

# Diarrhoea in Critical Care

**Aim** To provide guidance on the management of diarrhoea in Critical Care

**Scope** All adult patients in Critical Care with diarrhoea

## Diarrhoea for 24 hours or any suspicion of C Difficile

**Definition:**  $\geq 3$  loose or liquid stools per day with either stool weight  $> 200g$  or stool volume  $> 250ml$

**SUSPECT CLOSTRIDIUM DIFFICILE WHEN THERE IS NO CLEAR ALTERNATIVE CAUSE OF DIARRHOEA**

### Examination and tests

1. Abdominal examination and hydration status
2. Stool sample for C Difficile and MC&S testing
3. Review medications and assess need for ongoing antibiotics
4. Rectal exam to look for impaction, mucus or blood
5. Serum electrolytes, lactate and acid base status
6. Assess risk versus benefit of isolation (taking into account whole unit state) and document decision on CIS

#### Surgical or medical pathology?

Painful or distended abdomen  
Worsening acidaemia and lactate  
Bloody diarrhoea or mucus

**Surgical:** continue feeding at 20ml/hr and consult surgeon

**Medical:** continue feeding at 20ml/hr and consult gastroenterologist

**Stool impaction** with overflow diarrhoea

**Constipation guidelines**

**Medication** which may cause diarrhoea (see notes)

**Consider stopping or changing medication**

**Clinical suspicion of antibiotic associated diarrhoea, or other risk factor for C Difficile?** (see notes)

**Check stool sent for C Difficile testing and isolate if C Difficile is suspected**

**Consider empirical treatment for Clostridium Difficile diarrhoea, as follows:**

- Oral Metronidazole 400mg TDS for 10 days (never shorter) in mild/moderate disease
- Oral Vancomycin 125mg QDS for 10-14 days (never shorter) in severe disease
- IV Metronidazole 500mg TDS should be added in severe disease with probable ileus.

**Clinical suspicion of enteral feed associated diarrhoea?**

**Consider: adding fibre to feed; discontinuing fibre in feed; changing the type of feed; yoghurt or probiotics**

**Always consider bowel management system**

**Give anti-diarrhoeal medication unless there is infectious diarrhoea or impaction**

**Give anti-diarrhoeal medication as Loperamide 4mg, then 2mg after each stool (max 16mg/day)**

**DO NOT STOP FEEDING BECAUSE OF DIARRHOEA**

## Explanatory notes and evidence

Diarrhoea is a common problem in the critically ill patient, with incidence estimated at between 2% and 95% depending on definition and setting<sup>1</sup>. Critically ill patients with diarrhoea are at risk of malnutrition, haemodynamic instability, metabolic acidosis, contamination of wounds and catheters and mineral loss, leading to arrhythmias and impaired wound healing<sup>2</sup>. There is evidence that development of GI problems is related to worse outcome in critically ill patients<sup>3</sup>.

### Definition:

3 or more loose or liquid stools per day with a stool weight of 200-250g/day or greater than 250ml/day<sup>2</sup>.

### Risk Factors for diarrhoea:

Enteral Feeding – when covering at least 60% of the energy target;<sup>1</sup> malnutrition<sup>3</sup>; hypoalbuminaemia<sup>3</sup>; infectious process<sup>3</sup>, including Clostridium Difficile; diverticulitis<sup>3</sup>; ischaemic bowel<sup>3</sup>; medications (common culprits – antidysrhythmics, antibiotics – particularly cephalosporins and clindamycin, typically between 5<sup>th</sup> and 10<sup>th</sup> day of administration, antihypertensives, potassium supplements, sorbitol containing compounds)<sup>3</sup>; sepsis<sup>2</sup>. A table of the causes of diarrhoea is presented below.

### Risk factors for C Difficile:

Diarrhoea which is: not clearly attributable to an underlying condition (e.g. inflammatory colitis, overflow) or therapy (e.g. laxatives, enteral feeding); the diarrhoea is explosive, watery or offensive, or the patient has fever, bloody stools or severe abdominal cramps; the patient is on or has been on antibiotics in the past 3 months; the patient has previously tested positive for *C. difficile*; the patient developed diarrhoea on a ward where there was a known case of C Difficile infection. High risk antibiotics are: piperacillin-tazobactam, cephalosporins, fluoroquinolones, co-amoxiclav.

### Research Behind the Guidelines:

The variety of definitions of diarrhoea has led to difficulties in developing evidence based treatment studies<sup>3, 4, 5</sup>.

In 2012, the European Society of Intensive Care Medicine (ESICM) working group on abdominal problems sought to standardise the definitions relating to gastrointestinal dysfunction and came up with the above definition of diarrhoea<sup>2</sup>. The ESICM found that protocolised, goal orientated care can improve bowel function and outcome during critical illness<sup>2</sup>. Management strategies vary depending on the cause of the diarrhoea, however in all cases rehydration, electrolyte replacement and continuation of enteral feed are important<sup>2</sup>. Currently there is no consensus on the role of water soluble fibre and probiotics<sup>6</sup>.

In 2011 Whelan et al recommended the following as a management strategy<sup>7</sup>:

Most episodes of nosocomial diarrhoea are mild and will usually resolve spontaneously. However if diarrhoea should continue for 72 hours or more the following should occur:

1. An abdominal examination should be performed
2. A stool sample should be tested for Clostridium Difficile enterotoxins
3. Serum electrolytes should be checked
4. Medications should be reviewed and antibiotics stopped where possible
5. A rectal examination should be performed to rule out faecal impaction
6. Water and electrolyte replacement should occur orally, enterally or parenterally
7. Loperamide or codeine may be considered once Clostridium Difficile and faecal impaction have been ruled out.
8. For enterally fed patients consider switching to a feed high in soluble fibre.
9. Enteral feed should not be interrupted or stopped.

It is this research which informs the guidelines for the management of diarrhoea in the Department of Critical Care at the Queen Alexandra Hospital. A duration of 24 hours is adopted to maintain compliance with Trust policy.

### References:

1. Thibault R, Graf S, Clerc A, Delieuvain N, Heideffer C, Pichard C. Diarrhoea in the ICU: retrospective contribution of feeding and antibiotics. *Critical Care* 2013; 17: R153
2. Reintam Blaser A, Malbrain ML, Starkopf J, et al. Gastrointestinal function in intensive care patients: terminology, definitions and management. Recommendations of the ESICM Working Group on Abdominal Problems. *Intensive Care Med* 2012; 38: 384–394
3. Martin B. Prevention of Gastrointestinal Complications in the Critically Ill Patient. *AACN Advanced Critical Care* 2007; 2: 158–166
4. Makic MBF. Management of Nausea, Vomiting, and Diarrhea During Critical Illness. *AACN Advanced Critical Care* 2011; 3: 265–274
5. Sabol VK, Carlson KK. Diarrhea. Applying research to bedside practice. *AACN Advanced Critical Care* 2007; 1: 32–44
6. Wiesen P, Van Gossom A, Preiser JC. Diarrhoea in the critically ill. *Current Opinion in Critical Care* 2006; 2: 149-154
7. Whelan K, Schneider SM. Mechanisms, Prevention and Management of Diarrhoea in Enteral Fed Nutrition. *Current Opinion in Gastroenterology* 2011; 2: 152-159
8. Updated guidance on the management and treatment of C Difficile infection. PHE May 2013.

<b>Bacterial Infection</b>	e.g. Campylobacter, Salmonella, Shigella, E.coli
<b>Viral Infection</b>	e.g. HIV, Norovirus, Rotavirus, Adenovirus, CMV
<b>Traveller's Diarrhoea</b>	e.g. Enterotoxigenic Escherichia coli, Salmonella, Shigella, Campylobacter, Giardia Intestinalis, Entamoeba histolytica
<b>Drugs</b>	e.g. Alcohol, Laxatives, Digoxin, Magnesium salts, Proton pump inhibitors, H2 receptor antagonists, Non-steroidal anti-inflammatory drugs, Methyldopa, Theophylline, Metformin, Bronchodilators, Antihypertensives, Chemotherapeutic Agents, Potassium supplements, Antifungals, prokinetics, Antiarrhythmics
<b>Antibiotic Related</b>	May occur in 20% of patients. Usually mild and self limiting. 20% of these are due to Clostridium difficile
<b>Gastrointestinal Disease</b>	e.g. Ischaemic colitis, ulcerative colitis, crohn's, behcet's, other colitis
<b>Constipation</b>	May cause overflow diarrhoea. Common in elderly and with use of constipating drugs such as opiates
<b>Food Allergy/Intolerance/ Malabsorption</b>	e.g. Coeliac disease, chronic pancreatitis, lactose intolerance
<b>Metabolic/Endocrine</b>	Hyperthyroidism, Diabetes, Addison's
<b>Clostridium difficile</b>	Risk factors include: Exposure, age > 65 years, PPI therapy, antibiotics within 8 weeks, previous c.diff, long length of stay High risk antibiotics include: Clindamycin, cephalosporins, fluoroquinolones, co-amoxiclav, ampicillin and amoxicillin
<b>Neoplastic</b>	e.g. Pancreatic cancer, colon cancer, small bowel lymphoma
<b>Medical intervention</b>	Radiotherapy, Digestive tract surgery
<b>Functional</b>	Irritable bowel syndrome
<b>Other</b>	Menstruation, emotional stress/anxiety, environmental toxins (e.g. organophosphates),