Antimicrobial Therapy for Adult Aspiration Pneumonia
(NB Provincial Health Authorities Anti-Infective Stewardship Committee, October 2020)

Aspiration/Chemical Pneumonitis

- Prophylactic antimicrobial therapy is NOT indicated
- Inflammatory response to chemical injury caused by inhalation of sterile gastric contents
- Clinical Pearls:
  - Episode of macroaspiration is often witnessed and typically occurs in patients with decreased level of consciousness
  - Characterized by a sudden onset of prominent dyspnea, tachycardia, hypoxemia, low-grade fever, and crackles or diffuse wheeze
  - Symptoms may range from mild to severe and can develop within 2 to 5 hours
  - Pulmonary infiltrates are apparent on x-ray
  - Recommended supportive care with humidified oxygen and chest physio
  - Corticosteroids do not have a proven benefit
  - Employ measures to reduce future aspiration episodes (encouraging quality oral care, elevate head of bed, minimize time in supine position and reassess medications associated with CNS depression; consider swallowing assessment)
  - Reassess patient in 24-48 hours – may consider antibiotic therapy if signs and symptoms lasting greater than 48 hours (i.e. fever, cough, leukocytosis), x-ray evidence of infiltrate AND risk factors (receiving gastric acid suppression or enteral feeds, has a small bowel obstruction or gastroparesis)
  - Rapid clinical improvement within 24 to 48 hours typically indicates lack of pneumonia – if antimicrobial therapy was initiated then consider discontinuing

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<th>Infection Severity</th>
<th>Empiric Therapy</th>
<th>Duration of Therapy</th>
<th>Comments</th>
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| **Mild-to-Moderate** | Oral Route: Amoxicillin + clavulanate 875+125 mg PO q12h* OR cefuroxime 500 mg PO q8h*  
Alternative: clindamycin 450 mg PO q6 – 8h  
IV Route: cefuroxime 1.5 g IV q8h* OR cefTRIAXone 2 g IV q24h  
Alternative: levoFLOXacin 750 mg IV q24h* OR clindamycin 600 - 900 mg IV q8h  
An aerobic involvement suspected, ADD: metroNIDAZOLE 500 mg IV/PO q12h (for add on therapy to cefuroxime, cefTRIAXone or levoFLOXacin)  
MRSA Suspected, then ADD: vancomycin 25 to 30 mg/kg IV x 1 dose then 15 mg/kg IV q8–12h (adjust dose to a trough target of 10 to 15 mg/L)*  
Alternative, if true immediate penicillin allergy: meropenem 500 mg IV q6h*  
MRSA Suspected, then ADD: vancomycin 25 to 30 mg/kg IV x 1 dose then 15 mg/kg IV q8–12h (adjust dose to a trough target of 10 to 15 mg/L)*  | 5 – 7 days (if good clinical response) | • If initially started on IV therapy convert to the PO route of administration when clinically improving, hemodynamically stable, able to take PO medications and have a normally functioning gastrointestinal tract  
▲ If evidence or clinical suspicion of necrotizing pneumonia, empyema or lung abscess:  
- Recommend consultation to Infectious Diseases, Respirology OR Thoracic Surgery  
- Employ source control if appropriate  
- Treat with IV antibiotics for 3 – 6 weeks depending on clinical response and radiographic resolution |
| **Severe Illness** (unstable or requiring a higher level of care) | piperacillin-tazobactam 4.5 g IV q6h*  
Alternative, if true immediate penicillin allergy: meropenem 500 mg IV q6h*  
MRSA Suspected, then ADD: vancomycin 25 to 30 mg/kg IV x 1 dose then 15 mg/kg IV q8–12h (adjust dose to a trough target of 10 to 15 mg/L)*  | 5 – 7 days (if good clinical response) |
## Major Risk Factors for Aspiration Pneumonia:

- Dysphagia
- Degenerative neurologic diseases (e.g. dementia, post-stroke, Parkinson's Disease, multiple sclerosis)
- Anatomical abnormality or mechanical interference of upper gastrointestinal tract (e.g. enteral feeding, nasogastric tube, endotracheal intubation)
- Esophageal disorders (e.g. strictures, vomiting + small bowel obstruction, achalasia)
- Altered level of consciousness (e.g. acute alcohol or substance abuse, seizures, CNS depressants, etc.)
- Cardiac arrest

## Clinical Pearls:

- Usually a clinical diagnosis in a patient with predisposing risk factors to aspiration, compatible radiographic evidence occurring in dependant lung segment and characteristic clinical history indicative of infection (e.g. fever, cough, etc.)
- Right lower lobe most commonly implicated in ambulatory patients. Posterior upper and superior lower lobes most commonly implicated in bed bound patients.
- Role of anaerobes controversial and historically has been overemphasized
- Most clinically important anaerobes are adequately covered by amoxicillin-clavulanate, piperacillin-tazobactam and meropenem
- Atypical coverage is not required in aspiration pneumonia
- Sputum samples are unsuitable due to inevitable contamination by normal flora.
- Do not treat candida spp found in sputum unless systemic candidiasis suspected (e.g. neutropenic, transplant patients, etc.)
- For immunocompromised patients, recommend consulting infectious diseases

* Dose adjustment required in renal impairment

‡ metronidazole NOT an appropriate option for monotherapy, use as combination for added anaerobic coverage

£ MRSA risk factors: history of MRSA infection or colonization, household contact with a MRSA colonized individual, injection drug use, homelessness, incarcerated persons, recent travel to or residing in an MRSA endemic region or community

∞ Stop vancomycin if MRSA not found on screening swabs or culture

¥ Immediate, IgE mediated allergies include, but are not limited to, anaphylaxis, urticaria, angioedema, hypotension, bronchospasm, stridor, and pruritic rash. Refer to the NB-ASC Beta-Lactam Allergy guidelines to determine which beta-lactams share similar side chains

## References:

6. Bartlett JG. Aspiration Pneumonia in Adults. In: UpToDate, Sexton DJ (Ed), UpToDate, Waltham, MA. (Accessed on August 8, 2019.)
8. Spectrum Mobile Health App. Eastern Health St. Johns; Island Health Vancouver; AHS Calgary Zone; Fraser Health BC; Providence Health Care Vancouver; Saskatchewan Health Authority. (Accessed August 8, 2019)