## GUIDELINE FOR TREATMENT OF BACTERIAL MENINGITIS IN ADULTS

<table>
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<tr>
<th>Patient Population &amp; Common Pathogens</th>
<th>Empiric Treatment Regimen</th>
<th>Duration of Therapy</th>
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</table>
| Age >18  
*N. meningitidis*  
*S. pneumoniae*  
*L. monocytogenes* (age >50)  
Aerobic GNR (age >50) | 1st line:  
Ceftriaxone 2 g IV q12h  
+ Vancomycin* IV (see nomogram, AUC goal 400-600)  
+ Dexamethasone 10 mg IV q6h | 7 days  
7 days  
10-14 days  
21 days  
≥21 days | • Dexamethasone should be administered 10-20 min before antimicrobial therapy for maximal efficacy. Continue for 2-4 days for pneumococcal meningitis  
• Avoid piperacillin-tazobactam due to poor CNS penetration  
• Use adjusted body weight for obese patients to calculate acyclovir dose: Adjusted body weight = 0.4(Actual Weight – Ideal Weight) + Ideal Weight  
• Adjust vancomycin, meropenem, acyclovir, TMP-SMX and aztreonam in patients with renal dysfunction  
• CT prior to lumbar puncture if:  
  o Immunocompromised  
  o History of CNS disease (mass lesion, stroke)  
  o New onset seizures  
  o Papilledema  
  o Abnormal level of consciousness  
  o Focal neurologic deficit |
| If immunosuppressed, pregnant or >50 yo, add coverage for Listeria | Add Ampicillin* 2 g IV q4h to the above regimen | N. meningitidis 7 days  
H. influenzae 7 days  
*S. pneumoniae* 10-14 days  
Aerobic GNRs 21 days  
*L. monocytogenes* ≥21 days | |
| If encephalopathic with suspicion for HSV | Add Acyclovir* 10 mg/kg IV q8h | | |
| If allergies to 1st line therapy: | Non-life threatening penicillin or cephalosporin allergy:  
Substitute meropenem* 2 g IV q8h for ceftriaxone (meropenem will cover listeria in patients >50 yo)  
Substitute TMP-SMX* 5 mg/kg IV q8h for ampicillin if Listeria coverage when immunosuppressed or >50 yo.  
TMP-SMX may not be indicated in pregnancy. Consult ID for recommendations | | |
<p>| Life threatening penicillin allergy: | Substitute aztreonam* 2 g IV q6h for ceftriaxone | | |</p>
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| **Basilar skull fracture**  
*S. pneumoniae*  
*H. influenzae*  
*Group A strep* | **1st line:**  
*Ceftriaxone* 2 g q12h  
+ *Vancomycin* IV (see [nomogram](#), AUC goal 400-600)  
*If non-life threatening penicillin or cephalosporin allergy:*  
Substitute *meropenem* 2 g IV q8h for ceftriaxone  
+ meropenem (meropenem will cover Listeria in patients >50 yo)  
*If life threatening penicillin allergy:*  
Substitute *aztreonam* 2 g IV q6h for ceftriaxone | **At least 7-21 days** |  
*Patients with significant barrier disruption are at increased risk for resistant-gram negative organisms thus requiring broadening of ceftriaxone to cephalosporins*  
*CSF shunt infections: Gold standard for infection clearance is removal of shunt. Prior to replacement of shunt, cultures should be negative for:*  
• CoNS + normal CSF findings: 3 days  
• CoNS + abnormal CSF findings: 7 days  
• *S. aureus:* 10 days  
• *Gram negative bacilli:* 10-14 days (plus)  
• Adjust cefepime vancomycin, meropenem, and aztreonam in patients with renal dysfunction*  
• **CT prior to lumbar puncture if:**  
  • Immunocompromised  
  • History of CNS disease (mass lesion, stroke)  
  • New onset seizures  
  • Papilledema  
  • Abnormal level of consciousness  
  • Focal neurologic deficit*  

| **Penetrating trauma**  
*Staphylococci**  
*Aerobic gram-negative bacilli (e.g., *Pseudomonas*)** | **1st line:**  
*Vancomycin* IV (see [nomogram](#), AUC goal 400-600)  
+ *Cefepime* 2 g IV q8h  
*If non-life threatening penicillin or cephalosporin allergy:*  
Substitute *meropenem* 2 g IV q8h for cefepime  
*If life threatening penicillin allergy:*  
Substitute *aztreonam* 2 g IV q6h for cefepime | **At least 7-21 days** | **Antimicrobial Subcommittee Approval:** N/A  
**P&T Approval:** N/A  
**Last Revised:** 03/2021*  

*Adjust dose based on renal function**

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The recommendations in this guide are meant to serve as treatment guidelines for use at Michigan Medicine facilities. If you are an individual experiencing a medical emergency, call 911 immediately. These guidelines should not replace a provider’s professional medical advice based on clinical judgment, or be used in lieu of an Infectious Diseases consultation when necessary. As a result of ongoing research, practice guidelines may from time to time change. The authors of these guidelines have made all attempts to ensure the accuracy based on current information, however, due to ongoing research, users of these guidelines are strongly encouraged to confirm the information contained within them through an independent source.

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