Cellulitis (Adults Only)

This guideline provides support for IV therapy management in primary care following failure of oral antimicrobial therapy as appropriate. This is to be used for guidance only and should not replace clinical judgment. This pathway includes:

- Bacterial cellulitis
- Erysipelas in primary care
- Adults over 15 years of age

Exclusions: (not funded by CPO)

- Mild cellulitis (suitable for oral antibiotic- first choice or boosted. See recommendations for oral antibiotics below)
- Abscess- needs surgical debridement
- Red Flags present- as below

RED FLAGS

Transfer to hospital and contact triage nurse via switchboard 06 8788109 ext 2623	**Consider urgent referral/consultation for admission to hospital for the following:**
• Significant systemic upset ➢ Acute confusion ➢ Tachycardia ➢ Tachypnoea ➢ Hypotension ➢ Cold sepsis ➢ Hypothermia (blunted immune response in the elderly) • Unstable co-morbidities • Limb-threatening infection due to vascular compromise • Systemic Inflammatory Response Syndrome (SIRS criteria)- see criteria below • Severe life-threatening infection such as necrotising fasciitis	• Compartment syndrome • Post-operative surgical wounds • Severe systemic illness, e.g. fever, or nausea, and vomiting • Co-morbidity that may complicate or delay healing e.g. peripheral vascular disease, chronic venous insufficiency, morbid obesity, immunosuppression, intravenous drug use • Periorbital infection • Suspected necrotising fasciitis (see note below) • Cellulitis that has spread from an adjacent structure (e.g. osteomyelitis) or through the blood (bacteraemia) is a serious concern

Patient meets SIRS criteria if they exhibit two or more of the following:	
Temperature >38°C or <36°C	Yes / No
Heart Rate > 90	Yes / No
Respiratory rate > 20 or $PaCO_2$ <32 mm Hg	Yes / No
WBC > 12,000/mm>^{3} , < 4,000/mm>^{3} , or > 10% bands	Yes / No

NOTE: Necrotising fasciitis or Myonecrosis

Generalised signs of necrotising fasciitis or myonecrosis can be indistinguishable from cellulitis, but is strongly suggested by:

- Dusky purple or black discolouration
- Tense oedema
- Cutaneous numbness
- Skin necrosis with or without crepitus
- Pain - out of proportion to clinical signs

ORAL ANTIBIOTIC TREATMENT:

Oral Antibiotic Treatment- First Choice: (dosing for normal renal function)
(NOT CPO FUNDED)

- Flucloxacillin- 500mg to 1g, four times daily, for seven days
  OR (if penicillin-related rash))
- Cefalexin- 500mg, four times daily, for seven days

Antibiotic Treatment if type 1 penicillin allergy:

- Erythromycin ethinyl succinate - 800mg, twice daily, for seven days OR
- Roxithromycin - 150mg, twice daily or 300mg daily for seven days

OR If MRSA present:

- Co-trimoxazole - 160+800mg (two tablets), twice daily, for five to seven days OR
- Clindamycin- 450mg three times daily (authorization required from Infectious Disease Physician)

Boosted Antibiotic Treatment:
(NOT CPO FUNDED)

If No Improvement Following Oral Antibiotic Treatment- First Choice as above:

Consider using probenecid in combination with antibiotics.

- Probenecid 500mg three times daily for seven days WITH
- Flucloxacillin 1g, three times daily, for seven days

OR

- Probenecid 500mg three times daily for seven days WITH
- Cefalexin 1g, three times daily, for seven days

OR

IV Cefaxolin as per the CPO Cellulitis pathway if appropriate (Funded under CPO)

CPO Cellulitis Pathway for IV Antibiotics (Adults Only)

Suitable for CPO-funded IV management:

- Hawke's Bay resident
- Completed adequate trial of oral antibiotics (as per above)
- Pain level under control
- General health especially cognitive capacity is suitable
- Social circumstances are supportive of CPO IV therapy
- Access to a telephone
- Agrees to home elevation of affected limb (patient handout)

Exclusions:

- Red Flags
- Complex diabetic foot infections
- eGFR <35
- BMI >40 or weight >150kg, discussion with ID physician is encouraged

IV Management

- Outline area of erythema and daily reassessment to check not extending. Area of erythema may be slow to reduce but check for other signs of improvement, less oedema, less heat, less pain
- Cefazolin given as an IV slow push 5-10mins, diluent in 20mls water
- Discontinue oral antibiotics when IV cefazolin commenced.
- Arrange oral antibiotic to begin with final dose of IV antibiotic. (Generally flucloxacillin, 1g 6 hourly if normal renal function, 1 hour before or 2 hours after meals)
- Emphasise the importance of rest, elevation and not going to work while receiving treatment
- Refer to Community IV Therapy Service if patient unable to access practice for IV therapy. Refer through CPO IV Referral in Outbox document.
- Transport available through Hastings Taxis if patient requires transport to general practice for IV therapy- provide CPO number to Taxi company

<u>Cefazolin Dosage</u>

	eGFR	
Weight	**>50mL/min**	**30-50mL/min**
Not obese (Weight <120kg or BMI<40)	• Cefazolin: 2g ONCE daily • Probenecid: 500mg TWICE daily	• Cefazolin: 2g ONCE daily • Probenecid: 500mg ONCE daily
Obese (Weight >120kg or BMI>40)	• Cefazolin: 3g ONCE daily • Probenecid: 500mg TWICE daily	• Cefazolin: 2g ONCE daily • Probenecid: 500mg TWICE daily

If the patient has a contra-indication to probenecid give:

	eGFR	
Weight	**>50mL/min**	**30-50mL/min**
Not obese (Weight <120kg or BMI<40)	• Cefazolin: 2g TWICE daily	• Cefazolin: 2g TWICE daily
Obese (Weight >120kg or BMI>40)	• Cefazolin: 3g TWICE daily	• Cefazolin: 2g TWICE daily

Non- response to IV Antibiotics

Three days is the standard length of antibiotic administration for cellulitis in the CPO guideline. If patient not responding:

- Consider extending IV therapy for a further 3 days if not responding.
- Consider blood tests for FBC and creatinine to help guide management, particularly for elderly or high-risk patients.
- Do not exceed more than six days without consultation with Infectious Diseases Physician at HBDHB
- Consider alternative diagnoses.

Preventing Recurrent Cellulitis

People who experience frequently recurring cellulitis, such as those with lymphoedema may consider a trial of prophylactic antibiotics (e.g. amoxicillin 500mg twice daily or doxycycline 100mg daily) on a long-term basis to protect against further infection. This must be seen as an option of last resort; as long term antibiotics are not without obvious risks.

ED Back Referrals for Cellulitis (Adults Only)

(CPO FUNDED)

- Patients presenting to the Emergency Department (ED) with Cellulitis that require IV antibiotics will be assessed and a decision made as to the appropriateness of the patient being managed by general practice.
- An IV line will be sited and the first dose of antibiotic (cefazolin) will be given and the patient referred back to their GP or A&M Centre
- Patients receive the remainder of their treatment as per the CPO Guidelines above
- An electronic discharge summary (EDS) will be sent to the patients GP, or the after-hours center where the patient has been advised to attend
- As the patient has received their first consultation at ED, all subsequent care for the patient while they are receiving IV treatment for cellulitis is provided free of charge with fees being charged to the CPO programme according to the current scheme.

Medications

1. CPO will fund the prescription fee for patients for the specified medications prescribed under this pathway. These are cefazolin and probenecid.

2. **All prescriptions MUST have the CPO reference number included.**

Probenecid Guide

Contra-indications:

- History of blood dyscasias
- Uric acid kidney stones
- Acute gout attack
- Chronic kidney disease (eGFR<30ml/min)
- Pregnancy/breastfeeding

Caution:

- History of peptic ulcer disease

Interactions: (not a complete list, consult a pharmacist if concerned)

Methotrexate: Do not use probenecid for patients on methotrexate. (Probenecid increases methotrexate levels in the body.)

Zidovudine: Do not use probenecid for patients on zidovudine. (Probenecid increases zidovudine levels in the body.)

Mycophenolate: Do not use probenecid for patients on mycophenolate. (Probenecid may increase mycophenolate levels in the body.)

NSAIDs: Use the lowest dose necessary. (Probenecid may increase the levels of NSAIDs in the body)

Aspirin: There is no significant interaction with low dose aspirin for cardiovascular prevention, however patient should be advised to not use aspirin at doses used for pain relief.
Paracetamol: Use the lowest dose necessary. (Probenecid may increase the formation of toxic metabolites of paracetamol)

Lorazepam: A 50% dose reduction of lorazepam should be considered when concurrent therapy is employed. Be alert for increases in lorazepam effects like sedation and antegrade amnesia. (Probenecid increases the levels of lorazepam in the body.)

Nitrazepam: Be alert for increases in nitrazepam effects (sedation, antegrade amnesia) and adjust the nitrazepam dose if necessary. Probenecid may increase the levels of nitrazepam in the body)

Advice

- Ensure adequate fluid intake (about 2–3 litres daily)
- Probenecid is prohibited at all times by the World Anti-Doping Agency and should not be prescribed to elite athletes