

LSUHSC-S ANTIBIOTIC GUIDELINES		
ANAEROBIC INFECTIONS	INITIAL REGIMENS OF CHOICE	SERIOUS PENICILLIN ALLERGY
I. Orofacial Infections, Oropharyngeal Infections, and Tonsillitis	<p>Amoxicillin/clavulanate 875 mg PO bid for 10 – 14 days</p> <p>Imipenem/cilastatin 500 mg IV q 8 hrs for 10 – 14 days</p> <p>Clindamycin 300 to 900 mg IV q 6 – 12 hrs. (Max. 4,800 mg/day)</p> <p><u>Concept:</u></p> <p>A) Due to the increased prevalence of β-lactamases produced by oral anaerobes, anaerobic infectious associated with the mucosa of the head and neck can no longer reliably be treated with Penicillin.</p> <p>B) Metronidazole is not reliable against anaerobic Gram-positive cocci and should not be relied upon in oral anaerobic infections. However, it can be used with Penicillin G as the combination is very effective.</p>	Clindamycin 300 to 900 mg IV q 6 – 12 hrs. (Max. 4,800 mg/day)
II. Anaerobic Pulmonary Infections	<p>Metronidazole 500 mg IV q 6 hrs. or Clindamycin 900 mg IV q 8 hrs. supplemented with Penicillin G 3 to 4 million units q 4 hrs. - 21 days*</p> <p>Imipenem 500 mg q 6 to 8 hrs. - 21 days*</p> <p>Clindamycin 450 – 900 mg q 8 hrs. - 21 days*</p>	<p>Metronidazole 500 mg IV q 6 hrs.</p> <p>Clindamycin 450 – 900 mg q 8 hrs. - 21 days*</p>

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	<p>Ticarcillin/clavulanate 3.1 gm IV q 4 hrs. - 21 days*</p> <p>Piperacillin/tazobactam 3.375 mg IV 6 hrs. - 21 days*</p> <p>Pulmonary abscesses or necrotic cavities may require longer durations of therapy</p> <p><u>Concept:</u> Infections of the lungs that include anaerobes are almost always due to aspirated oropharyngeal secretions that also include aerobic rods and cocci. Thus, neither Penicillin alone nor metronidazole alone is reliable.</p>	

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III. Anaerobic Intra-abdominal Infections	<p>Imipenem/cilastatin 500 mg IV q 6 – 8 hrs. (Preferably with an aminoglycoside like Amikacin or Gentamicin)</p> <p>Ticarcillin/clavulanate 3.1 gm IV q 4 hrs (Preferably with an aminoglycoside like Amikacin or Gentamicin)</p> <p>Cefoxitin 1 gm q 8 hrs to 2 gms q 4 hrs. IV (Must include antibiotics that are active against aerobic Gram-negative rods (eg. an aminoglycoside, third generation cephalosporins, fluoroquinolones, or a monobactam)</p> <p>Clindamycin 900 mg q 8 hrs (Must include antibiotics that are active against aerobic Gram-negative rods (eg. an aminoglycoside, third generation cephalosporins, fluoroquinolones, or a monobactam)</p> <p>Metronidazole 500 mg IV q 6 hrs. (Must include antibiotics that are active against aerobic Gram-negative rods (eg. an aminoglycoside, third generation cephalosporins, fluoroquinolones, or a monobactam)</p>	<p>Clindamycin 900 mg q 8 hrs (Must include antibiotics that are active against aerobic Gram-negative rods (eg. Aminoglycosides, third generation cephalosporins, fluoroquinolones, or a monobactam)</p> <p>Metronidazole 500 mg IV q 6 hrs. (Must include antibiotics that are active against aerobic Gram-negative rods (eg. aminoglycosides, third generation cephalosporins, fluoroquinolones, or a monobactam)</p>

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	<p><u>Concept:</u> Consider all anaerobic infections in the abdomen Penicillin G-resistant infections. Empiric therapy of intra-abdominal infections should include consideration for surgical drainage and multi-drug therapy to cover aerobic and anaerobic etiologies.</p>	

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IV. Anaerobic Skin and Soft Tissue Infections	<p>Gas Gangrene (Clostridial Myonecrosis): Penicillin G 3 to 4 million units IV q 4 hrs. PLUS Clindamycin 600 mg IV q 6 hrs to q 8 hrs. and aggressive surgical debridement.</p> <p>(Do NOT use penicillin G plus metronidazole in clostridial myonecrosis; they are antagonistic in gas gangrene.)</p> <p>Anaerobic Streptococcal Myonecrosis: Penicillin G 3 to 4 million units IV q 4 hrs. PLUS an anti-Staphylococcal antibiotic. If a Gram stain indicates Gram-negative rods, add a third generation Cephalosporin.</p> <p>Other Etiologies: Treat as for abdominal infections.</p> <p><u>Concept:</u> Skin and soft tissue infections due to anaerobes are often rapidly progressive, extremely destructive, and often lethal. Early and extensive surgical debridement is necessary and often lifesaving. Ischemic tissues do not allow adequate blood supply to</p>	<p>Gas Gangrene (Clostridial Myonecrosis): Clindamycin 600 mg IV q 6 hrs to q 8 hrs. and aggressive surgical debridement.</p> <p>Anaerobic Streptococcal Myonecrosis: Vancomycin 1 gm IV q 12 hrs (Peak Serum Conc. 20 – 30 ig/ml and Trough Serum Conc. < 10 ig/ml)</p>

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	<p>achieve adequate antibiotic concentrations in involved tissues.</p> <p>Hyperbaric oxygen therapy has not been proven to increase survival. However, it may be considered when there is extensive involvement of the abdomen or trunk when surgical debridement cannot be done effectively.</p>	

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V. Central Nervous System	<p>Brain abscesses: Penicillin G 3 to 4 million units q 4 hrs. PLUS Metronidazole 15 mg/kg loading dose followed by 7.5 mg/kg IV q 6 hrs for 6 to 8 weeks followed by 2 to 6 months of appropriate oral therapy (based upon susceptibility patterns of isolates from the abscess.</p> <p>Alternative therapy: Cefotaxime 3 gm IV q 8 hrs. or Ceftriaxone 2 grams IV q day PLUS Metronidazole 15 mg/kg loading dose followed by 7.5 mg/kg IV q 6 hrs</p> <p><i>Bacteroides fragilis</i> meningitis: Metronidazole 15 mg/kg loading dose followed by 7.5 mg/kg IV q 6 hrs for 14 to 21 days</p> <p><u>Concept:</u> Metronidazole crosses the blood-brain barrier very well, is active against many anaerobes, but has poor activity against anaerobic Streptococci. Clindamycin has excellent activity against a broad range of anaerobes, but has limited CNS penetration. Penicillin G has excellent activity against anaerobic Streptococci, but is not active against β-lactamase producing anaerobes. Surgical drainage,</p>	<p>Vancomycin 1 gm IV q 12 hrs (Peak Serum Conc. 20 – 30 μg/ml and Trough Serum Conc. < 10 μg/ml) Plus Metronidazole 15 mg/kg loading dose followed by 7.5 mg/kg IV q 6 hrs for 6 to 8 weeks followed by 2 to 6 months of appropriate oral therapy (based upon susceptibility patterns of isolates from the abscess).</p>

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	aspiration or extirpation, is often necessary for optimal therapy of brain abscesses.	

Approved September 2002