Adult Antibiotic Prophylaxis in Gastrointestinal Surgery

NHS Lanarkshire

General Principles of Prescribing for Surgical Prophylaxis

1. **Indication for prophylaxis** should comply with SIGN 104 guideline i.e when 'highly recommended', 'recommended' or 'considered' within guideline.
2. **Choice of agent:**
   - Adhere to recommended agent in table below where possible
   - Recommendations restrict the use of cephalosporins, clindamycin, quinolones and co-amoxiclav and use narrow spectrum agents where possible
   - Take recent culture results/antibiotic therapy and additional patient risk factors into account eg. morbid obesity, multiple previous surgeries, prosthetic material, diabetes. Discuss with Infection Specialist in a timely manner prior to surgery if multidrug resistance eg. Carbapenemase producing enterobacteriaceae (CPE) isolated
   - Check allergy status of patient including nature of allergy prior to prescribing
3. **Recording of antibiotic** on ''once only'' section of drug cardex and on Anaesthetic Record Sheet.
4. **Timing of antibiotic:**
   - ❖ Optimum timing of IV antibiotics is ≤60 minutes prior to skin incision, usually at induction of anaesthesia
   - ❖ Antimicrobial cover may be sub-optimal if given > 1 hour prior to skin incision or post skin incision
5. **Frequency of administration** should be single dose only unless:
   - ❖ Operation Prolonged (see re-dosing guidance table)
   - ❖ >1.5 litre intra-operative blood loss –Re-dose following fluid replacement (see re-dosing guidance table)
   - ❖ Specifically stated in following guideline

   Document in the medical notes the indication for antibiotic administration beyond 1st dose.
6. **Decolonisation therapy** should be used prior to elective surgery if patient MRSA positive and antimicrobial prophylaxis should include cover for MRSA. See NHSL Policy for management of patients colonised or infected with MRSA.

Recommended Agents in Gastrointestinal Surgery

Procedure	1st Choice	If MRSA Positive or Penicillin Allergy	SIGN 104 recommendations/other comments
Oesophageal, stomach, duodenal, colorectal and small intestine, appendicectomy, gallbladder (open), pancreatic surgery, bile duct surgery, gastric bypass	Gentamicin IV (see dosing table) + Metronidazole 500mg IV + Amoxicillin 1g IV	Gentamicin IV (see dosing table) + Metronidazole 500mg IV + [1]Teicoplanin IV 400mg if <65kg or 800mg if ≥65kg	Recommended Highly recommended in Colorectal and appendicectomy.
Gallbladder surgery (laparoscopic)	If indicated Gentamicin IV (see dosing table) + Metronidazole 500mg IV	If indicated Gentamicin IV (see dosing table) + Metronidazole 500mg IV	Not routinely recommended. Consider in cholangiogram, bile spillage, conversion to open, acute cholecystitis or pancreatitis, jaundice, pregnancy, immunosuppression or insertion of prosthesis.
Hernia repair (inguinal, femoral, laparoscopic or incisional), Open/ laparoscopic surgery with mesh eg. gastric band, rectoplexy	Not routine	Not routine	Not recommended with or without mesh
Splenectomy	If indicated Gentamicin IV (see dosing table) + Metronidazole 500mg IV	If indicated Gentamicin IV (see dosing table) + Metronidazole 500mg IV	Not routinely recommended. Consider in immunosuppression. Remember post splenectomy prophylaxis (see NHSL splenectomy protocol).
ERCP (therapeutic)	If indicated Gentamicin IV (see dosing table)	If indicated Gentamicin IV (see dosing table)	Should be considered in pancreatic pseudocyst, immunosuppression, incomplete biliary drainage, sclerosing cholangitis and cholangiocarcinoma.
Variceal banding/injection (acute)	Gentamicin IV (dose according to NHSL treatment protocol) + Metronidazole 500mg IV 8 hrly + Amoxicillin 1g IV 8hrly	Gentamicin IV (dose according to NHSL treatment protocol) + Metronidazole 500mg IV 8 hrly + [1]Teicoplanin IV 400mg if <65kg or 800mg if ≥65kg	Continue for 48 hours after cessation of bleeding.
Diagnostic endoscopy	Not routine	Not routine	Not recommended
PEG tube insertion	Gentamicin IV (see dosing table) + Metronidazole 500mg IV + Amoxicillin 1g IV	Gentamicin IV (see dosing table) + Metronidazole 500mg IV + [1]Teicoplanin IV 400mg if <65kg or 800mg if ≥65kg	Should be considered in high risk patients.

[1]If treatment course required after teicoplanin prophylaxis convert to vancomycin (dose according to NHSL treatment protocol with 1st dose 12 hours after teicoplanin). Clinicians should be aware of potential for allergic reactions to teicoplanin

IV Antibiotic Administration and Re-dosing Guidance

- ❖ Antibiotics should be given as a bolus injection where possible
- ❖ All re-dosing guidance based on pre-op eGFR>59ml/min/1.73^2; if renal impairment present consult individual drug product literature

Antibiotic	Dose	Administration	Prolonged Surgery	>1.5L blood loss - Re-dose after fluid replacement
Amoxicillin 1g vial	1g	Reconstitute with 20ml of water for injection and give by slow IV injection over 3-5 minutes	Re-dose 1g after 4 hours	1g
Gentamicin 80mg/2ml vial	See Gentamicin dosing table below	No dilution required. Give by slow IV injection over 3-5 minutes	'If pre-op eGFR>59ml/min, re-dose at half prophylaxis dose after 8 hours	If repeat eGFR>59ml/min, re-dose at half prophylaxis dose
Metronidazole 500mg minibag	500mg	Already diluted. Give by IV infusion over 20 minutes.	Re-dose 500mg after 8 hours	500mg
Teicoplanin 400mg vial	400mg if patient weight <65kg or 800mg if ≥65kg	Re-constitute slowly with 3.14ml ampoule of water for injection provided and roll gently until dissolved. If foamy, stand for 15 minutes until foam subsides then give EACH vial by slow IV injection over 3-5 minutes.	DO NOT re-dose	200mg if patient weight <65kg or 400mg if ≥65kg

Dosing Table for Gentamicin Prophylaxis

- ❖ If eGFR<15ml/min/1.73m^2, give HALF of dose recommended in table (1.5mg/kg ideal body weight).
- ❖ Review medication cardex prior to prescribing/administration of gentamicin. Avoid if patient has received gentamicin within previous 24 hours

Height		Gentamicin dose (mg) based on 3mg/kg Ideal Body Weight	
Feet/inches	**Centimetres**	**Males**	**Females**
4'8-4'10	**142-149cm**	**160mg**	**140mg**
4'11-5'3	**150-162cm**	**180mg**	**160mg**
5'4-5'10	**163-179cm**	**240mg**	**200mg**
5'11-6'2	**180-189cm**	**300mg**	**260mg**
6'3-6'8	**190-203cm**	**300mg**	**300mg**

Approved by AMC: June 2019; Approved by ADTC: July 2019; Extended Interim Review date: May 2024

MPR.APGASU.23_14161.L