ANTIBIOTIC PROPHYLAXIS IN OBSTETRICS SURGERY

The aim of surgical prophylaxis is to reduce rates of surgical site and healthcare-associated infections and so reduce surgical morbidity and mortality. There is however growing evidence that aspects of prescribing practice may themselves be associated with health-care associated infections and antimicrobial resistance. The Scottish Antimicrobial Prescribing Group (SAPG), along with the Scottish Government, monitors antimicrobial prescribing including surgical prophylaxis in order to reduce the rates of resistance and *C.difficile*. SIGN guideline 104 published in July 2008, and updated in April 2014, has outlined which surgical procedures require prophylactic antibiotics based on a review of the available evidence. Principles of prophylaxis have also been outlined, including timing and duration of antibiotic administration. In conjunction with the surgical specialties within NHS Tayside the Antimicrobial Management Group has undertaken to review local prophylaxis policy and to formulate a uniform policy.

Principles of Antibiotic Prophylaxis Policy

1. **Indication for prophylaxis** should comply with SIGN 104 guideline i.e. when 'highly recommended', 'recommended' or 'considered' within guideline.
2. **Timing of antibiotic(s)**:
    - Optimum timing is intravenous dose given or infusion completed ≤ **60** minutes prior to skin incision
    - Sub-optimal if >1 hour prior to skin incision or post-skin incision
3. **Recording of antibiotic** prescription in 'once only' section of medicine chart to avoid multiple dosing
4. **Frequency of administration** should be single dose only unless:
    - > 1.5 litres intra-operative blood loss - re-dose following fluid replacement (see administration guidance table)
    - operation prolonged (see administration guidance table)
    - specifically stated in following guidelines
5. **Documentation in medical notes** of reason for antibiotic administration beyond single dose or state intention for antibiotic treatment course
6. **Choice of agent** should:
    - Use narrow spectrum agents when possible
    - Take into account local resistance patterns e.g. >95% of MRSA isolated in Tayside are sensitive to gentamicin
    - Provision of alternatives for beta-lactam allergy
7. **De-colonisation therapy** prior to surgery when MRSA positive when recommended in Infection Control Policies
8. **Complex individual prophylaxis** issues should be discussed with Microbiology or Infectious Diseases pre-operatively and recorded in medical notes

IV Antibiotic Administration Guidance:

Antibiotic	Dose	Administration	Prolonged surgery	>1.5L blood loss redose after fluid replacement
Metronidazole	500mg	Infusion over 20 minutes	Redose 500mg after 8 hours	500mg
Gentamicin	*For obstetric indications see dosing guidance and table below*	Bolus over at least 5 mins or infusion Can also be added to metronidazole infusion bag	Redosing not required	Not required
Clindamycin	600mg	Infusion over 20 minutes	Redose 600mg after 4 hours	300mg
Co-amoxiclav	1.2g	Bolus over 3-5 minutes	Redose 1.2g after 4 hours	1.2g
Amoxicillin	1g	Bolus over 3-5 minutes	Redose 1g after 4 hours	1g
Cefuroxime	1.5g	Bolus over 3-5 minutes	Redose 1.5g after 4 hours	1.5g
Teicoplanin	12mg/kg based on current weight (max 800mg)	Bolus over 3-5 minutes or 30 minute infusion	n/a	Give half original dose, if >1.5L blood loss within first hour of operation

Approved by AMG: 2009
Updated by Women and Child Health/AMG: April 2021
Minor update to CSection BMI/weight: Dec 2022
Review: April 2024

Type of Surgery	Procedure	SIGN 104 Recommendation	Antibiotic(s)	Comments
Obstetrics	Caesarean Section (Ref: NICE/SAPG guidance Co-amoxiclav dosing: SPC)	'Highly recommended' Prior to skin incision	If BMI <30 (use current weight if possible): IV Co-amoxiclav 1.2g If BMI ≥ 30 (use current weight if possible): IV Co-amoxiclav 1.2g + IV Amoxicillin 1g	In penicillin allergy: ***Category 1 emergency sections + non-severe allergy:*** IV Cefuroxime 1.5g + IV Metronidazole 500mg ***All non category 1 sections and all patients with history of severe penicillin allergy*** *(history of anaphylaxis/angiodema):* IV Clindamycin 600mg + IV Gentamicin 4mg/kg x pregnancy booking weight (max 400mg – see below for dosing table)
	Assisted vaginal birth	Ref: RCOG 2020	Single dose IV Co-amoxiclav 1.2g following Assisted vaginal birth	Non severe pencillin allergy: IV Cefuroxime 1.5g Severe penicillin allergy(history of anaphylaxis or angiodema): IV Clindamycin 600mg + IV Gentamicin 4mg/kg x pregnancy booking weight (max 400mg – see below for dosing table)
	Group B streptococcus intrapartum prophylaxis Link to full local guidance	Ref: RCOG 2017	IV Benylpenicillin 3g followed by 1.5g every 4 hours until delivery	Non severe penicillin allergy: IV Cefuroxime 1.5g then 750mg 8 hourly until delivery Severe penicillin allergy (history of anaphylaxis or angiodema): IV Clindamycin 900mg 8 hourly until delivery or if resistant IV Teicoplanin – 12mg/kg based on current weight 12 hourly for 3 doses then 24 hourly until delivery (rounded to nearest 200mg, max dose = 800mg)
	Perineal Tear (Ref: RCOG 2015) Link to full local guidance	'Recommended' for 3rd/4th degree tears involving the anal sphincter/rectal mucosa	Prior to suturing one off dose of: IV Co-amoxiclav 1.2g Followed by: PO Co-amoxiclav 625mg tds for 7 days	Penicillin allergy: Prior to suturing one off dose of IV Clindamycin 600mg + IV Gentamicin 4mg/kg x pregnancy booking weight (max 400mg – see below for dosing table) Followed by: PO Cotrimoxazole 960mg bd + PO Metronidazole 400mg tds for 7 days (If breastfeeding monitor baby for hyperbilirubinaemia and kernicterus. Avoid if baby already jaundiced or premature babies – seek advice on alternative)
	Retained Placenta Link to full local guidance		IV Co-amoxiclav 1.2g	Non severe pencillin allergy: IV Cefuroxime 1.5g Severe penicillin allergy(history of anaphylaxis or angiodema): IV Clindamycin 600mg + IV Gentamicin 4mg/kg x pregnancy booking weight (max 400mg – see below for dosing table)
	Surgical termination of Pregnancy	Ref: NICE 2019		If Chlamydia test positive give doxycycline 100mg bd for 7 days
	Conservative management of incomplete miscarriage or	Locally recommended if signs of infection	PO Co-amoxiclav 625mg tds for 7 days	Penicillin allergy: PO Cotrimoxazole 960mg oral bd +

	incomplete medical termination			PO Metronidazole 400mg oral tds for 7 days
	Intrauterine contraceptive device insertion	'Not recommended'		Antibiotic treatment for *Chlamydia trachomatis*(CT) can be considered for women: • ONLY if the woman has significant symptoms of a CT positive partner **AND** • ONLY if the insertion of the IUD before NAAT results is essential If treatment is required follow STI guidance

DOSING TABLE FOR GENTAMICIN IN OBSTETRIC SURGICAL PROPHYLAXIS INDICATIONS (REFER TO GUIDANCE ABOVE):

PREGNANCY BOOKING WEIGHT	GENTAMICIN DOSE
≤ 50kg to 52kg	200mg
53kg to 57kg	220mg
58kg to 62kg	240mg
63kg to 67kg	260mg
68kg to 72kg	280mg
73kg to 77kg	300mg
78kg to 82kg	320mg
83kg to 87kg	340mg
88 kg to 92kg	360mg
93kg to 97kg	380mg
98kg	400mg