MICHIGAN MEDICINE
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GUIDELINES FOR TREATMENT OF ODONTOGENIC INFECTIONS IN HOSPITALIZED ADULTS

Clinical Setting	Empiric Therapy	Duration	Comments
Suppurative (pyogenic) orofacial odontogenic infection, including: • **Acute apical periodontitis** • **Acute dentoalveolar abscess** • **Space infection around the face (local extension depends on the tooth involved):** - **Masticator space** - **Buccal space** - **Canine space** - **Parotid space** - **Submandibular space** - **Submental space** - **Vestibular space** - **Ludwig's angina** • **NOT including deep head and neck infection** Pathogens: *Streptococcus viridans* *Streptococcus anginosus* *Peptostreptococci* *Prevotella* *Fusobacterium* *Porphyromonas* *Bacteroides* spp. *Veilonella* *Actinomyces* *Propionobacterium* *Capnocytophaga* Other uncommon pathogens: *Staphylococci* spp Enteric Gram negative bacilli	<u>1st line:</u> **Ampicillin-sulbactam** 3 g IV q6h* <u>PCN allergy without anaphylaxis, angioedema, or urticaria:</u> **Cefazolin** 2 g IV q8h* + **Metronidazole** 500 mg IV/PO q8h <u>Severe PCN or cephalosporin allergy (anaphylaxis, angioedema, hives):</u> **Levofloxacin** 750 mg IV q24h* + **Metronidazole** 500 mg IV/PO q8h	<u>For acute apical periodontitis and acute dentoalveolar abscess:</u> <u>In the presence of surgical control:</u> 5 days post drainage <u>In the absence of surgical control:</u> Duration is dependent on clinical and/or radiographic improvement. Minimum of 7 days AND at least 3 days of clinical improvement <u>Ludwig's angina:</u> 3 weeks	• **The most important element is surgical drainage and removal of necrotic tissue.** • Blood cultures should be sent when systemic signs are involved • If abscess is drained, aerobic and anaerobic bacterial cultures should be sent. • *Strep anginosus*, a prominent pathogen in these infections, is resistant to clindamycin >20% of the time it is isolated in our hospital. • Consider ID consult for Ludwig's angina case • Coverage for *Actinomyces* may be considered in extensive infections, which would affect both coverage choices and duration. Oral step-down options: • <u>1st line:</u> **Amoxicillin-clavulanate** 875 mg PO BID* • <u>PCN allergic, without anaphylaxis, angioedema, or urticaria:</u> **Cefuroxime** 500 mg PO BID* + **Metronidazole** 500mg PO TID • <u>Severe PCN allergic patients who do not tolerate cephalosporins:</u> **Levofloxacin** 750 mg PO daily* + **Metronidazole** 500 mg PO TID

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Clinical Setting	Empiric Therapy	Duration	Comments
Suppurative (pyogenic) orofacial odontogenic infection in: **1) Severely immunocompromised patients** **2) Patients who have severe sepsis and/or septic shock** **3) Patients who had in-hospital surgical procedure in the past 90 days** Pathogens: *Streptococcus viridans* *Streptococcus anginosus* *Peptostreptococci* *Prevotella* *Fusobacterium* *Porphyromonas* *Bacteroides* spp *Veilonella* *Actinomyces* *Propionobacterium* *Capnocytophaga* *Staphylococci* spp Enteric Gram negative bacilli including *P. aeruginosa*	1st line: **Vancomycin** IV (see nomogram, AUC goal 400-600)* + **Piperacillin-Tazobactam** 4.5 g IV q6h PCN allergy without anaphylaxis, angioedema, or urticaria: **Vancomycin** IV (see nomogram, AUC goal 400-600)* + **Cefepime** 2 g IV q8h* + **Metronidazole** 500 mg IV/PO q8h Severe PCN or cephalosporin allergy (anaphylaxis, angioedema, hives): **Vancomycin** IV (see nomogram, AUC goal 400-600)* + **Aztreonam** 2 g IV q8h* + **Metronidazole** 500 mg IV/PO q8h	For acute apical periodontitis and acute dentoalveolar abscess: Duration is dependent on surgical debridement, clinical & radiographic improvement. Minimum of 7 days AND at least 3 days of clinical improvement Oral stepdown therapy depends on clinical improvement and microbiologic data. Ludwig's angina: 3 weeks	• Severely immunocompromised patients: neutropenia, allogeneic HSCT, HIV accompanied by CD4 <200 • **The most important element in surgical drainage and removal of necrotic tissue.** • ID consult is recommended • Blood cultures should be sent when systemic signs are involved • If abscess is drained, aerobic and anaerobic bacterial cultures should be sent. • *Strep anginosus*, a prominent pathogen in these infections, is resistant to clindamycin >20% of the time it is isolated in our hospital. • Coverage for *Actinomyces* may be considered in extensive infections, which would affect both coverage choices and duration.
Mandibular Osteomyelitis Pathogens: *Streptococcus viridans* *Streptococcus anginosus* *Peptostreptococci* *Prevotella* *Fusobacterium* *Porphyromonas* *Bacteroides*spp *Veilonella* *Actinomyces* *Propionobacterium* *Capnocytophaga* Other uncommon pathogens: *Staphylococci* spp. Enteric Gram negative bacilli *Candida* spp.	Consider holding antibiotics until bone cultures can be obtained in hemodynamically stable patients 1st line: **Ampicillin-sulbactam** 3 g IV q6h* PCN allergy without anaphylaxis, angioedema, or urticaria: **Ceftriaxone** 2 g IV q24h* + **Metronidazole** 500 mg IV/PO q8h Severe PCN or cephalosporin allergy (anaphylaxis, angioedema, hives): **Moxifloxacin** 400 mg IV/PO q24h If mandibular osteomyelitis is secondary to contiguous spread of exposed bone from Osteoradionecrosis leading to the skin, then would recommend the addition of **vancomycin** to empiric therapy.	Final regimen pending microbiologic data. Duration to be determined by clinical improvement and serial evaluation, Typically 6 weeks.	• ID consult strongly recommended. • When osteomyelitis is suspected, it is advised to attempt surgical debridement of necrotic bone, and **to send purulence and bone for pathology as well as anaerobic bacterial, aerobic bacterial and *Actinomyces* culture to help guide therapy.** • In the setting of mandibular osteomyelitis caused by tooth extraction or odontogenic infection, the typical oral flora are expected pathogens.

* Dose may need to be adjusted for renal dysfunction

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