

Intra-Abdominal Infection

RECOMMENDED CULTURES

Clinical Scenario	Blood Cultures	Peritoneal Cultures
Community-acquired IAI, low risk	NO	NO
Community-acquired IAI, high risk	YES	YES
Healthcare-associated IAI, any severity	YES	YES

- Ideal peritoneal culture is at least 1 mL of peritoneal fluid or infected tissue. Peritoneal swabs are discouraged.
- Cultures collected from chronic drains may reflect colonizing organisms rather than pathogenic organisms. Carefully assesses clinical relevance of cultures from chronic drains before modifying antibiotic therapy.

MANAGEMENT:

Antibiotic Recommendation		Duration
Acute Uncomplicated Appendicitis (no perforation or abscess)		
Surgical Management	<i>Administer narrow spectrum antibiotics for surgical prophylaxis</i> cefazolin 2 g IV q8h AND metronidazole 500 mg IV/PO q12h	≤ 24 hours post-op
Acute Uncomplicated Diverticulitis (no perforation or abscess)		
Non-antibiotic approach	<i>Consider deferral of antibiotic therapy in acute uncomplicated colonic diverticulitis if minimal comorbidities and no signs of sepsis.</i>	NONE
Antibiotic approach	<u>Oral therapy for outpatients and mildly ill inpatients</u> amoxicillin-clavulanate 875 mg PO BID <i>If penicillin allergy:</i> cefuroxime 500 mg PO BID AND metronidazole 500 mg PO BID <u>Intravenous therapy for moderately ill inpatients</u> Same regimens as “Complicated IAI – Community Acquired, Low Risk”	5-7 days See below
Complicated Intra-abdominal Infection – Community Acquired		
Low Risk	ceftriaxone 1-2 g IV q24h AND metronidazole 500 mg IV/PO q12h <i>If ceftriaxone allergy:</i> ciprofloxacin 400 mg IV q12h ¹ AND metronidazole 500 mg IV/PO q12h	4 days See below
High Risk <i>Critically ill OR</i> <i>Diffuse peritonitis OR</i> <i>Delayed/inadequate source control</i>	piperacillin-tazobactam 3.375 g IV q6h ² <i>If penicillin allergy or ESBL risk factors:</i> meropenem 500 mg IV q6h <i>If critically ill with upper GI source: ADD</i> micafungin 100 mg IV q24h	4 days See below
Complicated Intra-abdominal Infection – Healthcare-Associated		
Non-critically ill	piperacillin-tazobactam 3.375 g IV q6h ² <i>If penicillin allergy or ESBL risk factors:</i> meropenem 500 mg IV q6h <i>If Candida risk factors: ADD</i> fluconazole 400 mg IV/PO q24h	4 days See below
Critically ill	piperacillin-tazobactam 3.375 g IV q6h ² <i>If penicillin allergy or ESBL risk factors:</i> meropenem 500 mg IV q6h <i>If post-operative infection: ADD</i> vancomycin IV ³ <i>If Candida risk factors: ADD</i> micafungin 100 mg IV q24h	4 days See below

Doses may require adjustment for renal insufficiency

¹ Or ciprofloxacin 500 mg PO BID if hemodynamically stable, able to swallow, and functioning GI tract.

² If suspect or isolated *Pseudomonas* use piperacillin-tazobactam 4.5 g IV q6h

³ For vancomycin dosing, refer to “Vancomycin Dosing and Therapeutic Monitoring”

Acute Uncomplicated Diverticulitis

- Several trials have demonstrated the efficacy and safety of observation without antibiotics in uncomplicated left-sided colonic diverticulitis. Evidence suggests that acute diverticulitis is likely an inflammatory process resulting in micro-perforation rather than an infectious complication of micro-perforation.
 - Antibiotics do not appear to quicken recovery or reduce the risk of complications or recurrence.
 - Note that most patients managed without antibiotics in trials were admitted for IV hydration and monitoring.
- Patients with significant comorbidities or signs of sepsis should receive antibiotics.

Acute Diverticulitis With Small Abscess

- Stable patients with abscesses 3 cm or smaller in size can typically be managed with antibiotics alone. Lack of response after 5-7 days should prompt reassessment of potential source control intervention.

ORAL TRANSITION

Consider transition to oral antibiotics when patient is:

1. Hemodynamically stable
2. Improving clinically
3. Afebrile for 24 hours
4. Able to ingest oral medications and has a functioning GI tract

Clinical tip: avoid inadvertent extension of antibiotic duration when transitioning to oral antibiotics.

Oral antibiotic options:

- amoxicillin-clavulanate 875-125 mg one tab PO BID
- *If penicillin allergy:*
 - cefuroxime 500 mg PO BID **AND** metronidazole 500 mg PO BID
OR
 - ciprofloxacin 500 mg PO BID **AND** metronidazole 500 mg PO BID

DURATION

Clinical Scenario	Duration
Acute Uncomplicated Appendicitis	
Surgical Management	Discontinue antibiotics ≤ 24 hours after appendectomy.
Acute Uncomplicated Diverticulitis	
Non-antibiotic approach	N/A
Antibiotic approach	Continue antibiotics for 5-7 days. Monitor clinical parameters including fever, WBC, and GI function. Patients who don't respond fully within 5-7 days should be reassessed for potential complications (progressive peritonitis, abscess, phlegmon).
Complicated Intra-Abdominal Infection	
With Definitive Source Control	Discontinue antibiotics 4 days (96 hours) after source control. Extending antibiotics beyond day 8 in critically ill patients with definitive source control is not likely to provide benefit.
Without Definitive Source Control	Continue antibiotics for 5-7 days. Monitor clinical parameters including fever, WBC, and GI function. Repeat imaging is often necessary. Patients who don't respond fully within 5-7 days should be reassessed for potential source control intervention. Prolonged courses of antibiotics guided by clinical and radiographic improvement may be necessary.
Gastroduodenal Perforation	If operated on within 24 hours of symptom onset, discontinue antibiotics 24 hours after surgery. Those with delayed source control should be treated as per complicated IAI recommendations.
Traumatic Bowel Perforation	If operated on within 12 hours, discontinue antibiotics 24 hours after surgery. Those with delayed source control should be treated as per complicated IAI recommendations.
Other	
Ischemic Bowel	Discontinued antibiotics after 24-48 hours if the patient remains clinically stable and blood cultures are negative.
Bacteremia	Can discontinue antibiotics 5-7 days after successful source control procedure if there is good clinical response. Bacteremia with <i>Enterococcus</i> or <i>Streptococcus</i> may require longer duration of therapy, Infectious Disease consultation recommended.

OTHER CONSIDERATIONS

- Patients with acute diverticulitis should be referred for outpatient colonoscopy to screen for colorectal malignancy if not performed within the previous year.
 - Patients with *Streptococcus bovis* bacteremia are at elevated risk of colorectal malignancy and should be referred for outpatient colonoscopy if not performed within the previous year.
1. Patients with *Clostridium septicum* bacteremia are at elevated risk of colorectal malignancy and aortic mycotic aneurysms. Infectious Diseases consultation recommended.