Empiric Treatment Guidelines for Common Infections in Adults

**Bacterial Meningitis**

**Clinical Key Points**

- When culture susceptibilities available change to **PATHOGEN-DIRECTED** therapy

**Indication**

<table>
<thead>
<tr>
<th>Typical Pathogen(s)</th>
<th>Empiric Treatment</th>
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</thead>
<tbody>
<tr>
<td>S. pneumoniae (10 to 14 days)</td>
<td>Ceftriaxone 2 g IV q24h</td>
<td>Aspergillus **</td>
</tr>
</tbody>
</table>
| N. meningitidis (7 days) | Vancomycin 15 mg/kg IV q8h | and/or Fusobacterium 
| H. influenzae (7 days) | (if penicillin resistant) | and/or anaerobes |

**When culture susceptibilities available change to **PATHOGEN-DIRECTED** therapy**

- **Doxycycline 100 mg po BID** x 5 to 7 days
- **Amoxicillin 1 g po 5 to 7 days** or **Ampicillin 2 g IV q4h**
- **Ampicillin as above + Clarithromycin 500 mg po BID x 5 to 7 days**

**True beta-lactam allergy**

- **Doxycycline 100 mg po BID x 5 to 7 days**

**CAP Outpatient (previously healthy)**

<table>
<thead>
<tr>
<th>CURB-65: score 0 to 1</th>
<th></th>
<th>CURB-65: score 2</th>
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**If severe Beta-lactam allergy**

- **SMX-TMP 5mg/kg (TMP) IV q6h + Vancomycin**
- **Ceftiofur + Vanco (both as above) + Ampicillin 2 g IV q4h**

**Typical Pathogen(s)**

- **S. pneumoniae**
- **N. meningitidis**
- **L. monocytogenes (21 days)**
- **Enterobacteriaceae (21 days)**

**INDICATION**

- **As above** (10 to 14 days)
- **P. aeruginosa (10 to 14 days)**
- **S. epidermidis, S. aureus**
- **H. flu, Grp A strep** (skull fracture)

**Step Down**

- **1. Vanco (as above) + Cefazidime** 2 g IV q6h **or** Vanco + Ceftriaxone** (both as above) **(skull fracture)**

**Ceftriaxone 2 g IV q24h + Azithromycin 500 mg IV daily x 5 to 7 days**

**CAP Inpatient Mild/Moderate**

**CURB-65: score 2**

**As above**

**Ceftriaxone 2 g IV q24h + Azithromycin 500** mg IV daily x 5 to 7 days

**CAP Inpatient Severe**

**ICU CURB-65: score 3 to 5**

**Add Vancomycin 20 mg/kg IV load, then 15 mg/kg IV q8 to 24 x 14 days**

**MRSA suspected**

**VAP**

As above for late onset HAP

**Drug Name Abbreviations**

- **Vanco** = Vancomycin,
- **SMX-TMP** = Sulfa[thiazole]-Trimethoprim,
- **Cipro** = Ciprofloxacin
- **Pip-Tazo = Pipercillin-Tazobactam**
- **Amoxiclav = Amoxicillin-Clavulanate,
- **Azithrov = Azithromycin,
- **Gent = Gentamicin,
- **Tobra = Tobramycin,
- **Metro = Metronidazole,
- **Clinda = Clindamycin**

**For Sepsis**: Emergency Adult Sepsis Protocol: 10-111-5102

**For Febrile Neutropenia**: Protocol under development

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October 2015, 1st Edition**

**Note**: All doses contained in this document should be adjusted for renal function (refer to the Antimicrobial Stewardship Program Adult Dosing Guidelines Pocket-card [10-110-6004])

**Aspiration Pneumonia**

**Clinical Key Points**

- **RISK FACTORS** for bacterial infection secondary to inhalation of gastric contents: decreased level of consciousness, hypoxia, abnormality of upper GI tract, enteral feeds, gastroparesis, small bowel obstruction
- **NO ROLE** for prophylactic antibiotics post aspiration – REASSESS patient 24 to 48 hours after, if CRX abnormality PLUS above risk factors, consider antibiotics

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<td><strong>If[recent ventilator support and or multiple antibiotic previously</strong></td>
<td><strong>Moderate</strong>: As for community or nursing home acquired WITH risk factors</td>
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<td><strong>Severe</strong>: (ICU): 1. Pip-Tazo 4.5 g IV q6h or 2. Imipenem 500 mg IV q6h x 7 days**</td>
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**VAP**

As above for late onset HAP

**If culture positive for stenotrophomonas: SMX-TMP 2 DS tab po TID x 14 days**

**Community-acquired Pneumonia (CAP)**

**Clinical Key Points**

- Avoid using same class of antibiotics if used within previous 3 MONTHS
- When culture susceptibilities available change to **PATHOGEN-DIRECTED** therapy
- Broaden empiric regimens when certain CO-MORBIDITIES present
- **Heart, lung, liver disease; diabetes; alcoholism; malignancies; aspera; immunosuppression**
- **Consider IV – PO step down if afibrile x 24 to 48 hr. GI tract function, hemodynamically stable and clinical improvement while on IV treatment**

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<tr>
<td></td>
<td>As baseline ECG to assess Q7c</td>
<td></td>
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<tr>
<td>CAP Outpatient (comorbidities present)</td>
<td>As above</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>and 2. Amoxicillin 1 g + Clindamycin 500 mg po daily 3 to 7 days</td>
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<td>True beta-lactam allergy</td>
<td>1. <strong>Amoxiclav</strong> + Cefuroxime 500 mg po bid x 7 to 14 days</td>
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<td>or <strong>Amoxiclav</strong> as above + Clindamycin 500 mg po bid x 7 to 14 days</td>
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**Early onset CAP**

**CAP Inpatient**

**CURB-65: score 2**

**As above**

**Ceftriaxone 2 g IV q24h + Vanco 2 g IV q6h**

**CAP Inpatient Severe**

**ICU CURB-65: score 3 to 5**

**Add Vancomycin 20 mg/kg IV load, then 15 mg/kg IV q8 to 24 x 14 days**

**MRSA suspected or known history**

Add Vancomycin 20 mg/kg IV load, then 15 mg/kg IV q8 to 24 x 14 days

**Atypical CAP**

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<td>S. pneumoniae</td>
<td><strong>1. Amoxiclav</strong> 875 mg po bid + Doxycycline 100 mg po bid x 7 to 14 days **</td>
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<td>H. influenzae</td>
<td>or <strong>2. Amoxiclav</strong> as above + Chlortetracycline 500 mg po bid x 7 to 14 days</td>
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**Late onset HAP**

**Healthcare associated Mild**

- **More than 4 days in hospital:** no risk factors (listed above*) for MDR microorganisms

**Risk factors to consider**

- **Young age**
- **Immunosuppression (more than 4 days in hospital)**
- **Healthcare associated (more than 4 days in hospital)**
- **Community-acquired (more than 4 days in hospital)**
- **Late onset CAP**

**Healthcare associated, Hospital-acquired (HAP) & Ventilator-associated pneumonia (VAP)**

**Clinical Key Points**

- **RISK FACTORS** for multi-drug resistant microbes: prolonged hospital stay (5 days or more), admission from healthcare-related facility, recent prolonged antibiotic therapy, structural lung disease, immunosuppression
- **When culture susceptibilities available change to **PATHOGEN-DIRECTED** therapy**
- **Consider DISCONTINUE empiric therapy if lower resp tract cultures negative at 72 hr and clinical improvement**
- **Consider IV – PO step down (see criteria under Community-acquired Pneumonia)**

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Intra-abdominal Infection

Clinical Key Points
- When culture susceptibilities available change to PATHOGEN-DIRECTED therapy DISCONTINUE antabiotics at day 4 to 7 adhering SOURCE CONTROL achieved and good clinical response
- If inadequate clinical response at day 4 to 7, consider DIAGNOSTIC INTERVENTIONS
- Antibiotics should be discontinued within 24 HOURS in the following:
  - Acute appendicitis WITHOUT perforation, abscess or perforation
  - Acute stomach or small bowel perforation without acute reduction therapy or malignancy and SOURCE CONTROL achieved
  - Bowel injury due to penetrating, blunt or iatrogenic trauma WITHIN 12 HR

Symptoms:
- New onset of worsening fever, rigors, altered mental status, malaise, flank pain, costovertebral angle tenderness, or dysuria, urgency, frequency, suprapubic pain/tenderness (refer to catheter-associated UTI)
- Spinal cord injury patients \(\rightarrow\) increased spasticity, sense of unease or autonomic dysreflexia (refer to catheter-associated UTI)

Empirical Therapy
- DISCONTINUE
- SOURCE CONTROL
- If catheter still indicated, replace prior to culture/sample collection

Urinary Tract Infections (UTI) in Non-pregnant Adults

Clinical Key Points
- Malodorous/cloudy urine alone is NOT a sign/symptom of UTI and is NOT an indication for urine cultures
- Positive urine cultures in asymptomatic patients should NOT be treated EXCEPT in pregnancy or prior to urologic/surgical procedure
- Delirium or change in behaviour REQUIREDS CLINICAL assessment (do not assume)
- Urine cultures SHOULD always be collected mid-stream or by inebriated catheter

Symptoms:
- Moderate pyelonephritis
- Severe: as above PLUS
  - Toxic megacolon, perforation, or abscess
  - Sepsis/shock, peritonitis, acute renal failure

Empirical Therapy
- As above
- If MRSA suspected or
- Or
- As above PLUS
- Add SMX-TMP 2 DS tabs PO BID x 1 to 2 wks
- Ertapenem 1 g IV q24h x 4 days then reassess for oral therapy**
- Need I&D if abscess present; Closantin 500 mg PO x 7 to 10 days or Clindamycin 300 mg PO x 7 to 10 days

Skin and Soft Tissue Infections (Cellulitis and Diabetic Foot)

Clinical Key Points
- Avoid using same class of antibiotics if used within previous 3 MONTHS
- Superficial skin swabs NOT required for SOURCE CONTROL
- Cellulitis usually progresses to 48 hr after initiation of treatment BEFORE it improves
- ELEVATE affected area whenever possible
- STEP DOWN TO PO when resolution of systemic symptoms or no further progression

Catheter-associated UTI (CA-UTI)

Clinical Key Points
- DO NOT treat a positive culture in absence of symptoms
- DISCONTINUE catheter as appropriate
- When culture susceptibilities available change to PATHOGEN-DIRECTED therapy

Catheter Replacement
- Always continued need for catheter – remove if possible
- If catheter still indicated, prior to culture/sample collection

Culture and Sampling
- Obtain urine sample for analysis and culture from new catheter prior to antimicrobial therapy
- If catheter removed, collect sample voided mid-stream

Typical Pathogen(s)
- Strp A, B, C, G
- Mild
  - Fasciitis
  - Necrotizing fasciitis
  - Gangrene
  - Ertapenem 1 g IV q24h x 4 days then reassess for oral therapy
- Need I&D if abscess present

Empirical Therapy
- As above
- If MRSA suspected or
- Or
- As above PLUS
- Add SMX-TMP 2 DS tabs PO BID x 1 to 2 wks
- Ertapenem 1 g IV q24h x 4 days then reassess for oral therapy

CLOSTRIDIUM DIFFICILE INFECTION (CDI)

Clinical Key Points
- DISCONTINUE current antibiotics if possible
- DISCONTINUE anti-peristalsis, laxatives, pro-motility agents, anti-inflammatory NSAIDAS if present, REASSURE need for Proton Pump Inhibitor or Histamine-2 Receptor Antagonist

CDI Severity
- Mild/moderate
  - 1. Metronidazole 500 mg POING TID x 10 to 14 days
  - If no improvement by day 4 or intolerant to PO metronidazole change to clindamycin
  - Vancomycin 125 mg POING QID x 10 to 14 days
- Severe (IBS greater than 15, acute kidney injury (increased of 50% or more in creatinine), pseudomembranous colitis)
  - Vancomycin 125 mg POING QID x 14 days

 Fulminant (toxic megacolon, perforation, ileus, sepsis/shock, perforation, acute renal failure) Recurrence/relapse (1st) Mild
  - 1. Metronidazole 500 mg POING TID x 14 days
  - If no improvement by day 4 or intolerant to PO metronidazole change to clindamycin
  - Vancomycin 125 mg POING QID x 14 days
- Severe
  - Vancomycin 125 mg POING QID x 14 days

 Recurrence/relapse (2nd or more) CONSULT INFECTIOUS DISEASE