GENERAL INFORMATION

IMPORTANT CONSIDERATIONS

- Cellulitis can be observed on all skin surfaces, but most cases are found on the legs.
- Cellulitis is typically caused by \( \beta \)-hemolytic streptococci or \textit{Staphylococcus aureus}, although a pathogen is isolated in less than 20% of cases.
- The following risk factors for developing cellulitis may be found in children:
  - Injury
  - Skin problem (e.g., eczema, chickenpox, ingrown nail, tinea pedis, etc.)
  - Immunosuppression
  - Uncorrected dental problem

DIAGNOSIS

SIGNS AND SYMPTOMS

- Cellulitis diagnosis is generally characterized by the acute appearance of a \textit{continuous erythematous area} (without an area of healthy skin inside) that's \textit{edematous}, \textit{warm} and \textit{painful}.
- The patient may also have systemic symptoms (fever, nausea, vomiting, chills, malaise, lack of appetite).
- Cellulitis generally does not cause any epidermal changes (scales, scabs, vesicles, etc.). If such changes are present, \textit{suspect a different or related pathology} (e.g., eczema, chickenpox, etc.).

CLINICAL ASSESSMENT

- Assess the general condition of the patient.
- Palpate the affected area to assess skin sensitivity, the depth of infection, tissue firmness and the presence of a fluctuant area.
- Determine the source of the infection. A dental, sinusal or ophthalmic origin should always be suspected and investigated during the initial diagnosis of cervicofacial cellulitis.
- Look for the presence of special circumstances suggesting different pathogens.
- Make a differential diagnosis before confirming the cellulitis diagnosis.
- Mark the outline or photograph the infected area to follow its evolution.
## Differential Diagnosis

### General

**Contact dermatitis:** An edema that is often itchy, non-painful and afebrile. Presence of scaling or microvesicles that can merge to form bubbles. The shape of the affected area is very well defined and matches the point of contact.

**Acute eczema:** An erythema that is often edematous, frequently observed in cases of allergic contact dermatitis and interspersed with very tight formations of micropapules and/or superficial microvesicles.

**Insect bite:** Edema and erythema with a central point. Itchy, afebrile, not very painful or painless and sometimes accompanied by a vesicle or a minor subcutaneous ecchymosis.

**Cutaneous herpes or shingles:** Presence of vesicles a few millimetres in size grouped on an erythematous base. Shingles involves dermatomal distribution.

### Redness located in the upper and lower limbs

**Septic arthritis:** Localized erythema on a joint with pain occurring during mobilization.

**Acute bursitis:** Localized erythema around a joint.

**Vaccine reaction:** Often occurs within the first 24 hours after vaccination. The absence of fever and the patient’s good overall condition point to a vaccine reaction. The pain is often minor compared to the extent of the erythematous zone.

### Redness located in the face

**Conjunctivitis:** In some cases, manifests with a slight non-painful and afebrile palpebral or periorbital edema accompanied by purulent secretions. Often bilateral.

**Dacryocystitis:** Localized edema and erythema in the internal angle (between the eye and nose) and often accompanied by tearing.

**Cold panniculitis:** Circular induration with loss of sensation, usually localized on the cheeks and occurring after a few minutes of exposure to icy and windy weather.

### Other skin diseases

**Erythema migrans, erythema nodosum, acute febrile neutrophilic dermatosis (Sweet syndrome), etc.** Erythema separated by areas of healthy skin or ring-shaped erythema.

## Special Circumstances

<table>
<thead>
<tr>
<th>Animal bite</th>
<th>Main pathogens to suspect in addition to β-hemolytic streptococci and <em>S. aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>(cat or dog)</td>
<td>• <em>Pasteurella multocida</em>, <em>Capnocytophaga</em> spp.</td>
</tr>
<tr>
<td></td>
<td>• <em>Viridans</em> streptococci</td>
</tr>
<tr>
<td></td>
<td>• Buccal anaerobes (<em>Fusobacterium</em>, peptostreptococci)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Human bite</th>
<th>Main pathogens to suspect in addition to β-hemolytic streptococci and <em>S. aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>(including injuries caused by contact with another person's teeth during a fight)</td>
<td>• <em>Eikenella corrodens</em></td>
</tr>
<tr>
<td></td>
<td>• <em>Viridans</em> streptococci</td>
</tr>
<tr>
<td></td>
<td>• Buccal anaerobes (<em>Fusobacterium</em>, peptostreptococci)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cellulitis of dental origin</th>
<th>Main pathogens to suspect in addition to β-hemolytic streptococci and <em>S. aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <em>Viridans</em> streptococci</td>
</tr>
<tr>
<td></td>
<td>• Buccal anaerobes (<em>Fusobacterium</em>, peptostreptococci)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Periorbital/orbital cellulitis of sinusal origin</th>
<th>Main pathogens to suspect in addition to β-hemolytic streptococci and <em>S. aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <em>Streptococcus pneumoniae</em></td>
</tr>
<tr>
<td></td>
<td>• <em>Haemophilus influenzae</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Injury while immersed in water</th>
<th>Main pathogens to suspect in addition to β-hemolytic streptococci and <em>S. aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <em>Aeromonas hydrophila</em> (freshwater)</td>
</tr>
<tr>
<td></td>
<td>• <em>Vibrio</em> spp. (saltwater)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neutropenic patient</th>
<th>Main pathogens to suspect in addition to β-hemolytic streptococci and <em>S. aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <em>Pseudomonas aeruginosa</em></td>
</tr>
<tr>
<td></td>
<td>• Fungal pathogens</td>
</tr>
</tbody>
</table>

- Cellulitis is rarely caused by methicillin-resistant *S. aureus* (MRSA). Moreover, in Québec, these resistant strains are isolated in only 10% of cases of purulent skin infections caused by *S. aureus* (2015).

- **Community-associated MRSA should be suspected in the presence of an abscess and one of the following elements:**
  - Previous infection/colonization (in the patient or their family)
  - Recurrent furunculosis or abscess
  - Patient belongs to an Aboriginal community

- Microbiological tests on skin samples (culture and antibiotic sensitivity) are recommended **only** in cases of cellulitis with purulent discharge.
SEVERITY

- The severity of the infection is assessed by clinical judgment and guides the choice of the antibiotic treatment’s route of administration. If necessary, consult a specialist.

WARNING SIGNS – IN-HOSPITAL CONSULTATION GENERALLY REQUIRED

<table>
<thead>
<tr>
<th>General</th>
<th>Suspected orbital involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Impairment of general condition (persistent fever)</td>
<td>• Fever</td>
</tr>
<tr>
<td>• Hemodynamic impairment</td>
<td>• Severe pain</td>
</tr>
<tr>
<td>• Child &lt; 3 months old</td>
<td>• Limited or painful extraocular movements</td>
</tr>
<tr>
<td>• Pain disproportionate to clinical signs</td>
<td>• Difficulty or inability to open eye</td>
</tr>
<tr>
<td>• Rapid progression</td>
<td>• Chemosis</td>
</tr>
<tr>
<td>• Vesicles with hemorrhagic content</td>
<td>• Proptosis</td>
</tr>
<tr>
<td>• Signs of dyspnea or dysphagia (cervicofacial cellulitis)</td>
<td>• Impaired vision</td>
</tr>
<tr>
<td>• Significant edema/erythema of the external auditory canal and auricle</td>
<td></td>
</tr>
<tr>
<td>• Suspected joint involvement</td>
<td></td>
</tr>
<tr>
<td>• Suspected osteomyelitis</td>
<td></td>
</tr>
<tr>
<td>• Failure of antibiotic treatment after 72 hours</td>
<td></td>
</tr>
<tr>
<td>• 336x599.136x588.136x587.136x577.136x566.136x557.136x546.136x535.136x524.136x513.136x502.136x491.136x480.136x469.136x458.136x447.136x436.136x425.136x414.136x403.136x392.136x381.136x370.136x360.136x349.136x338.136x327.136x316.136x305.136x294.136x283.136x272.136x261.136x250.136x239.136x228.136x217.136x206.136x195.136x184.136x173.136x162.136x151.136x140.136x129.136x118.136x107.136x96.136x85.136x74.136x63.136x52.136x41.136x30.136x19.136x8.136x7</td>
<td></td>
</tr>
</tbody>
</table>

Special circumstances

- Immunosuppressed patient
- Significant inflammation following the bite of an animal besides a cat or dog
- Injury while immersed in water

Careful; when this symptom is present, suspect necrotizing fasciitis.

TREATMENT PRINCIPLES

- **Treating the primary source of infection**, when it can be identified, is essential in managing cellulitis:
  - Treating the dental problem, wound or sinusitis, excising the foreign body, etc.
  - Treating the associated risk factors (e.g., eczema, ingrown nail, tinea pedis, etc.).
- **When there is an abscess**, incision and drainage are essential aspects of initial treatment. In such cases, an antibiotic treatment can sometimes be added depending on the clinical context.
- **Systemic antibiotic treatment** is used to treat cellulitis. Topical antibiotic treatment is not indicated for this type of infection and provides no additional benefit.
- In case of recurrent cellulitis, consider referring the patient to a specialized setting for a more in-depth assessment (diagnosis, source of infection, treatment).

SUPPORTIVE TREATMENT

- **Elevating the affected limb** promotes the drainage of the edema by gravity.
- To relieve pain, you may consider adding an analgesic/antipyretic (acetaminophen or ibuprofen*) to the antibiotic treatment.
- When a traumatic wound (including bites) is present, it is important to check the patient’s tetanus vaccination schedule and consider rabies vaccination. For more information, refer to the [protocole d’immunisation du Québec (PIQ)](https://www.INESSS.qc.ca/immunisation).
- For more information on human bites in childcare settings, refer to the [Canadian Pediatric Society’s position statement](https://www.cps.ca/en/clinical-topics/human-bites).

* Ibuprofen is not recommended for children under 6 months of age.

HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC

- True penicillin allergy is uncommon. For 100 children with a history of penicillin allergy, fewer than 6 will be **confirmed** to have a true diagnosis of allergy and most of the reactions will be delayed non-severe rashes.
  - It is therefore important to carefully assess the allergy status of a patient who reports a history of allergic reaction to penicillins before considering using alternatives to beta-lactams. For help, consult the [decision-making tool in cases of allergy to penicillins](https://www.INESSS.qc.ca/immunisation).

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ANTIBIOTIC TREATMENT

- In vitro resistance of methicillin-sensitive S. aureus to clindamycin is about 25% in Québec (2015). Response to this treatment should therefore be closely monitored.
- If necessary, adjust the antibiotic treatment based on the results of culture and antibiotic sensitivity tests, when available.
- Persistence or slight progression of redness may be observed within the first 24 to 48 hours despite proper treatment. In that case, decreased pain and a general improvement in the patient’s condition are usually observed.
- During intravenous treatment, oral relay should be considered when:
  - The patient is afebrile after 48 hours of treatment.
  - The infected area does not expand or decreases.
  - The diagnosis is well established and the patient is able to tolerate oral treatment.

### CELLULITIS WITH STRONG SUSPICION OF STREPTOCOCCI OR S. AUREUS

Total recommended duration of treatment: 7 to 10 days

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral administration</strong>¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cephalexin</td>
<td>50-100 mg/kg/day PO ÷ TID</td>
<td>3 000 - 4 500 mg / day</td>
</tr>
<tr>
<td>Cefadroxil²</td>
<td>30 mg/kg/day PO ÷ BID</td>
<td>2 000 mg / day</td>
</tr>
<tr>
<td>Cloxacillin³</td>
<td>50-100 mg/kg/day PO ÷ QID</td>
<td>6 000 mg / day</td>
</tr>
</tbody>
</table>

If history of allergic reaction to a penicillin antibiotic

Click [here](#) to view the cellulitis with strong suspicion of streptococci or S. aureus algorithm for help in choosing an oral antibiotic therapy

| **Intravenous administration**⁴ |                            |                |
| Cefazolin            | 50-100 mg/kg/day IV ÷ TID  | 6 000 mg / day |
| Cloxacillin          | 100-200 mg/kg/day IV ÷ QID | 12 000 mg / day |

If history of allergic reaction to a penicillin antibiotic

Click [here](#) to view the cellulitis with strong suspicion of streptococci or S. aureus algorithm for help in choosing an intravenous antibiotic therapy

Follow-up should be performed within 24 to 72 hours depending on the severity of the infection, the clinical evolution and the clinician’s judgment.

---

1. Amoxicillin/clavulanate (45–60 mg/kg/day PO ÷ TID; maximum 1 500 mg/day) may be a valid alternative when other treatment options cannot be used. In that case, the 7:1 formulation (200 mg / 5 mL or 400 mg / 5 mL) is preferred due to its higher digestive tolerance.
2. The pediatric suspension of cefadroxil is not marketed in Canada.
3. Cloxacillin as an oral suspension is not widely used due to its unpleasant taste and interaction with food.
4. Ceftriaxone (50–75 mg/kg/day IV – daily or BID; maximum 2 000 mg/day) may be a valid alternative when other treatment options cannot be used.
**CELLULITIS ASSOCIATED WITH A COMMON ANIMAL BITE (CAT OR DOG) OR A HUMAN BITE**

Total recommended duration of treatment: 7 to 10 days

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral administration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin/Clavulanate</td>
<td>45-60 mg/kg/day PO + TID</td>
<td>1 500 mg / day</td>
</tr>
</tbody>
</table>

If history of allergic reaction to a penicillin antibiotic, click here to view the cellulitis associated with a common animal bite or a human bite algorithm for help in choosing an antibiotic therapy.

- It’s important to check for tendon, bone or joint involvement. If there is, and for any other complicated case, consult a specialist or refer the patient to a hospital.
- Usually, follow-up should be performed within 24 to 72 hours. However, follow-up within a maximum of 24 hours should be performed in cases involving a bite to the hand or face.
- In cases involving a human bite that broke the skin, patient management in infectiology should be considered, when available, to assess the need for prophylaxis and follow-up for HIV, hepatitis B and hepatitis C.
- Early antibiotic prophylaxis lasting 3 to 5 days is recommended for:
  - All cases of cat bite
  - Dog bites in an asplenic or immunosuppressed patient, in a patient with edema in the affected area or a moderate or severe injury (especially to the hand, face or genitals) or one that may have breached the periosteum or joint capsule.

**CELLULITIS OF DENTAL ORIGIN**

Total recommended duration of treatment: 7 to 10 days

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral administration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin/Clavulanate</td>
<td>45-60 mg/kg/day PO + TID</td>
<td>1 500 mg / day</td>
</tr>
</tbody>
</table>

If history of allergic reaction to a penicillin antibiotic, click here to view the cellulitis of dental origin algorithm for help in choosing an antibiotic therapy.

- When faced with an uncorrected dental problem, a consultation with a dentist or a maxillofacial specialist should be considered. It is essential to treat the dental source of these infections.
- In children, these infections can cause rapid deterioration of the patient’s general condition. Perform follow-up within 24 hours and consider treating the patient under observation in a hospital setting. In the absence of response to treatment and in more severe cases, consult a specialist or refer the patient to a hospital.

**SIMPLE PERIORBITAL CELLULITIS OF SINUSAL ORIGIN**

(If the skin is broken, treat like cellulitis with strong suspicion of streptococci or S. aureus)

Minimum total recommended duration of treatment: 10 to 14 days

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral administration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin/Clavulanate</td>
<td>90 mg/kg/dayPO + TID</td>
<td>3 000 mg / day</td>
</tr>
</tbody>
</table>

If history of allergic reaction to a penicillin antibiotic, click here to view the simple periorbital cellulitis of sinusal origin algorithm for help in choosing an antibiotic therapy.

1. Only simple cases of periorbital cellulitis should be treated in the primary care setting. These are characterized by mild edema and erythema, the absence of severe pain, good eyelid opening, normal and non-painful extraocular movements, normal vision, the absence of proptosis and chemosis, and the patient being in good overall condition.
2. Follow-up on the evolution of these infections should be performed within 24 hours. In the absence of response to treatment, or if orbital involvement is suspected, consult a specialist or refer the patient to a hospital.

---

1. Including injuries caused by contact with another person’s teeth during a fight.
2. The 7:1 formulation (200 mg / 5 mL or 400 mg / 5 mL) is preferred due to its higher digestive tolerance.
3. For the recommended supportive treatments to relieve sinus symptoms, see INESSS’s optimal usage guide on acute rhinosinusitis.
4. Some clinicians use a combination of amoxicillin (45 mg/kg/day) and amoxicillin/clavulanate (7:1 formulation) (45 mg/kg/day) to reduce adverse effects (total of 90 mg/kg/day, 14:1 equivalent). The quantities of amoxicillin and amoxicillin/clavulanate (mL) may be different.
**CELLULITIS WITH SUSPICION OF CA-MRSA**

Total recommended duration of treatment: 7 to 10 days

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral administration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMP/SMX¹,²</td>
<td><strong>TMP component:</strong> 8-12 mg/kg/day PO ÷ BID</td>
<td>320 mg of TMP / day</td>
</tr>
<tr>
<td>Doxycycline¹ (Child ≥ 8 years old)</td>
<td>20 to 25 kg: 25-50 mg PO BID</td>
<td>200 mg / day</td>
</tr>
<tr>
<td></td>
<td>25 to 40 kg: 50-75 mg PO BID</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 40 kg: 100 mg BID</td>
<td></td>
</tr>
<tr>
<td><strong>Intravenous administration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vancomycin¹</td>
<td>60 mg/kg/day IV ÷ QID</td>
<td>4 000 mg / day</td>
</tr>
</tbody>
</table>

Follow-up should be performed within 24 to 72 hours depending on the severity of the infection, the clinical evolution and the clinician’s judgment.

1. Note that doxycycline and TMP/SMX do not offer very good coverage against group A streptococcus.
2. TMP/SMX has not been approved by Health Canada for the treatment of cellulitis. However, it is frequently prescribed for this purpose, and experts agree that this antibiotic is an acceptable treatment option when CA-MRSA is suspected.
3. If necessary, consult a specialist for alternative treatment options to vancomycin.

### MAIN REFERENCES


Wilson, L. and Caglar, D. Cellulitis and Abscess. Seattle Children’s Hospital 2013.

Please note that other references have been consulted.
CELLULITIS WITH STRONG SUSPICION OF STREPTOCOCCI OR S. AUREUS IN CHILDREN → ORAL ADMINISTRATION

SEVERITY OF PREVIOUS ALLERGIC REACTION TO PENICILLIN ANTIBIOTICS

- Vague history or Unconvincing history reported by patient or family
  - Immediate reaction
    - Isolated cutaneous involvement (urticaria and/or angioedema)
  - Delayed reaction
    - Isolated cutaneous involvement (Rash and/or urticaria and/or angioedema)

- Non-severe reaction
  - Immediate reaction
    - Non-severe reaction
  - Severe reaction
    - Immediate reaction
      - Anaphylaxis
    - Delayed reaction
      - Severe skin reaction (desquamation, pustules, vesicles, purpura with fever or joint pain, but no DRESS, SJS/TEN or AGEP)
      - Serum sickness

- Severe reaction
  - Immediate reaction
    - Anaphylactic shock (with or without intubation)
  - Delayed reaction
    - Hemolytic anemia
    - Renal involvement
    - Hepatic involvement
    - DRESS, SJS/TEN, AGEP

- Very severe reaction
  - Immediate reaction
    - Anaphylactic shock

THE FOLLOWING CAN BE PRESCRIBED SAFELY

SIMILAR cephalosporins
Cephalexin OR Cefadroxil if history of allergy does not suggest an immediate reaction...

If in doubt about the possibility of an immediate reaction...
A 1-hour observation period after the administration of the 1st dose of Cephalexin OR Cefadroxil under the supervision of a health professional may be recommended according to the clinician judgment.

PRESCRIBE THE FOLLOWING WITH CAUTION

SIMILAR cephalosporins
Cephalexin OR Cefadroxil ONLY if serum sickness-like reactions occurred in childhood.

The 1st dose should always be administered under medical supervision.
If history of:
- Immediate reactions, a drug provocation test should be performed;
- Delayed reactions, the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

AVOID PRESCRIBING

- Beta-lactams
  - Choose another class of antibiotics.

PRESCRIBE THE FOLLOWING

Clindamycin

1. Immediate reaction (type I or IgE-mediated): usually occurs within one hour after taking the first dose of an antibiotic.
2. Delayed reaction (types II, III and IV): may occur at any time from one hour after administration of a drug.
3. Delayed skin reactions and serum sickness-like reactions that occur in children on antibiotic therapy are generally non-allergic and may be of viral origin.
4. Anaphylaxis without shock or intubation: requires an extra level of vigilance.
5. With no recommendations concerning other beta-lactams.
6. Penicillins, cephalosporins and carbapenems.
7. Amoxicillin/Clavulanate may be a valid alternative when other treatment options cannot be used.

For further information, see the interactive tool and the decision-making tool.

AGEP : acute generalized exanthematous pustulosis;
DRESS : drug reaction with eosinophilia and systemic symptoms;
SJS : Stevens–Johnson syndrome;
TEN : toxic epidermal necrolysis.

IF A BETALACTAM CANNOT BE ADMINISTERED, THE FOLLOWING CAN BE PRESCRIBED...

Clindamycin
# First-Line Antibiotic Therapy for Cellulitis with Strong Suspicion of Streptococci or S. Aureus

**In Children → Oral Administration**

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
<th>Recommended duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beta-lactams</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cephalexin</td>
<td>50-100 mg/kg/day PO ÷ TID</td>
<td>3 000 - 4 500 mg / day</td>
<td>7 to 10 days</td>
</tr>
<tr>
<td>Cefadroxil¹</td>
<td>30 mg/kg/day PO ÷ BID</td>
<td>2 000 mg / day</td>
<td></td>
</tr>
<tr>
<td>Cloxacillin³</td>
<td>50-100 mg/kg/day PO ÷ QID</td>
<td>6 000 mg / day</td>
<td></td>
</tr>
<tr>
<td><strong>Alternative if a beta-lactam cannot be administered</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clindamycin⁴,⁵,⁶</td>
<td>30-40 mg/kg/day PO ÷ TID</td>
<td>1 800 mg / day</td>
<td></td>
</tr>
</tbody>
</table>

---

1. Amoxicillin/clavulanate (45–60 mg/kg/day PO ÷ TID; maximum 1 500 mg/day) may be a valid alternative when other treatment options cannot be used. In that case, the 7:1 formulation (200 mg / 5 mL or 400 mg / 5 mL) is preferred due to its higher digestive tolerance.

2. The pediatric suspension of cefadroxil is not marketed in Canada.

3. Cloxacillin as an oral suspension is not widely used due to its unpleasant taste and interaction with food.

4. Taking this antibiotic can cause diarrhea and intestinal symptoms that may worsen and require consultation. It is important to inform the patient of this.

5. Clindamycin in suspension tastes bad. Consult a pharmacist for ways to improve the taste of this drug.

6. If necessary, consult a specialist for alternatives to clindamycin.

---

**Back to the optimal usage guide**
CELLULITIS WITH STRONG SUSPICION OF STREPTOCOCCI OR S. AUREUS IN CHILDREN → INTRAVENOUS ADMINISTRATION

SEVERITY OF PREVIOUS ALLERGIC REACTION TO PENICILLIN ANTIBIOTICS

- **Vague history**
  - Immediate reaction
    - Isolated cutaneous involvement
      - (urticaria and/or angioedema)
  - Delayed reaction
    - Isolated cutaneous involvement
      - (Rash and/or urticaria and/or angioedema)

- **Non-severe reaction**
  - Immediate reaction
    - Isolated cutaneous involvement
      - (urticaria and/or angioedema)
  - Delayed reaction
    - Isolated cutaneous involvement
      - (Rash and/or urticaria and/or angioedema)

- **Severe reaction**
  - Immediate reaction
    - Anaphylaxis
  - Delayed reaction
    - Severe skin reaction
      - (desquamation, pustules, vesicles, purpura with fever or joint pain, but no DRESS, SJS/TEN or AGEP)
      - Serum sickness

- **Very severe reaction**
  - Immediate reaction
    - Anaphylactic shock
      - (with or without intubation)
  - Delayed reaction
    - Hemolytic anemia
    - Renal involvement
    - Hepatic involvement
    - DRESS, SJS/TEN, AGEP

THE FOLLOWING CAN BE PRESCRIBED SAFELY

- **DISSIMILAR cephalosporins**
  - Cefazolin

PRESCRIBE THE FOLLOWING WITH CAUTION

- **DISSIMILAR cephalosporins**
  - Cefazolin
    - The 1st dose should always be administered under medical supervision.
    - If history of:
      - Immediate reactions, a drug provocation test should be performed;
      - Delayed reactions, the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

- **Penicillins**
  - 
    - Cloxacillin
      - The 1st dose should always be administered under medical supervision.
      - If history of:
        - Immediate reactions, a drug provocation test should be performed;
        - Delayed reactions, the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

AVOID PRESCRIBING

- **Beta-lactams**
  - Choose another class of antibiotics.

- **Penicillins**
  - Cloxacillin

PRESCRIBE THE FOLLOWING

- Clindamycin

IF A BETA-LACTAM CANNOT BE ADMINISTERED, THE FOLLOWING CAN BE PRESCRIBED...

- Clindamycin

For further information, see the interactive tool and the decision-making tool.

**AGEP**: acute generalized exanthematous pustulosis;
**DRESS**: drug reaction with eosinophilia and systemic symptoms;
**SJS**: Stevens–Johnson syndrome;
**TEN**: toxic epidermal necrolysis.
# First-Line Antibiotic Therapy for Cellulitis with Strong Suspicion of Streptococci or *S. Aureus*

If history of allergic reaction to a penicillin antibiotic.

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
<th>Recommended duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beta-lactams recommended, according to the clinical judgment</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cefazolin</td>
<td>50-100 mg/kg/day IV ÷ TID</td>
<td>6 000 mg / day</td>
<td></td>
</tr>
<tr>
<td>Cloxacillin</td>
<td>100-200 mg/kg/day IV ÷ QID</td>
<td>12 000 mg / day</td>
<td>7 to 10 days</td>
</tr>
<tr>
<td><strong>Alternative if a beta-lactam cannot be administered</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clindamycin&lt;sup&gt;3,4&lt;/sup&gt;</td>
<td>40 mg/kg/day IV ÷ TID</td>
<td>2 700 mg / day</td>
<td></td>
</tr>
</tbody>
</table>

1. Antibiotics are usually listed in alphabetical order using their generic name.
2. Ceftriaxone (50–75 mg/kg/day IV ÷ daily or BID; maximum 2 000 mg/day) may be a valid alternative when other treatment options cannot be used.
3. Taking this antibiotic can cause diarrhea and intestinal symptoms that may worsen and require consultation. It is important to inform the patient of this.
4. If necessary, consult a specialist for alternatives to clindamycin.

*Back to the optimal usage guide*
CELLULITIS ASSOCIATED WITH A COMMON ANIMAL BITE (CAT OR DOG) OR A HUMAN BITE* IN CHILDREN

* Including injuries caused by contact with another person’s teeth during a fight.

SEVERITY OF PREVIOUS ALLERGIC REACTION TO PENICILLIN ANTIBIOTICS

Non-severe reaction
- Immediate reaction
  - Isolated cutaneous involvement
    (urticaria and/or angioedema)
- Delayed reaction
  - Isolated cutaneous involvement
    (Rash and/or urticaria and/or angioedema)

Severe reaction
- Immediate reaction
  - Anaphylaxis
- Delayed reaction
  - Severe skin reaction
    (desquamation, pustules, vesicles, purpura with fever or joint pain, but no DRESS, SJS/TEN or AGEP)
  - Serum sickness

Very severe reaction
- Immediate reaction
  - Anaphylactic shock
    (with or without intubation)
- Delayed reaction
  - Hemolytic anemia
  - Renal involvement
  - Hepatic involvement
  - DRESS, SJS/TEN, AGEP

Penicillin allergy CONFIRMED
(severe or non-severe reaction only)

PRESCRIBE THE FOLLOWING WITH CAUTION

Penicillins
- Amoxicillin/Clavulanate

The 1st dose should always be administered under medical supervision.

If history of:
- Immediate reactions, a drug provocation test should be performed;
- Delayed reactions, the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

PRESCRIBE THE FOLLOWING

Penicillins
- Amoxicillin/Clavulanate

Choose another class of antibiotics.

AVOID PRESCRIBING

Penicillins
- Amoxicillin/Clavulanate

And

Clindamycin + TMP/SMX or
Doxycycline (child ≥ 8 years old)

For further information, see the interactive tool and the decision-making tool.

AGEP: acute generalized exanthematous pustulosis;
DRESS: drug reaction with eosinophilia and systemic symptoms;
SJS: Stevens–Johnson syndrome;
TEN: toxic epidermal necrolysis.

1. Immediate reaction (type I or IgE-mediated): usually occurs within one hour after taking the first dose of an antibiotic.
2. Delayed reaction (types II, III and IV): may occur at any time from one hour after administration of a drug.
3. Delayed skin reactions and serum sickness-like reactions that occur in children on antibiotic therapy are generally non-allergic and may be of viral origin.
4. Anaphylaxis without shock or intubation: requires an extra level of vigilance.
5. With no recommendations concerning other beta-lactams (penicillins, cephalosporins and carbapenems).
**FIRST-LINE ANTIBIOTIC THERAPY FOR CELLULITIS ASSOCIATED WITH A COMMON ANIMAL BITE (CAT OR DOG) OR A HUMAN BITE IF HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC**

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Daily dosage</th>
<th>Maximum dosage</th>
<th>Recommended duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beta-lactams recommended, according to the clinical judgment support algorithm</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin/Clavulanate</td>
<td>45-60 mg/kg/day PO ÷ TID</td>
<td>1 500 mg / day</td>
<td>7 to 10 days</td>
</tr>
<tr>
<td><strong>Alternative if a beta-lactam cannot be administered</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clindamycin</td>
<td>30-40 mg/kg/day PO ÷ TID</td>
<td>1 800 mg / day</td>
<td></td>
</tr>
<tr>
<td>TMP component: 8-12 mg/kg/day PO ÷ BID</td>
<td>320 mg de TMP / day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doxycycline (Child ≥ 8 years old)</td>
<td>20 to 25 kg : 25-50 mg PO BID</td>
<td>200 mg / day</td>
<td></td>
</tr>
<tr>
<td>25 to 40 kg : 50-75 mg PO BID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 40 kg : 100 mg BID</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Antibiotics are usually listed in alphabetical order using their generic name.
2. The 7:1 formulation (200 mg / 5 mL or 400 mg / 5 mL) is preferred due to its higher digestive tolerance.
3. Taking this antibiotic can cause diarrhea and intestinal symptoms that may worsen and require consultation. It is important to inform the patient of this.
4. Clindamycin in suspension tastes bad. Consult a pharmacist for ways to improve the taste of this drug.
5. TMP/SMX has not been approved by Health Canada for the treatment of cellulitis. However, it is frequently prescribed for this purpose, and experts agree that this antibiotic is an acceptable treatment option in combination with clindamycin in bite cases in young children.

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**CELLULITIS ASSOCIATED WITH A COMMON ANIMAL BITE (CAT OR DOG) OR A HUMAN BITE* IN CHILDREN**

* Including injuries caused by contact with another person's teeth during a fight.

**Back to the optimal usage guide**
**CELLULITIS OF DENTAL ORIGIN IN CHILDREN**

**SEVERITY OF PREVIOUS ALLERGIC REACTION TO PENICILLIN ANTIBIOTICS**

- **Vague history**
- **Non-severe reaction**
  - **Immediate reaction**
    - Isolated cutaneous involvement (urticaria and/or angioedema)
  - **Delayed reaction**
    - Isolated cutaneous involvement (Rash and/or urticaria and/or angioedema)

- **Severe reaction**
  - **Immediate reaction**
    - Anaphylaxis
  - **Delayed reaction**
    - Severe skin reaction (desquamation, pustules, vesicles, purpura with fever or joint pain, but no DRESS, SJS/TEN or AGEP)
    - Serum sickness

- **Very severe reaction**
  - **Immediate reaction**
    - Anaphylactic shock (with or without intubation)
  - **Delayed reaction**
    - Hemolytic anemia
    - Renal involvement
    - Hepatic involvement
    - DRESS, SJS/TEN, AGEP

**PRESCRIBE THE FOLLOWING WITH CAUTION**

- **Penicillins**
  - **Amoxicillin/Clavulanate**

The 1st dose should always be administered under medical supervision.

If history of:
- Immediate reactions, a drug provocation test should be performed;
- Delayed reactions, the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

**AVOID PRESCRIBING**

- **Penicillin allergy CONFIRMED** (severe or non-severe reaction only)

**PRESCRIBE THE FOLLOWING**

- **Clindamycin**

1. Immediate reaction (type I or IgE-mediated): usually occurs within one hour after taking the first dose of an antibiotic.
2. Delayed reaction (types II, III and IV): may occur at any time from one hour after administration of a drug.
3. Delayed skin reactions and serum sickness-like reactions that occur in children on antibiotic therapy are generally non-allergic and may be of viral origin.
4. Anaphylaxis without shock or intubation: requires an extra level of vigilance.
5. With no recommendations concerning other beta-lactams (penicillins, cephalosporins and carbapenems).

For further information, see the interactive tool and the decision-making tool.

- AGEP: acute generalized exanthematous pustulosis;
- DRESS: drug reaction with eosinophilia and systemic symptoms;
- SJS: Stevens-Johnson syndrome;
- TEN: toxic epidermal necrolysis.
## FIRST-LINE ANTIBIOTIC THERAPY FOR CELLULITIS OF DENTAL ORIGIN IF HISTORY OF ALLERGIC REACTION TO A PENICILLIN ANTIBIOTIC

<table>
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<td><strong>Beta-lactams recommended, according to the clinical judgment support algorithm</strong></td>
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<tr>
<td>Amoxicillin/Clavulanate¹</td>
<td>45-60 mg/kg/day PO ÷ TID</td>
<td>1 500 mg / day</td>
<td>7 to 10 days</td>
</tr>
<tr>
<td><strong>Alternative if a beta-lactam cannot be administered</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clindamycin²,³,⁴</td>
<td>30-40 mg/kg/day PO ÷ TID</td>
<td>1 800 mg / day</td>
<td></td>
</tr>
</tbody>
</table>

1. The 7:1 formulation (200 mg / 5 mL or 400 mg / 5 mL) is preferred due to its higher digestive tolerance.
2. Taking this antibiotic can cause diarrhea and intestinal symptoms that may worsen and require consultation. It is important to inform the patient of this.
3. Clindamycin in suspension tastes bad. Consult a pharmacist for ways to improve the taste of this drug.
4. If necessary, consult a specialist for alternatives to clindamycin.
SIMPLE PERIORBITAL CELLULITIS OF SINUSAL ORIGIN IN CHILDREN

SEVERITY OF PREVIOUS ALLERGIC REACTION TO PENICILLIN ANTIBIOTICS

Vague history

Unconvincing history reported by patient or family

Non-severe reaction

Immediate reaction¹
Isolated cutaneous involvement
(urticaria and/or angioedema)

Delayed reaction²,³
Isolated cutaneous involvement
(Rash and/or urticaria and/or angioedema)

Severe reaction

Immediate reaction
Anaphylaxis⁴

Delayed reaction²,³
Severe skin reaction
(desquamation, pustules, vesicles, purpura with fever or joint pain, but no DRESS, SJS/TEN or AGEP)
Serum sickness³

Penicillin allergy CONFIRMED⁵
(severe or non-severe reaction only)

Very severe reaction

Immediate reaction
Anaphylactic shock
(with or without intubation)

Delayed reaction²,³
Hemolytic anemia
Renal involvement
Hepatic involvement
DRESS, SJS/TEN, AGEP

PRESCRIBE THE FOLLOWING WITH CAUTION

Penicillins
Amoxicillin/Clavulanate

The 1st dose should always be administered under medical supervision.

If history of:
- Immediate reactions, a drug provocation test should be performed;
- Delayed reactions, the patient or his/her family should be informed of the possible risk of recurrence in the days following initiation of the antibiotic.

AVOID PRESCRIBING

Penicillins
Amoxicillin/Clavulanate

Choose another class of antibiotics.

CONSULT

Refer to specialized services to learn about alternative treatment options.

1. Immediate reaction (type I or IgE-mediated): usually occurs within one hour after taking the first dose of an antibiotic.
2. Delayed reaction (types II, III and IV): may occur at any time from one hour after administration of a drug.
3. Delayed skin reactions and serum sickness-like reactions that occur in children on antibiotic therapy are generally non-allergic and may be of viral origin.
4. Anaphylaxis without shock or intubation: requires an extra level of vigilance.
5. With no recommendations concerning other beta-lactams (penicillins, cephalosporins and carbapenems).

For further information, see the interactive tool and the decision-making tool.

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<td><strong>Beta-lactams recommended, according to the clinical judgment support algorithm</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin/Clavulanate¹</td>
<td>90 mg/kg/day PO ÷ TID</td>
<td>3 000 mg / day</td>
<td>10 to 14 days</td>
</tr>
<tr>
<td><strong>Alternative if a beta-lactam cannot be administered</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seek a consultation with specialized services to learn about alternative treatment options.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ The 7:1 formulation (200 mg / 5 mL or 400 mg / 5 mL) is preferred due to its higher digestive tolerance.