Simple (uncomplicated) skin and soft tissue infections

Simple skin and soft tissue infections (SSTIs) refer to infections that are not associated with systemic signs or symptoms indicating spread (fever, tachycardia, diaphoresis, fatigue, anorexia and vomiting) or uncontrolled comorbidities that may complicate treatment. Simple SSTIs are amenable to outpatient management with topical or oral antibiotics.

Common simple SSTIs include cellulitis, erysipelas, impetigo, ecthyma, folliculitis, furuncles, carbuncles and abscesses, and usually present with localised clinical findings like erythema, warmth, oedema, and pain over the affected site. Simple SSTIs are usually monomicrobial, mainly caused by *Staphylococcus aureus* and beta-haemolytic streptococci. In general, impetigo is usually caused by *Staphylococcus aureus* whereas cellulitis is usually caused by beta-haemolytic streptococci. However, both in combination may occur in simple SSTIs.

The diagnosis of SSTIs is predominantly clinical. Wound cultures and/or imaging studies are not indicated in most healthy patients, but are useful in immunocompromised patients and those with significant cellulitis; lymphangitis; sepsis; recurrent, persistent, or large abscess; or infections from human or animal bites. Patients with signs and symptoms such as fever, tachycardia, diaphoresis, fatigue, anorexia and vomiting may indicate spread of infection, and they should be considered for secondary care. In-patient treatment is necessary for patients who have uncontrolled infection despite adequate outpatient antibiotic therapy or who cannot tolerate oral antibiotics. Hospitalisation is also indicated for patients who initially present with severe or complicated infections, unstable comorbid illnesses, or signs of systemic sepsis, or who need surgical intervention under anesthesia.

For simple SSTIs, initial antibiotic choice is empirical (Table 1). In mild and localised lesions of impetigo, topical antibiotics are adequate for treatment. In other situations, oral antibiotics are indicated. *Streptococcus pyogenes* resistant to penicillins and other beta-lactams has not been reported. More than 80% of the *Streptococcus pyogenes* isolates in the 2011 scarlet fever epidemic in Hong Kong were resistant to erythromycin; all erythromycin resistant isolates were also resistant to clindamycin. Superficial and small abscesses respond well to drainage and seldom require antibiotics except those that are associated with extensive cellulitis, rapid progression, or poor response to initial drainage; that involve specific sites (e.g. face, hands, genitalia); and that occur in children and older adults or in those who have significant comorbid illness or immunosuppression. The pus should be sent for culture.

Table 1 Recommended antibiotic treatment for simple SSTIs*

Drug (Route)	Dosage and Frequency, Adults (Usual)	Dosage and Frequency, Children^ (Usual)	Duration (Usual)	Remarks
Fusidic acid (topical)	Three times daily	Three times daily	5 days	• For mild and localised lesions of impetigo.
Cloxacillin (oral)	500 mg four times daily	Not available	5-10 days	• Good activity against methicillin sensitive *S. aureus* and some activity against beta-haemolytic streptococci.
Flucloxacillin (oral)	500 mg four times daily	1mth-2yr: 62.5-125 mg four times daily 2-10yr: 125-250 mg four times daily 10-18yr: 250-500 mg four times daily	5-10 days	• Good activity against methicillin sensitive *S. aureus* and some activity against beta-haemolytic streptococci.
Amoxicillin (oral)	500 mg three times daily	1mth-1yr: 62.5 mg three times daily 1-5yr: 125 mg three times daily 5-18yr: 250 mg three times daily	5-10 days	• Good activity against beta-haemolytic streptococci and no activity against *S. aureus*.
Amoxicillin-clavulanate (oral)	250 mg/125 mg three times daily or 875 mg /125 mg twice daily	25 mg/kg/day (maximum = 1750 mg/day) of the amoxicillin component in 2 divided doses	5-10 days	• Good activity against methicillin sensitive *S. aureus*, beta-haemolytic streptococci, some aerobic gram negative bacilli and some anaerobes.
Cephalexin (oral)	500 mg four times daily	25-50 mg/kg/day (maximum = 2000 mg/day) in 4 divided doses	5-10 days	• Good activity against methicillin sensitive *S. aureus* and beta-haemolytic streptococci. • For penicillin-allergic patients except those with immediate (anaphylactic) hypersensitivity reactions.
Levofloxacin (oral)[†]	500 mg once daily	Not recommended[#]	5-10 days	• Good activity against some aerobic gram negative bacilli, some activity against *S. aureus* and beta-haemolytic streptococci.

				• For penicillin-allergic patients.

*Clinicians should tailor make drug treatment based on clinical judgement. Definitive therapy should be based on microbiological and antibiotic sensitivity results if available.
^ Doses listed are not appropriate for neonates.
† Beware of possible serious side effects (e.g. joint or tendon pain, muscle weakness, tingling or pricking sensation, numbness in the arms or legs, confusion, and hallucinations).
# Fluoroquinolones are not recommended in children. However, after assessment of risks and benefits, levofloxacin can be considered a reasonable alternative for situations where no safe and effective substitute is available or in situations where the only alternative is parenteral therapy and levofloxacin offers an oral therapy option. Levofloxacin may be given orally at 8 mg/kg twice daily (maximum = 500 mg/day) for children aged ≥ 6 months and < 5 years, or at 8 mg/kg once daily (maximum = 500 mg/day) for children aged ≥ 5 years.

For diabetic foot infection, polymicrobial infection is more likely. It is needed to watch out for the complication of osteomyelitis.

Necrotising fasciitis should be suspected if clinical features include extreme pain (out of proportion to the visible skin changes), rapid progression, systemic toxicity, and a history of trauma or predisposing conditions, e.g. diabetes, chronic liver disease. *Vibrio vulnificus* infection is associated with injury related to sea water or seafood exposure. Prompt referral to hospital is warranted.

Management of patients with infections should be personalised. Doctors should check, document and get patients well informed about antibiotic treatment (e.g. indication, side effect, allergy, contraindication, potential drug-drug interaction, etc.). They should be reminded to take antibiotics exactly as prescribed by their family doctors. If symptoms change, persist, or get worse, they should seek medical advice promptly.

References

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Disclaimer:

This guidance notes is intended for medical professionals for reference only and is not intended to be prescriptive or a substitute for clinical judgement on management of individual patient. It is not a complete authoritative diagnostic or treatment guide. Medical professionals are recommended to obtain relevant information from other sources, and provide patient management based on clinical judgement.

This guidance notes will be kept updating thereafter. Please visit the website of Centre for Health Protection, Department of Health for the latest update and other information.

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