National Antimicrobial Prescribing Survey

Antimicrobial prescribing for cellulitis and erysipelas

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Cellulitis and erysipelas are common bacterial skin infections, affecting the deeper layers of the skin and underlying tissues. Erysipelas is a superficial infection of the upper dermis, usually involving the facial skin but also commonly affecting the lower limbs, while cellulitis extends further into the dermis and involves subcutaneous tissue.
Both infections present as diffuse, spreading areas of skin erythema, which is often warm and tender to touch.

Likely pathogens

Erysipelas: *Streptococcus pyogenes* (group A) most common

Non-purulent cellulitis: *Streptococcus pyogenes* (group A), *Streptococcus dysgalactiae* subspecies *equisimilis* (group C/G), and *Streptococcus agalactiae* (group B); *Staphylococcus aureus* less common unless there's a portal of entry or trauma

Purulent infection or abscess: *Staphylococcus aureus* (including MRSA if risk factors present)

Microbiology collection and interpretation

Routine and uncomplicated cases: microbiology sampling is rarely indicated, empiric therapy will treat the most common organisms associated with non-purulent disease.

It may be appropriate to collect microbiology samples for:

- **Complicated cases** e.g. patients with purulent infection or abscess, trauma, or when disease is severe, atypical, recurrent, linked to special exposures (animal bite, water), or failing therapy.
- **Systematically unwell** e.g. patients with high fever or sepsis, immunocompromised, neutropenic, postoperative, rapid progression, pain disproportionate to appearance of cellulitis or necrosis.

What to collect

Purulent infection or abscess: incision and drainage with culture of pus; after skin antisepsis, open and collect deep pus into a sterile container (or aspirate with sterile syringe)

Portal of entry swab: if portal of entry evident (ulcer, wound, tinea pedis fissures, toe-web maceration), clean and debride, take a deep swab of viable tissue or exudate

Needle aspiration: of advancing ulcer, wound margin (after antisepsis; 0.5–1 mL saline injection then re-aspirate)

Blood cultures: if severe or systemic features, or patient is immunocompromised

Do **NOT** swab intact erythematous skin, this is only likely to isolate commensal organisms (bacteria that reside on the skin without causing harm)

Antimicrobial recommendations

Refer to national guidelines on empiric antimicrobial management of cellulitis and erysipelas.[1] Oral antimicrobial therapy is recommended empirically in mild infections.

Total duration of therapy

- The usual duration of antimicrobial therapy is 5 days for **mild** infections (e.g. cellulitis or erysipelas without systemic features)
- Up to 14 days of treatment (IV + oral) may be required for more **severe** infections, depending on patient clinical response

Intravenous to oral switch

- For patients treated with empiric intravenous therapy, consider switching to oral therapy when the patient has improved clinically
- Guidance for oral switch
  - Resolved or improving fever
  - No haemodynamic instability
  - Tolerating oral intake and no concerns about malabsorption
  - Patient has a functioning gastrointestinal system

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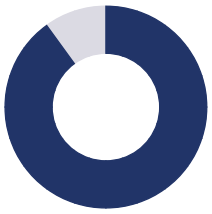
Hospital NAPS 2024

1,695
prescriptions were for treatment of cellulitis or erysipelas

5%
of all antimicrobial prescriptions



92%
of prescriptions had an **indication documented**

54%
of prescriptions had a **review or stop date** documented

56%
of prescriptions were **intravenous**

Compliance with guidelines*

29% of prescriptions (437 prescriptions) were non-compliant with guidelines

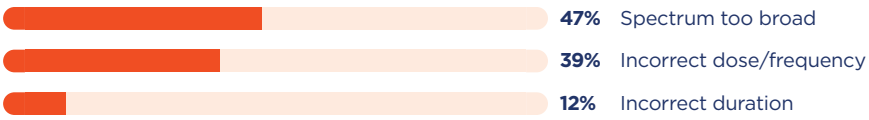
*Excluding 181 prescriptions for directed therapy, 32 prescriptions which were not assessable/had no guidelines available

Appropriateness*

19% of prescriptions (316 prescriptions) were deemed inappropriate

*Excluding 28 prescriptions which were not assessable

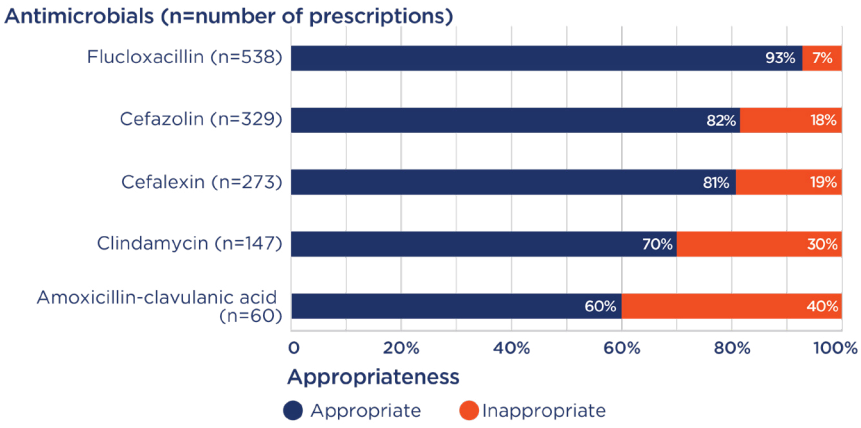
Common reasons for inappropriateness



Risks of inappropriate antimicrobial use

- Increased morbidity and mortality
- Prolonged infection and/or treatment failure
- Antimicrobial adverse effects, including toxicity
- Greater healthcare burden and cost
- Antimicrobial resistance

Most common antimicrobials and prescribing appropriateness



Most common reasons for inappropriateness

(% out of all inappropriate prescriptions per antimicrobial)

Flucloxacillin
53% Incorrect dose or frequency

Cefazolin
46% Incorrect dose or frequency

Cefalexin
61% Incorrect dose or frequency

Clindamycin
58% Spectrum too broad

Amoxicillin-clavulanic acid
71% Spectrum too broad

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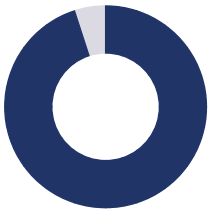
Aged Care NAPS 2024

414
prescriptions were for treatment of cellulitis

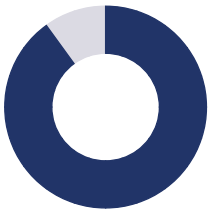
4%
of all antimicrobial prescriptions

49%
of prescriptions had a duration > 7 days at the time of auditing

4%
of prescriptions had a duration > 6 months

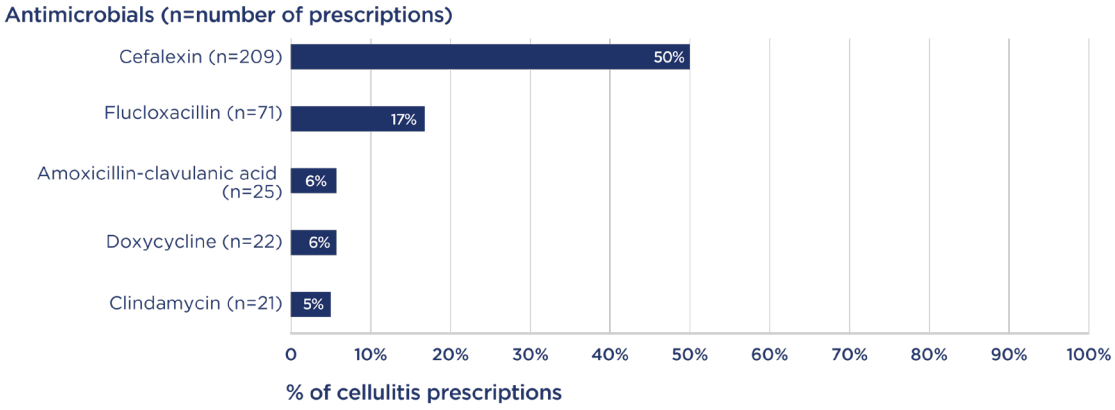


96%
of prescriptions had an **indication** documented



88%
of prescriptions had a **review or stop date** documented

Top 5 antimicrobials prescribed in Residential Aged Care Homes for cellulitis



Tips

- Avoid amoxicillin-clavulanic acid for empirical treatment of cellulitis or erysipelas due to its unnecessarily broad spectrum of activity, which promotes antimicrobial resistance and increases the risk of *Clostridioides difficile* infection
- Flucloxacillin or dicloxacillin remain first-line therapy for most cases of cellulitis
- Reserve cefalexin for patients with penicillin hypersensitivity
- Note, older adults may not always show classic symptoms
- Control comorbidities such as diabetes, vascular diseases or oedema, which may all increase cellulitis risk

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Preventing cellulitis and erysipelas

- Maintain skin integrity as the first line of defence; promptly manage any cuts, ulcers, or abrasions.
- Individuals with diabetes are at higher risk due to neuropathy, poor circulation, and delayed healing.
- Preventive strategies for diabetes: optimise blood glucose control, wear proper footwear (well-fitting and comfortable), and treat minor injuries early.
- Seek podiatric care for ulcers, calluses, or nail issues to lower infection risk.
- Keep skin moisturised to prevent dryness and cracking; treat eczema or tinea pedis to reduce entry points for bacteria.
- Support overall skin and limb health with good hygiene, weight management, and elevation of swollen limbs.
- For chronic or recurrent cellulitis, consider prophylactic antibiotics and specialist assessment for factors like venous insufficiency or lymphoedema.

Implications for clinical practice

Microbiology sampling is rarely indicated for uncomplicated cases of cellulitis and erysipelas, empiric therapy will treat the most common organisms associated with non-purulent disease

If antimicrobials are prescribed, ensure the choice, dose, frequency and duration align with evidence-based guidelines e.g. *Therapeutic Guidelines*, adjust for renal function where relevant

Clearly document the indication, intended duration, and review or stop date to improve patient care and support antimicrobial stewardship

Reserve intravenous therapy for patients who are systemically unwell or unable to tolerate oral therapy. Consider switching to oral therapy once patient is clinically stable and able to tolerate oral treatment

Reassess patients regularly e.g. at 48 hours; switch to oral or directed therapy, using the narrowest effective antimicrobial based on susceptibility results

Address contributing factors such as oedema or skin barrier disruption, and advise on rest and limb elevation to support recovery

About the NAPS

The National Antimicrobial Prescribing Survey (NAPS) is a standardised auditing program assisting hospitals, residential aged care homes, and other health services with assessing the quality of antimicrobial prescribing. It is coordinated by the Royal Melbourne Hospital Guidance Group and the National Centre for Antimicrobial Stewardship (NCAS), based in Melbourne, Australia. The NAPS is a program partner in the Antimicrobial Use and Resistance in Australia (AURA) surveillance program and is funded by and collaborates with the Australian Government Department of Health, Disability and Ageing, and also works closely with the Australian Commission on Safety and Quality in Health Care.

To learn more about the program, visit the NCAS website: www.ncas-australia.org
For support, contact the NAPS team via email: support@naps.org.au

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1. Antibiotic choice for cellulitis and erysipelas [published March 2025]. In: Therapeutic Guidelines. Melbourne: Therapeutic Guidelines Limited: access 21/07/2025. https://www.tg.org.au
2. National Institute for Health and Care Excellence (NICE). Cellulitis and erysipelas: antimicrobial prescribing. NICE guideline NG141 [published September 2019]. London: NICE; 2019. Accessed 08/10/2025. https://www.nice.org.uk/guidance/ng141
3. Cannon J, Dyer J, Carapetis J, Manning L. Epidemiology and risk factors for recurrent severe lower limb cellulitis: a longitudinal cohort study. Clin Microbiol Infect 2018;24(10):1084–8. Accessed 08/10/2025. https://www.ncbi.nlm.nih.gov/pubmed/29427799

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