## Antibiotic Guidelines for GASTRO-INTESTINAL INFECTIONS

<table>
<thead>
<tr>
<th>CLINICAL CONDITION</th>
<th>USEFUL INFORMATION</th>
<th>RECOMMENDATIONS</th>
<th>ALTERNATIVE (suitable in serious penicillin allergy)</th>
<th>DURATION</th>
</tr>
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<tbody>
<tr>
<td>Cholecystitis / cholangitis</td>
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<tr>
<td>Signs and symptoms:</td>
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<tr>
<td>Cholecystitis:</td>
<td>• Right upper quadrant pain</td>
<td>Community Acquired infection or patients who are not severely ill with sepsis:</td>
<td>Teicoplanin 10mg/kg* 12 hourly IV x 3 doses then 10mg/kg 24 hourly + Gentamicin 5mg/kg* once daily IV + Metronidazole 500mg 8 hourly IV (if a biliary-enteric anastomosis is present).</td>
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<tr>
<td>• Temperature &gt;38°C</td>
<td>• Gentamicin 5mg/kg* once daily IV +/− Metronidazole 500mg 8 hourly IV (if a biliary-enteric anastomosis is present)</td>
<td>If gentamicin contraindicated, use Aztreonam 1g 8 hourly IV instead.</td>
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<td>• Raised CRP, WCC</td>
<td>• Broad spectrum antibiotic regimens should be rationalised when culture results are available.</td>
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<td>4–7 days, unless adequate source control is not achieved and/or patient continues to show signs and symptoms of sepsis.</td>
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<tr>
<td>• Clinical or radiological evidence</td>
<td>• Adequate drainage is crucial as an adjunct to antibiotics as antibiotics will not enter bile in presence of obstruction.</td>
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<td>Contact microbiology for advice if &gt;7 days required</td>
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<td>Cholangitis:</td>
<td>• Jaundice</td>
<td>Hospital acquired infection, prior biliary procedure or patients who are severely ill with sepsis</td>
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<tr>
<td>• Temperature &gt;38°C</td>
<td>• Right upper quadrant pain</td>
<td>Piperacillin/tazobactam 4.5g 8 hourly IV + Gentamicin 5mg/kg* IV once daily</td>
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<tr>
<td>For sepsis, 2 or more symptoms required:</td>
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<tr>
<td>• Temperature &gt;38°C or &lt;36°C</td>
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<tr>
<td>• Tachycardia &gt;90 bpm</td>
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<tr>
<td>• RR &gt;20/min</td>
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<td>• WCC &lt;4 or &gt;12 X 10^9/L.</td>
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<td>Investigations:</td>
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<tr>
<td>• USS +/- MRCP</td>
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<td>• CT in severe or unresolving disease to rule out complications</td>
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<td>• Blood cultures if temp spike or immune-compromised patient</td>
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<tr>
<td>• Bile/pus/tissue obtained during drainage procedure or operation to relieve obstruction and sent for culture.</td>
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<td><strong>Diverticulitis</strong></td>
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<td>4–7 days, unless adequate source control is not achieved and/or patient continues to show signs and symptoms of sepsis.</td>
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<tr>
<td><strong>Signs and symptoms:</strong></td>
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| • Lower abdominal pain +/- guarding/ rebound tenderness | If patients presents with diarrhoea-isolate patient and implement contact IPC precautions as per Trust guideline which are available on the intranet. | **Mild-Moderate:**  
  Consider no antibiotics.  
  If antibiotics required: 
  Gentamicin 5mg/kg* once daily IV  
  + Metronidazole 500mg 8 hourly IV or 400mg 8 hourly PO  
  **Severe with sepsis:** 
  Piperacillin/tazobactam 4.5g 8 hourly IV  
  ± Gentamicin 5mg/kg* once daily IV  | **Mild-Moderate:**  
  Consider no antibiotics.  
  If antibiotics required: 
  Gentamicin 5mg/kg* once daily IV  
  + Metronidazole 500mg 8 hourly IV or 400mg 8 hourly PO  
  **Severe with sepsis:** 
  Teicoplanin 10mg/kg* 12 hourly IV x 3 doses then 10mg/kg 24 hourly  
  + Metronidazole 500mg 8 hourly IV  
  + Gentamicin 5mg/kg* once daily IV  
  If gentamicin contraindicated, use Aztreonam 1g 8 hourly IV instead.  |          |
| • Temperature >38°C  
  • Raised CRP, WCC | **Mild to moderate:** systemically stable, CT if performed shows no evidence of perforation or abscess formation.  
  **Severe:** systemically unwell, diffuse peritonism, CT evidence of complications (including perforation or abscess formation).  
  • Patients with diffuse peritonism should undergo emergency surgical procedure as soon as possible.  
  • Appropriate source control based on Hinchey classification is recommended.  
  • Radiologically guided percutaneous drainage of abscesses and other well localised fluid (>4cm) collections is preferable to surgical drainage.  
  • In septic patients, antibiotics should be administered within 1hr |          |          |          |
| For sepsis, 2 or more additional symptoms required:  
  • Temperature >38°C or <36°C  
  • Tachycardia >90 bpm  
  • RR >20/min  
  • WCC <4 or >12 X 10⁹/L. | In septic patients, antibiotics should be administered within 1hr |          |          |          |
| **Investigations:** |                    |                 |                                                    |          |
| • CT scan  
  • Stool culture if patients present with diarrhoea | | | | |

*Refer to 'Monitoring of antimicrobial agents’ guidelines and aminoglycoside/ teicoplanin prescription for prescribing information*
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<td>Pancreatitis</td>
<td>Mild to moderate pancreatitis No antibiotics</td>
<td>If severe acute pancreatitis with evidence of infection, consider:</td>
<td>If severe acute pancreatitis with evidence of infection, consider:</td>
<td>For infected pancreatic necrosis, continue antibiotics for 14 days after source control is obtained.</td>
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<td>Severe acute pancreatitis (SAP) is associated with one or more of the following:</td>
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<td>1. &gt; 30% pancreatic necrosis</td>
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<td>2. More than 3 Glasgow criteria</td>
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<td>3. Evidence of sepsis (2 or more of the following symptoms required:</td>
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<td></td>
<td>• USS +/- CT</td>
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<td></td>
<td>• If severe and considering antibiotics- a percutaneous aspirate or surgical specimen recommended.</td>
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**Indications for antibiotics:**

- SAP-no antibiotics
- No necrosis – no antibiotics
- Sterile pancreatic necrosis – no antibiotics (stop antibiotics if they were commenced empirically)
- Infected pancreatic necrosis requires empiric antibiotic therapy. It is defined as having one or both of the following:
  - CT scan with gas
  - Percutaneous aspirate or surgical specimen with organisms evident on gram stain or culture

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| **Primary Peritonitis/ spontaneous bacterial peritonitis (SBP)** | - **Primary peritonitis** is spontaneous infection of the peritoneal cavity, usually associated with liver disease and ascites (SBP).  
- Consider repeat paracentesis after 48 hours of therapy.  
- Consider changing antibiotics if ascites fluid PMN has not dropped by 25% after 48 hours and/or patient is not clinically responding. | Piperacillin/tazobactam 4.5g 8 hourly IV | Teicoplanin 10mg/kg*  
12 hourly IV x 3 doses then 10mg/kg 24 hourly  
+ Metronidazol 500mg 8 hourly IV  
+ Gentamicin 5mg/kg* once daily IV  
If gentamicin contraindicated, use Aztreonam 1g 8 hourly IV instead. | 5 days. |
| **Secondary peritonitis/ GI perforation** | - In septic patients, antibiotics should be administered within 1hr  
- Patients with diffuse peritonitis should undergo an emergency surgical procedure as soon as possible, even if ongoing measures to restore physiologic stability need to be continued during procedure.  
- Empiric antifungal therapy is not indicated for GI perforation unless patient has one of the risk factors:  
  - Oesophageal perforation  
  - Immunosuppression  
  - Prolonged antacid/antibiotic tx  
  - Prolonged hospitalization  
  - Persistent GI leak. | Piperacillin/tazobactam 4.5g 8 hourly IV  
± Gentamicin 5mg/kg* once daily IV | Teicoplanin 10mg/kg*  
12 hourly IV x 3 doses then 10mg/kg 24 hourly  
+ Metronidazol 500mg 8 hourly IV  
+ Gentamicin 5mg/kg* once daily IV  
If gentamicin contraindicated, use Aztreonam 1g 8 hourly IV instead. | 4–7 days, unless adequate source control is not achieved and/or patient continues to show signs and symptoms of sepsis. Contact microbiology for advice if >7 days required |

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| **Intra-abdominal sepsis +/- collections** | Antibiotics are adjunctive to source control, which is an absolute necessity.  
- An appropriate source control procedure to drain infected foci, control ongoing peritoneal contamination by diversion or resection, and restore anatomic and physiological function is recommended for nearly all patients.  
- Radiologically guided percutaneous drainage of abscesses and other well-localized fluid collections is preferable to surgical drainage.  
- Lack of source control is defined as on-going contamination and/or an undrained collection of infection. | Piperacillin/tazobactam 4.5g 8 hourly IV | Teicoplanin 10mg/kg* 12 hourly IV x 3 doses then 10mg/kg 24 hourly + Metronidazole 500mg 8 hourly IV + Gentamicin 5mg/kg* IV once daily  
If gentamicin contraindicated, use Aztreonam 1g 8 hourly IV instead. | 4–7 days, unless adequate source control is not achieved and/or patient continues to show signs and symptoms of sepsis.  
Contact microbiology for advice if >7 days required |
| **Signs and symptoms:**  
For sepsis, 2 or more required:  
- Temperature >38°C or <36°C  
- Tachycardia >90 bpm  
- RR >20/min  
- WCC <4 or >12 X 10⁹/L. | | | |
| **Investigations:** | CT  
Intra-operative specimen/drain fluid for culture |  | |
| **Acute variceal bleeding** | Prophylactic antibiotic therapy should only be offered at presentation to patients with suspected or confirmed variceal bleeding | Piperacillin/tazobactam 4.5g 8 hourly IV | Teicoplanin 10mg/kg* 12 hourly IV x 3 doses then 10mg/kg 24 hourly + Metronidazole 500mg 8 hourly IV + Gentamicin 5mg/kg* IV once daily (avoid once daily regimen if eGFR<20)  
If gentamicin contraindicated, use Aztreonam 1g 8 hourly IV instead. | 5-7 days |
| **Signs and symptoms:** | haematemesis or haematochezia  
-malaena | | | |
| **Investigations:** | Endoscopy | | | |

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<td>GASTRO-ENTERITIS</td>
<td>Isolate patient and implement contact IPC precautions as per Trust guideline which are available on the intranet.</td>
<td>Antibiotics may be recommended in:</td>
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<tr>
<td>Signs and symptoms:</td>
<td>Rehydrate patient.</td>
<td>- Severe disease</td>
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<tr>
<td>• Mild: ≤3 unformed stools/day and minimal associated symptoms</td>
<td>Frequently self-limiting and may not have bacterial aetiology.</td>
<td>- Unresolving disease</td>
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</tr>
<tr>
<td>• Moderate: ≥4 unformed stools/day and or systemic symptoms,</td>
<td>Antibiotics not usually indicated for mild to moderate cases.</td>
<td>- Immunosuppressed patients</td>
<td></td>
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<tr>
<td>• Severe: ≥6 unformed stools/day, temperature of &gt;38°C, tenesmus, bloody diarrhoea</td>
<td>Severe afebrile bloody diarrhoea should increase suspicion of Vero-toxin producing E.coli.</td>
<td>- Extremes of age</td>
<td></td>
</tr>
<tr>
<td>Investigations:</td>
<td>Antibiotics increase the risk of Haemolytic Uremic Syndrome.</td>
<td>Contact microbiology for advice if required.</td>
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<td>• Stool culture tested for:</td>
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<td>o Salmonella</td>
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<tr>
<td>o Shigella</td>
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<td>o Vero-toxin E.coli</td>
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<td>o Campylobacter</td>
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<tr>
<td>o Giardia and Cryptosporidium</td>
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<tr>
<td>o Norovirus (on IPC authorisation only)</td>
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# Antibiotic Guidelines for GASTRO-INTESTINAL INFECTIONS

## CLINICAL CONDITION

**Clostridium difficile** infection (CDI)

### Signs and symptoms:

#### Mild Disease:
- Simple colitis, watery diarrhoea, lower abdominal colic.
- Three or fewer stools type 5-7 on Bristol Chart per day
- Normal white cell count (WCC).

#### Moderate Disease:
- Watery diarrhoea, lower abdominal colic.
- 3-5 stools of type 5-7 on Bristol Chart per day and
- Raised WCC < 15 x 10^9/l

#### Severe Disease:
- Severe colitis ± pseudomembrane formation.
- Severe diarrhoea with abdominal pain, distension, constitutional upset
- WCC >15 x 10^9/l or leucopenia or
- Temperature of >38.5°C or
- Acute rising serum creatinine or
- Evidence of severe colitis (abdominal/radiological signs).
- The number of stools may be a less reliable indicator of severity.

### Life threatening disease:
- Includes hypotension
- Partial or complete ileus or toxic megacolon, or
- CT evidence of severe disease.

### Investigations:
- Stool culture

## USEFUL INFORMATION

- Severe disease can be life threatening:
  - Discuss with microbiology.
- Refer to Trust C. difficile policy on the intranet.
- When CDI is suspected:
  - Isolate patient and implement contact IPC precautions as per Trust guidelines which are available on the intranet.
- Antibiotics to be administered within 2 hours of diagnosis or 1 hour if septic.

## RECOMMENDATIONS

- **Mild to moderate:**
  - Metronidazole 400mg 8 hourly PO

- **Severe:**
  - Vancomycin 125mg 6 hourly PO

- **Life-threatening disease:**
  - Contact surgeons and discuss with microbiology.

## Duration

10-14 days.
References:
2. Complicated Intra-abdominal Infection Guidelines. CID 2010:50 (15 January)
4. A proposal of a CT driven classification of left colon acute diverticulitis. WJES 2015, 10:3.