## Clinical Guidelines for Necrotizing Enterocolitis and Spontaneous Intestinal Perforation

### Spontaneous Intestinal Perforation
- Antibiotic therapy including anaerobic coverage: **Ampicillin + Gentamicin or (Cefotaxime/Ceftazidime) + Flagyl**
- Treat for minimum of 7 days and reassess

### Duration of Antibiotic Therapy:
- Monitor clinical signs (abdominal exam, blood in stool, hypotension), laboratory markers (WBC, acidosis, thrombocytopenia), radiographic findings (pneumatosis, dilated loops).
- **Duration of therapy 7-14 days and per recommendation form Surgery for definite NEC**

### Duration of Bowel Rest:
- NPO for duration of antibiotic therapy.
- **Duration of bowel rest may be longer than duration of antibiotic therapy depending on clinical assessment of patient’s feeding readiness, as evaluated by neonatology and surgical team.**

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**Clinical Assessment:**
- Suspected
  - Temperature instability, apnea, bradycardia, lethargy
  - Gastric retention, abdominal distention, emesis, heme-positive stool
  - Normal or intestinal dilation, mild ileus
- Definite
  - Same as above plus absent bowel sounds +/- abdominal tenderness
  - Intestinal dilation, ileus, pneumatosis intestinalis
  - Signs of peritonitis, marked tenderness and abdominal distention
- Advanced
  - Same as IIA
  - Same as IIA + portal venous gas + definite ascites
- Advanced
  - Same as IIA
  - Same as IIA + pneumoperitoneum

### Treatment Regimen

#### Stage IA
- Suspected
  - Temperature instability, apnea, bradycardia, lethargy
  - Gastric retention, abdominal distention, emesis, heme-positive stool
  - Normal or intestinal dilation, mild ileus

#### Stage IB
- Suspected
  - Same as above
  - Grossly bloody stool
  - Same as above

#### Stage IIA
- Definite
  - Mildly ill
  - Same as above
  - Same as above plus absent bowel sounds +/- abdominal tenderness
  - Same as above

#### Stage IIB
- Definite
  - Moderately ill
  - Above plus mild metabolic acidosis and thrombocytopenia
  - Same as above
  - Same as IIA + portal venous gas +/- ascites

#### Stage IIIA
- Advanced
  - Severely ill
  - Intact Bowel
  - Same as IIB plus hypotension, severe apnea, combined respiratory and metabolic acidosis, DIC, neutropenia
  - Same as above + signs of peritonitis, marked tenderness and abdominal distention
  - Same as IIB + portal venous gas + definite ascites

#### Stage IIIB
- Advanced
  - Severely ill
  - Perforated Bowel
  - Same as IIIA
  - Same as IIIA + pneumoperitoneum

**Antibiotic Therapy:**
- Ampicillin + Gentamicin**
  - Duration based on suspicion and clinical progression of infection
  - **If cultures from blood or other sterile site(s) are positive, therapy should be targeted to treat the isolated organism(s).**
  - **If significant antibiotic exposure or history of multidrug-resistant organism consult ID and consider alternative antibiotic therapy**
  - **If renal impairment or oliguria, consider alternative therapy**

- Ampicillin + Gentamicin**or (Cefotaxime or Ceftazidime) + metronidazole (Flagyl)
- Ampicillin + Gentamicin**or (Cefotaxime or Ceftazidime) + Flagyl
  - Amp + Gent + Vanco if PICC line is present
- Piperacillin/Tazobactam (Zosyn) or Meropenem
  - Consider this for clinical signs of shock