**Standard Operating procedure (SOP) Objective**

To provide HCWs with details of the care required to prevent cross-infection in children with *Clostridium difficile* Infection (CDI).

This SOP applies to all staff employed by NHS Greater Glasgow & Clyde and locum staff on fixed term contracts and volunteer staff.

**KEY CHANGES FROM THE PREVIOUS VERSION OF THIS SOP**

- New SOP

**Document Control Summary**

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<th>Approved by and date</th>
<th>Board Infection Control Committee 09 Jan 2017</th>
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<tr>
<td>Date of Publication</td>
<td>09 Jan 2017</td>
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<td>Developed by</td>
<td>Infection Prevention and Control SOP/Policy Sub-Group 0141 201 0326</td>
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<td>Related Documents</td>
<td>National IPCM(SICPs and TBP)s</td>
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<td>NHSGGC Hand Hygiene SOP</td>
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<td>NHSGGC SOP Twice daily Clean of Isolation Rooms</td>
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<tr>
<td>Distribution/ Availability</td>
<td>NHSGGC Infection Prevention and Control Policy Manual and the Internet <a href="http://www.nhsggc.org.uk/infectioncontrol">www.nhsggc.org.uk/infectioncontrol</a></td>
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<td>Implications of Race Equality and other diversity duties for this document</td>
<td>This SOP must be implemented fairly and without prejudice whether on the grounds of race, gender, sexual orientation or religion.</td>
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<td>Lead Manager</td>
<td>Board Infection Control Manager</td>
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<td>Responsible Director</td>
<td>Board Medical Director</td>
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# Clostridium difficile Infection (CDI) in children (3-16 years)
## Transmission Based Precautions

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The most up-to-date version of this SOP can be viewed at the following website: [www.nhsggc.org.uk/infectioncontrol](http://www.nhsggc.org.uk/infectioncontrol)
1. Responsibilities

Healthcare Workers (HCWs) must:

• Follow this SOP.
• Inform their line manager if this SOP cannot be followed.
• Must ensure leaflets and infection control care plans are available at all times.

Senior Charge Nurse (SCN) must:

• Ensure that the care plan is in place.
• Ensure that written information is available for patients and parents / carers.

Managers must:

• Support HCWs and Infection Control Teams (ICTs) in following this SOP.
• Cascade new SOPs to clinical staff after approval by the Board Infection Control Committee (BICC).

IPCTs must:

• Keep this SOP up-to-date.
• Provide education opportunities on this SOP.
• Monitor epidemiology of Clostridium difficile Infection (CDI) within hospital and advise on infection prevention and control precautions as necessary.
### General Information on *Clostridium difficile* Infection (CDI)

#### Case definition

A child (3-16 years of age) has a diagnosis of CDI if s/he has a stool specimen positive for CD toxin, diarrhoea (Bristol stool chart 5-7) and one or more of the following:

- Significant co-morbidities i.e. haematology/oncology; gastrointestinal
- Severe GI disease with bloody diarrhoea and an unlikely alternative diagnosis
- Strong clinical suspicion
- Antibiotic therapy in the last 1 month (especially ciprofloxacin)

#### Case definition: Determination of source

**Hospital acquired CDI** is defined as when a CDI patient has had onset of symptoms at least 48 hours following admission to a hospital.

**Healthcare associated CDI** is defined as when a CDI patient has had onset of symptoms up to four weeks after discharge from a hospital.

**Indeterminate cases of CDI** is defined as a CDI patient who was discharged from a hospital 4–12 weeks before the onset of symptoms.

**Community associated CDI** is defined as a CDI patient with onset of symptoms while outside a hospital and without discharge from a hospital within the previous 12 weeks – or with onset of symptoms within 48 hours following admission to a hospital without stay in a hospital within the previous 12 weeks.

#### Communicable Disease/Alert Organism

*C. difficile* is a Gram positive, anaerobic, spore-forming organism, toxin-producing gastrointestinal bacillus. Recent studies however have shown that *C. difficile* is an emerging pathogen in the paediatric setting, causing a range of illness from mild diarrhoea to life threatening conditions such as such pseudo-membranous colitis, toxic megacolon, intestinal perforation and septic shock. It is imperative that clinical judgement is exercised in order that aetiologies are appropriately investigated. The main predisposing factors for CDI in children are as above.

#### Mode of Spread

There is evidence of both direct and indirect spread through the hands of HCWs and patients; and environmental contamination via equipment and instruments, e.g. commodes, bedpans and washbowls. *C. difficile* produces spores which can survive for long periods in the environment. Environmental cleaning is paramount.

#### Incubation period

Potentially up to 12 weeks.
# Transmission Based Precautions for CDI

### Accommodation

All patients with 2 or more episodes of unexplained loose stools (in a 24 hour period) must be isolated in a single room with ensuite facilities (or own toileting equipment) and transmission based precautions in place unless a non-infectious reason for loose stools confirmed by the medical team.

The door to the room should be kept closed and the yellow IPCT isolation door signage displayed. Isolation precautions can be stopped when the patient has been asymptomatic for at least 48 hours and passed a formed (normal bowel habit for patient) stool.

If the patient cannot be isolated, please contact the local IPCT who will help to undertake and record a risk assessment (See Loose Stools SOP)

### Care Checklist available

Yes.

### Equipment & Patient Environment

Domestic staff should be informed by the nurse in charge of the ward if there is a patient in isolation/ bed space that requires twice daily cleaning. Domestic staff should clean the room and/or bed space equipment using chlorine based detergent and dedicated disposable cleaning materials.

All reusable patient equipment which stays in the room should be cleaned twice per day by healthcare staff.

Refer to

- [NHSGGC SOP Cleaning of Near Patient Equipment](#)
- [NHSGGC Decontamination SOP](#)
- [NHSGGC SOP Twice Daily Clean of Isolation Rooms](#)
- [NHSGGC SOP Terminal clean of isolation rooms](#)

### Hand Hygiene

Alcohol hand rub is not effective against CDI: Soap and water must be used for all patients with loose stools. Encourage patient to wash their hands e.g. before meals and after using the toilet. (age appropriate). Visitors should also be instructed to wash their hands with soap and water after visiting a patient with CDI. Parents / carers should be encouraged to undertake hand hygiene before and after episodes of direct care.

### Health Protection Scotland (HPS) Trigger Tool

The Health Protection Scotland (HPS) Trigger Tool must be completed by the ICT and Clinical Staff within the area CDI was acquired if there are two or more in-patient cases of HAI CDI attributed to one ward in a two-week period which meets the case definition. The antimicrobial pharmacist will be asked to conduct a review of antimicrobial prescribing within the area as part of this process.

### Patient Clothing

If parents or carers take personal clothing home, staff must place soiled clothing into a patient clothing bag. Staff must also provide a NHSGGC Home Laundry Information Leaflet.
### Personal Protective Equipment (PPE)

Disposable plastic aprons and gloves should be worn for direct patient contact; handling blood and body fluids; and contact with contaminated environment/equipment. Ensure hand hygiene is performed using liquid soap and water before donning and after removing PPE.

### Severity Assessment

If the patient is confirmed as CDI, and while the patient is symptomatic of loose stools, medical staff are required to undertake a daily severity assessment using the assessment tool below. Stickers are available from the IPCT for medical notes.

#### Severity assessment in paediatric population (3-16 years)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>Score if Yes</th>
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<tbody>
<tr>
<td>Diarrhoea &gt;5 times per day</td>
<td>Yes</td>
<td>No</td>
<td>1</td>
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<td>Abdominal pain and discomfort</td>
<td>Yes</td>
<td>No</td>
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<td>Rising white cell count</td>
<td>Yes</td>
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<td>Raised C-reactive protein</td>
<td>Yes</td>
<td>No</td>
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<td>Pyrexia &gt;38°C</td>
<td>Yes</td>
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<td>1</td>
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<tr>
<td>Evidence of pseudo membranous colitis</td>
<td>Yes</td>
<td>No</td>
<td>2</td>
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<td>Intensive care unit requirement</td>
<td>Yes</td>
<td>No</td>
<td>2</td>
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\[\text{Total score} \geq 5 = \text{severe disease}\]

### Reporting of Severe Cases of CDI

**Deaths due to CDI (Underlying or Contributing)**  
Infection Prevention and Control Nurses (IPCNs) will check daily (Monday - Friday) on the condition of patients with CDI until they meet the criteria for stopping isolation precautions AND thereafter weekly via the patient administration system. Patients who have died will have their cause of death reviewed as soon as possible via the ward death certificate records. Medical staff completing a death certificate in which CDI is noted (part 1 or 2) should discuss this with the consultant in charge of the patient’s clinical care and refer case to the Procurator Fiscals Office. If CDI is placed on part 1, medical staff should inform the CSM and GM for the area. The IPCT will generate a Datix for the incident.

### Treatment

**Mild disease:**  
No need to treat if symptoms settle within 24 hours but consider oral metronidazole for 10–14 days if symptoms persist beyond 24 hours.

**Moderate disease:**  
Oral metronidazole for 10–14 days and consider escalation by changing to oral vancomycin if non-resolution of symptoms or decline in severity score.

**Severe disease:**  
Oral vancomycin and IV metronidazole. Colectomy should be considered if there if there is evidence of caecal dilatation.

### Specimens required

Send faecal specimens from any patient who has loose stools that score 5-7 on Bristol chart (appendix 1) and if no other cause of diarrhoea is known. If negative and loose stools persist, another two samples should be sent at 48-hour intervals. Relevant clinical information must be
Clostridium difficile Infection (CDI) in children (3-16 years)
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- There is no requirement to send clearance specimens from patients who become asymptomatic.
- Only when a relapse of CDI is suspected should you repeat the toxin testing and exclude other potential causes of diarrhoea, and only after 14 days of treatment. Relapse can also occur up to 14 days after therapy has stopped.
- Specimens should not be sent whilst patient is on treatment.

**Stool Charts**
Document all stool activity on a Bristol stool chart (Appendix 1). Continue until discharge.

**Parents / carers / visitors**
Visitors are not required to wear aprons and gloves unless performing personal care. Visitors should be advised to decontaminate their hands with liquid soap and water on leaving the room/patient. Visitors should be advised not to sit on beds.
4. Evidence Base

Pai S et al. Five years experience of clostridium difficile infection in children at a UK tertiary hospital: proposed criteria for diagnosis and management. PLOS 2012; 71-6

Appendix 1 – Bowel Movement (adapted from the Bristol Stool Scale)

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Adapted from the Bristol Stool Scale developed by KW Heaton and SJ Lewis at the University of Bristol, 1997.

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