

Adult Antibiotic Prophylaxis for General and Abdominal Surgery

General Principles of Prescribing Antibiotics for Surgical prophylaxis

1. **Timing.** Antibiotics should be administered, or infusion completed within 60 minutes before the procedure or skin incision.
2. **Document** doses as STAT orders on HEPMA and also in the anaesthetic record.
3. **A single dose** of antibiotic is recommended. Exceptions are outlined in individual protocols.
4. **No dose adjustment** in renal or hepatic impairment is required unless indicated.
5. **Repeat dosing** may be required if the operation is prolonged (see table below for re-dosing guidance for individual antibiotics):
 - The repeat dose is given at the recommended interval from the time the initial dose was administered.
 - Intra-operative blood loss >1.5L. Re-dose following fluid replacement/blood transfusion.
6. **Discuss** patients with microbiologist at pre-op assessment for complex issues including:
 - Carriage of, or previous infection with resistant organisms other than MRSA e.g. CPE.
 - Where eGFR is <20ml/min for alternatives to gentamicin.
 - Gentamicin is contra-indicated in patients with myasthenia gravis.
7. **MRSA.** See intranet for MRSA infection control policy on de-colonization prior to surgery.
8. **Teicoplanin and gentamicin** are incompatible when mixed directly, therefore always flush between administrations.

Agreed by NHS Lothian Antimicrobial Management Committee in consultation with clinical management team for Colorectal and General Abdominal Surgery

Lead clinician Dimitrios Damaskos, Sarah Thomasset, Andrew Robertson

Clinical Pharmacist Agata Paczek, Ewan McLean
Consultant Microbiologist: Ian Laurinson

Date: December 2024
For review: December 2027

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Procedure	Recommended
<u>OESOPHAGUS AND STOMACH PROCEDURE</u> Gastrectomy Gastric bypass Gastro-enterostomy Oesophagectomy	Amoxicillin 1g IV PLUS Gentamicin IV dosing (as per chart below) PLUS Metronidazole 500mg IV If MRSA or penicillin allergy Teicoplanin 400mg IV PLUS Gentamicin IV dosing (as per chart below) PLUS Metronidazole 500mg IV
<u>COLORECTAL PROCEDURES</u> Appendicectomy Colorectal Emergency Laparotomy Hepatectomy Pancreatectomy Small bowel surgery Bariatric Surgery Whipple's procedure	

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Procedure	Recommended	Penicillin allergy or MRSA
Hernia repair +/- mesh, open or laparoscopic- and no risk factors Hernia : recurrent, complex or incisional/ventral midline hernias, (included parastomal and umbilical/epigastric hernias), in patients with mesh insertion and if general risk factors (*)	Not recommended Amoxicillin 1g IV PLUS Gentamicin IV dosing (as per chart below) PLUS Metronidazole 500mg IV	Not recommended Teicoplanin 400mg IV PLUS Gentamicin IV dosing (as per chart below) PLUS Metronidazole 500mg IV
Splenectomy – usual splenectomy prophylaxis needed post-surgery. Splenectomy -If there are general risks factors (*)	Not recommended Amoxicillin 1g IV PLUS Gentamicin IV dosing (as per chart below)	Not recommended Teicoplanin 400mg IV PLUS Gentamicin IV dosing (as per chart below)

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Procedure	Recommended	Penicillin allergy or MRSA
Cholecystectomy (laparoscopic) with planned IOC/CBD exploration Cholecystectomy (open) Acute cholecystitis	Amoxicillin 1g IV PLUS Gentamicin IV dosing (as per chart below) PLUS Metronidazole 500mg IV	Teicoplanin 400mg IV PLUS Gentamicin IV dosing (as per chart below) PLUS Metronidazole 500mg IV
ERCP If general (*) and specific risk factors(**)	Gentamicin IV dosing (as per chart below) For alternatives to gentamicin (i.e. when eGFR <20ml/min) piperacillin/tazobactam 2.5 to 4.5g IV	Gentamicin IV dosing (as per chart below) (for MRSA, PLUS Teicoplanin 400mg)
PTC/ Chemoembolization	Not recommended	Not recommended

(*) General Risk factors: immunosuppression, diabetes mellitus, coexisting infections, obesity, poor nutritional state, extremes of age, abdominal wall stoma

() Specific risk factors:** bile spillage, acute cholecystitis/pancreatitis, jaundice, pregnancy, insertion of prosthesis.

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Gentamicin dosing Height is used to estimate ideal body weight, dosing equates to approximately 3mg/kg capped at 300mg.

* When height <5-foot use **actual body weight** to calculate gentamicin dose.

FEMALE

Height (Feet/Inches)	Height (cm)	Gentamicin dose
<5'	<152	*3mg/kg (max 300mg)
5' - 5'3"	152 - 163	160 mg
>5'3" - 5'8"	>163 - 175	200 mg
>5'8" - 6'1"	>175 - 188	240 mg
>6'1" - 6'4"	>188 - 193	280 mg
>6'4"	>193	300mg

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MALE

Height (Feet/Inches)	Height (cm)	Gentamicin dose
<5'	<152	*3mg/kg (max 300mg)
5' - 5'1"	152 - 155	160 mg
>5'1" - 5'6"	>155 - 168	200 mg
>5'6" - 5'11"	>168 - 180	240 mg
>5'11" - 6'4"	>180 - 193	280 mg
>6'4"	>193	300mg

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IV antibiotic administration and re-dosing guidance

Antibiotic	Administration	Re-dosing advice prolonged surgery	>1.5 L blood loss (After giving fluids replacements)
Amoxicillin	Infuse 1g bolus over 3 to 5 minutes	Repeat original dose after 4 hours and if needed after 8 hours (again) after initial dose	Repeat original dose
Gentamicin	Bolus over 3 to 5 minutes	Repeat half of original dose 8 hours after initial dose if eGFR > 60ml/min	Repeat half of original dose
Metronidazole	Infuse over 20minutes	Repeat original dose 8 hours after initial dose	Repeat original dose
Teicoplanin	Bolus over 3 to 5 minutes	No re-dosing required	200mg (half of original dose) if >1,5 L blood loss within first hour of operation

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