Staphylococcus aureus is the most common cause of cutaneous infection as a primary pathogen, a source of secondary infection on an underlying dermatosis, and as a superantigen where it causes an inflammatory cascade manifesting clinically as recalcitrant dermatitis. In all longstanding cases of S. aureus infection, a nasal or perineal carrier state should be suspected. Other family members easily acquire the bacteria, with or without frank infection, and they may become carriers. S. aureus most often causes superficial infections, which are not hazardous and can sometimes be managed by topical therapy only.

Other bacteria causing skin infection are encountered uncommonly. Pseudomonas aeruginosa rarely causes frank infection, although moist areas or ulcers may be colonised.

Staphylococcus aureus is important with wound-associated purulent cellulitis. Now that Hib vaccination is widespread, Haemophilus influenzae rarely causes cellulitis. Other bacteria causing skin infection are encountered uncommonly. Pseudomonas aeruginosa rarely causes frank infection, although moist areas or ulcers may be colonised.

- The causative organism in spontaneous rapidly spreading cellulitis is almost always Streptococcus pyogenes.
- Culture may be unhelpful because of polymicrobial infections and superficial colonisation, but may guide therapy particularly if Staphylococcus aureus or multiresistant pathogens are found. Anaerobic organisms are almost always involved, often with mixed Gram-positive and Gram-negative aerobic organisms.
- Surgical debridement is often necessary and antibiotic therapy should be effective against the mixed aerobic and anaerobic organisms frequently responsible.
- Assess vascular supply.
- Always regard diabetic foot infections as serious, and treat vigorously.
- Culture may be unhelpful because of polymicrobial infections and superficial colonisation, but may guide therapy particularly if Staphylococcus aureus or multiresistant pathogens are found. Anaerobic organisms are almost always involved, often with mixed Gram-positive and Gram-negative aerobic organisms.
- Surgical debridement is often necessary and antibiotic therapy should be effective against the mixed aerobic and anaerobic organisms frequently responsible.
- Assess vascular supply.
- For severe limb- or life-threatening infection (systemic toxicity/septic shock, bacteriaemia, marked necrosis/gangrene, ulceration to deep tissues, severe cellulitis, presence of osteomyelitis), use initially:
  - Piperacillin/tazobactam 4+0.5 g IV, 8-hourly OR ticarcillin+clavulanate 3+0.1 g IV, 6-hourly OR meropenem 500 mg IV, 8-hourly OR imipenem 500 mg IV, 8-hourly OR vancomycin 25 mg/kg up to 1 g (child <12 years: 30 mg/kg up to 1 g) IV, 12-hourly (monitor levels)
- There have been no controlled trials that compare the multiple treatment regimens for M. marinum.
- There is considerable variability in antimicrobial susceptibility.
- For severe cellulitis, if patient has significant systemic features or is not responding to oral therapy after 48 hours, commence IV therapy.
- For patients hypersensitive to penicillin (excluding immediate hypersensitivity), use initially:
  - Ceftriaxone 2 g (child: 50 mg/kg up to 2 g) IV, 8-hourly
  - For patients with immediate penicillin hypersensitivity, use initially:
  - Clindamycin 450 mg (child: 10 mg/kg up to 450 mg) IV or orally, 8-hourly OR
  - Imipenem 600 mg (child: 15 mg/kg up to 600 mg) IV, 8-hourly OR
  - Vancomycin 25 mg/kg up to 1 g (child <12 years: 30 mg/kg up to 1 g) IV, 12-hourly (monitor levels)
- For severe limb- or life-threatening infection (systemic toxicity/septic shock, bacteriaemia, marked necrosis/gangrene, ulceration to deep tissues, severe cellulitis, presence of osteomyelitis), use initially:
  - Piperacillin/tazobactam 4+0.5 g IV, 8-hourly OR ticarcillin+clavulanate 3+0.1 g IV, 6-hourly OR meropenem 500 mg IV, 8-hourly OR imipenem 500 mg IV, 8-hourly OR clindamycin 900 mg IV, 8-hourly (slow infusion required) OR
- In severe or unresponsive cases, consider combination therapy (eg clarithromycin plus rifampicin or ethambutol).