agent is governed by the procedure and likely implicated pathogens at that site. Also, history must be carefully reviewed for both drug allergy (see Appendix 3) and colonisation with MRSA or multi-drug resistant organisms (MDRO).

- A glycopeptide (e.g. Vancomycin) should be considered for antibiotic prophylaxis in patients undergoing high risk surgery who are colonised with MRSA.
- For patients colonised with MDRO or CPE, consult local microbiologist for advice on prophylaxis.

How to Document Surgical Prophylaxis

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Prescribe in the patients' medication chart in the Surgical Antimicrobial Prophylaxis section or "ONCE ONLY PRESCRIPTIONS" section. The antibiotic used, dose and time of administration may also be recorded on the anaesthetic record sheet.

Timing of Prophylaxis

Timing of Prophylaxis

- The antimicrobial agent should be administered within 60 minutes before surgical incision. [2,4,6]
- Some agents such as ciprofloxacin and vancomycin require longer administration time and should begin within 120 minutes before surgical incision. [6]
- The aim of prophylaxis is to have maximum tissue antibiotic levels at the time of first incision. A single preoperative dose of antibiotic is as effective for majority of procedures. [2,5,6]

- Additional intra-operative dose may be required for:
  - a procedure longer than 4 hours or
  - Intra-operative major blood loss > 1.5 litres (Re-dose following fluid replacement).
- Patients who have suspected or documented infection at the time of surgery or within 48 hours post-operatively requires treatment course and not prophylaxis.

Duration of Antibiotic Prophylaxis

Duration of Antibiotic Prophylaxis [2]

Surgical procedure	Recommended maximal duration of antibiotic prophylaxis (National Position Statement)*
• Gastrointestinal (GI) surgery (including endoscopic GI surgery • Obstetrics & gynaecology surgery (including caesarean section)	Single dose
• Orthopaedic surgery • Vascular surgery • Neurosurgery • Thoracic surgery • Ear-nose and throat surgery • Urology • Plastic and reconstructive surgery • Cardiology – percutaneous procedures	≤24 hours
• Maxillofacial surgery • Cardiac surgery • Head and neck surgery	≤48 hours

***HSE Antimicrobial Resistance and Infection Control Team (AMRIC), the HSE Antimicrobial Stewardship Advisory Group & the National Clinical Programme for Surgery (NCPS) . A joint position statement on surgical antibiotic prophylaxis duration 2021**

- Antibiotic prophylaxis should not be continued beyond the time frames identified above on the basis that drains remain in-situ.
- Surgical prophylaxis should be distinguished from pre-emptive use of antibiotics to treat early infection e.g. perforated appendix. If infection is suspected or confirmed, the model of antibiotic prophylaxis is no longer applicable.
- An agent appropriate for surgical prophylaxis may not be optimal therapy for an established infection. Therefore, continuation of an agent as treatment may represent sub-optimal therapy. Treatment agent & duration should be as per antimicrobial prescribing guidelines or infection specialist advice.