

Diarrhoea Management 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 72 hours or any suspicion of C Difficile

Definition: ≥ 3 loose or liquid stools/day
with either stool weight $> 200\text{g}$ or
stool volume $> 250\text{ml}$

**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. Isolate as soon as practically possible, until confirmed that C Difficile is not present (ICM/Micro risk assessment)

Surgical or medical pathology?

Painful or distended abdomen
Worsening acidemia 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

Version: 2 | Date: 06 Nov 15 | Revision Due: 06 Nov 18 | Authors: Drs J Voss, D Allaway, J Morris, S Daniel, P McQuillan, J McNicholas.

The use of this guideline is subject to professional judgement and accountability. This guideline has been prepared carefully and in good faith for use within the Department of Critical Care at Queen Alexandra Hospital. No liability can be accepted by Portsmouth Hospitals NHS Trust for any errors, costs or losses arising from the use of this guideline or the information contained herein. Portsmouth Hospitals NHS Trust © 2015

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 setting¹. 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 healing². There is evidence that development of GI problems is related to worse outcome in critically ill patients³.

Definition.

3 or more loose or liquid stools per day with a stool weight of 200-250g/day or greater than 250ml/day².

Risk Factors for diarrhoea.

Enteral Feeding – when covering at least 60% of the energy target;¹ malnutrition³; hypoalbuminaemia³; infectious process³, including *Clostridium Difficile*; diverticulitis³; ischaemic bowel³; medications (common culprits – antidysrhythmics, antibiotics – particularly cephalosporins and clindamycin, typically between 5th and 10th day of administration, antihypertensives, potassium supplements, sorbitol containing compounds)³; sepsis². 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^{3, 4, 5}. 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 diarrhoea². The ESICM found that protocolised, goal orientated care can improve bowel function and outcome during critical illness². Management strategies vary depending on the cause of the diarrhoea, however in all cases rehydration, electrolyte replacement and continuation of enteral feed are important². Currently there is no consensus on the role of water soluble fibre and probiotics⁶.

In 2011 Whelan et al recommended the following as a management strategy⁷:

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.

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 Gossum 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 Enterally 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.

Bacterial Infection	e.g. Campylobacter, Salmonella, Shigella, E.coli
Viral Infection	e.g. HIV, Norovirus, Rotavirus, Adenovirus, CMV
Traveller's Diarrhoea	e.g. Enterotoxigenic Escherichia coli, Salmonella, Shigella, Campylobacter, Giardia Intestinalis, Entamoeba histolytica
Drugs	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
Antibiotic Related	May occur in 20% of patients. Usually mild and self limiting. 20% of these are due to Clostridium difficile
Gastrointestinal Disease	e.g. Ischaemic colitis, ulcerative colitis, crohn's, behcet's, other colitis
Constipation	May cause overflow diarrhoea. Common in elderly and with use of constipating drugs such as opiates
Food Allergy/Intolerance/ Malabsorption	e.g. Coeliac disease, chronic pancreatitis, lactose intolerance
Metabolic/Endocrine	Hyperthyroidism, Diabetes, Addison's
Clostridium difficile	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, fluroquinolones, co-amoxiclav, ampicillin and amoxicillin
Neoplastic	e.g. Pancreatic cancer, colon cancer, small bowel lymphoma
Medical intervention	Radiotherapy, Digestive tract surgery
Functional	Irritable bowel syndrome
Other	Menstruation, emotional stress/anxiety, environmental toxins (e.g. organophosphates),