An algorithm was developed to help practitioners meet the needs of older patients who have recurrent episodes of C difficile in the community.

Managing C difficile relapses in the community

In this article...
- The problem of C difficile in the community
- Managing C difficile relapses in the community
- How an algorithm helps management decisions

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Abstract

C difficile is a highly pathogenic organism. It presents significant clinical challenges because it is a spore producer and able to persist in the environment for many months. It produces toxins and can bypass the acidic environment of the gastrointestinal tract, surviving the passage through the stomach, to cause fulminant disease (Fordtran, 2006).

The disease has unpleasant symptoms, in particular offensive diarrhoea, stomach cramps, fever and altered blood chemistry. If left unchecked, it can lead to pseudomembranous colitis (inflammation of the intestine) and can be fatal.

Although attention on C difficile has previously focused on acute trusts, there is increasing literature reflecting the problem in the community. Freeman et al (2010) discussed the changing epidemiology of the disease.

Identifying healthcare-associated infection
Hospital-acquired C difficile infection is defined as infection in any patient who is in the hospital environment for 72 hours, who becomes clinically unwell with the disease and produces a positive laboratory specimen for C difficile toxin (CDT); the UK accepted interpretation of community-acquired C difficile is if a patient becomes clinically unwell within 48 hours of admission to hospital or is admitted directly from the community with C difficile-associated diarrhoea. The premise is that a patient’s exposure to an agent has already occurred, therefore they were incubating illness before admission.

Once a case has been identified, the infection control team or staff on the ward where the case occurred conduct a root cause analysis (RCA) investigation (National Patient Safety Agency, 2004). Community-acquired cases are confirmed by positive laboratory results and shared with the community infection control service.

The aim of an RCA investigation is to learn from potential breaches in care or practice, recent antibiotic exposure or what the risk factors were, and to produce an action plan for future improvement. Although known risk factors are antibiotic prescribing and proton pump inhibitors, there are still knowledge gaps among the multidisciplinary team for managing patients with C difficile in the community.

Managing C difficile
A plethora of guidance is available on preventing and treating C difficile infection, and managing and caring for patients affected (Health Protection Agency, 2009). Extensive systems have also emerged in the acute care sector to prevent cross-infection and monitor patients effectively. In some instances, this has been achieved by cohorting symptomatic patients on specialist wards, with suitably qualified

5 key points
1 C difficile has significant morbidity and mortality; patients can deteriorate in the community if they are not monitored effectively
2 Monitoring symptoms is crucial to improving the outcome of patients
3 Contacting patients after discharge to offer support and advice can prevent readmission
4 The multidisciplinary team needs to understand the cause, prevention and management of patients with the disease
5 Treatment and assessment can be carried out in the community by GPs with the multidisciplinary team

C difficile: its onset can be disabling
**Fig 1. The treatment algorithm**

C. difficile toxin (CDT) diarrhoea

- Assess and isolate patient**

Non-severe disease
- Well
  - WCC <15 x 10⁹/L
  - CRP <150mg/L
  - Normal abdominal X-ray

  Review antibiotics and PPIs and stop any unnecessary ones
  - Metronidazole 400mg orally 8 hourly for 10 days
  - Diarrhoea should resolve in 2-4 days

- Failure to respond after 2-4 days or relapse or worsening

Severe disease
- Unwell
  - *Temperature >38.5°C
  - *WCC >15 x 10⁹/L
  - CRP >150mg/L
  - *Distended abdomen
  - *Rising serum creatinine
  - *Elevated serum lactate
  - *= severe if any of these features

  Review antibiotics and PPIs and stop any unnecessary ones
  - Vancomycin 125mg orally 6 hourly
  - AND metronidazole 400mg orally 8 hourly for 10 days
  - Diarrhoea should resolve in 2-4 days

- Failure to respond after 2-4 days, relapse or worsening
  - Vancomycin 250-500mg orally 6 hourly AND
  - Metronidazole 400mg orally 8 hourly for 10 days
  - Diarrhoea should resolve in 2-4 days

- Failure to respond after 2-4 days, relapse or worsening

Notes
- Treatment is not necessary for asymptomatic carriers
- **Isolation (single room, handwashing, gloves and aprons). Patients with CDT diarrhoea MUST be isolated in a single room. Alcohol handgel is not sufficiently active against CDT C difficile spores. Hands MUST be washed with soap and water.

- Patients MUST be assessed daily (use the Bristol Stool Chart). Do not send repeat faeces once diagnosed.

Predisposing factors
- Antibiotics and proton pump inhibitors (PPIs) both predispose patients to CDT diarrhoea. Do NOT use unnecessarily.

Antidiarrhoeal drugs
- These may increase the duration/severity of diarrhoea and should not be used in CDT+ diarrhoea.

Prebiotics/probiotics
- Not indicated for prevention or treatment.

Cholestyramine
- Not indicated. Binds to vancomycin.

IV antibiotics
- If IV antibiotics are required, use metronidazole 500mg 8 hourly

Surgical intervention
- Fulminant colitis and toxic megacolon may require surgical intervention.

staff supported by the infection control team. Such patients are monitored carefully to ensure they recover, and are reviewed frequently [HPA, 2009].

Relapse of C difficile
- There is an urgent need to appraise the impact of C difficile in the community, and for the multidisciplinary team to become aware of its potential consequences if it is not recognised and treated.

During the past two years, the root cause analysis process within Halton St Helens health economy has raised a variety of multidisciplinary issues related to managing C difficile infection. A crucial factor has been the need to improve follow-up of patients discharged from hospital with a history of C difficile and to ensure they are contacted to provide continued support and advice on symptom recurrence.

During patient follow-up over the past two years, the Halton and St Helens infection prevention and control (IPC) team identified a 30-40% recurrence rate in patients who have had one episode of C difficile. Within this cohort of patients, some have experienced several relapses in a short space of time without recent antibiotic exposure, which may then require liaison with a consultant microbiologist and GP to discuss specific management.

Practical problems
- There are many persistent practical issues associated with managing C difficile in the community such as:
  - Recognising and treating symptoms promptly;
  - Accessing continence products;
  - Defining the home circumstances in relation to care.
The sudden onset of *C. difficile* disables patients to such a degree that their carers, who may be older people, may be unable to cope with the demand of cleaning soiled linen or helping to care for the debilitated patient’s personal needs.

Another important factor when discharging patients home is that many older people live alone and some have comorbidities. These patients should merit a community nurse visit as part of the discharge plan to ensure liaison between other services and the infection control team. Even within specific discharge criteria for older people, *C. difficile* may be overlooked.

A further issue is repeated requests for stool analysis within a 28-day window of the last episode, which can delay treatment. This is because patients can deteriorate quickly; non-urgent processing of another stool specimen or failing to follow-up results means there is a risk that a patient could die in the community because the severity of symptoms has not been recognised. If the IPC team knows the patient, they can deal with it quickly by contacting the patient’s GP.

Another contributory factor to poor patient outcome has been telephone prescribing of loperamide or other antidiarrhoeal agents without undertaking a risk assessment or seeing patients face to face; in some cases, this has delayed diagnosis and management. It is important to maintain contact with patients discharged from hospital after *C. difficile* infection or diagnosed in primary care, so that support can be offered in the community. Patients can then be re-commenced on antibiotic therapy and monitored to ascertain the severity of symptoms, or monitored in terms of progress with treatment. This can be facilitated through community nurses or matrons and the phlebotomy team, with support from the IPC team, and is new as part of the clinical pathway. The IPC team can refer a patient for a GP visit when progress is not as expected, and consider whether patients may need the support of intermediate care to recover.

The focus on reducing the number of cases reported is being performance managed nationally, to establish whether infection has been acquired in the community or the hospital. The focus needs to move to the wider issues that have emerged.

**Using an algorithm**

After analysing information from the RCA process and dealing with patients after discharge from hospital or those linked to primary care, it became evident there was a need to develop a CDT clinical pathway for patients reported with *C. difficile* in the community to improve outcomes for those experiencing relapse or recurrence.

A CDT algorithm developed by St Helens and Knowsley Teaching Hospitals Trust enables the IPC team to monitor patients in the community, by helping with quick assessment of physical symptoms, monitoring white cell count (WCC) and C-reactive protein (CRP) and excluding pyrexia and abdominal pain. A clinical assessment can be undertaken over the phone by the IPC team, and support for a home visit can be sought from other clinical services, if required, to facilitate care and diagnostic management of patients to enable them to stay at home. Managing patients in this way in the past year has led to a potential saving of £80,000 in the costs of extra bed days, isolation and intravenous treatment (Wilcox et al 1996).

The IPC team uses the algorithm to help all clinicians in managing *C. difficile* in residential, hospital or community settings. It provides guidance on isolation and symptom management as well as a trigger for treatment to start. The algorithm may vary due to local standard operating procedures or policy.

The team can arrange CRP and WCC tests to assess severity of disease then monitors symptoms on a daily basis until they are settled. Community nursing staff can monitor blood pressure and temperature to help in diagnosing severity of the disease and can also assess pain levels.

Within community care, provision from an intermediate care service or rapid assessment team can be arranged where needed, to help with short-term rehabilitation. Home support is also available, to support patients staying at home if their symptoms are improving.

**Conclusion**

The significance of *C. difficile* in the community should not be underestimated; appropriate use of antibiotics is a major factor in reducing the burden of this infection. More training to raise awareness of some of the issues mentioned should be factored into protected learning time for the multidisciplinary team, if significant improvement is to be achieved. NT

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**References**

Fordtran JS (2006) Colitis due to Clostridium difficile toxins: under diagnosed, highly virulent and nosocomial. Proceedings (Baylor University Medical Center); 19: 1, 3-12.


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