



## What is NEC?

Necrotizing Enterocolitis (NEC) is a potentially devastating gastrointestinal disease of neonates, characterized by bacterial translocation into the bowel wall, with associated inflammation and necrosis.

**Incidence:** 1-8% of NICU patients

## RISK FACTORS

- Very low birth weight (<1500g)
- Prematurity
- Chorioamnionitis
- Mechanical ventilation
- Genetic predisposition
- Congenital anomalies
- Perinatal asphyxia, or anything that could result in hypoxia to the gut
- Formula feeding

NEC is associated with high **mortality (20-30%)**, and adverse long-term outcomes such as short bowel syndrome & poor neurodevelopmental outcomes.

## INVESTIGATIONS

CBCdiff  
Electrolytes  
CRP  
Blood gas  
Blood cultures  
Abdominal x-ray



## PRESENTATION & DIAGNOSIS

- There is no test that is sensitive or specific for NEC
- Diagnosis is made in the context of clinical suspicion (feed intolerance, temperature instability, apnea, bloody stools, abdominal distention), lab abnormalities, and radiographic findings (see staging and management below)



## STAGING & MANAGEMENT

**Bell's modified staging criteria:**

### Stage I (Mild/suspected):

Mild systemic signs, temp instability, bradycardia, mild abdominal distension, blood in stool

### Stage II (Moderate/definitive):

worsening systemic signs, abdominal tenderness, thrombocytopenia, metabolic acidosis, radiological findings (pneumatosis intestinalis, portal venous gas)

### Stage III (Severe/surgical):

bowel perforation, pneumoperitoneum, hypotension, peritonitis, metabolic acidosis

- **Nonpharmacologic:** bowel rest (NPO), gastric decompression, central line for IV fluids and parenteral nutrition, respiratory support as needed
- **Pharmacologic:** broad spectrum antibiotics (such as vancomycin and cefotaxime, +/- metronidazole for anaerobic coverage) for 7-14 days, support blood pressure (fluids, vasopressors), blood products as needed



**Surgical:** intra-abdominal drain (temporizing measure), or exploratory laparotomy (identify and resect necrotic bowel)

## PATHOGENESIS

- Multifactorial
- Intestinal immaturity
- Abnormal microbial colonization
- Altered vascular tone

## PREVENTION

- Prevention is key!
- Early exposure to Mom's milk, or donor human milk if Mom's not available
- Careful progression to full volume feeds
- Probiotics
- Environmental modification (reduce light and sound, skin to skin care)

