SETTING UP AN ISOLATION AND TREATMENT UNIT FOR C. DIFFICILE

This is a summary: the full paper can be accessed at nursingtimes.net

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ABSTRACT Johnson, J. (2008) Setting up an isolation and treatment unit for C. difficile. Nursing Times; 104: 25, 30–31. This article describes the development of a dedicated isolation unit for patients with Clostridium difficile-associated disease. It discusses the unit’s aims, infection control procedures and nursing care. The unit has resulted in improved standards of patient care and infection control, and reduced incidence of C. difficile-associated disease and mortality.

Clostridium difficile is an anaerobic gram-positive spore-forming bacterium. This usually harmless bacillus is responsible for C. difficile-associated disease (CDAD).

A new strain of C. difficile has been identified as ribotype 027. In March and April 2006 Walsall Hospitals NHS Trust experienced an unexpected increase in the number of patients developing CDAD. This was due to the appearance of ribotype 027, which caused extreme concern as this strain causes more severe disease, is harder to treat and has a high mortality rate.

ACTION TO CONTROL INFECTION
The trust responded to this new strain by convening an outbreak committee. Traditional control measures for patients acquiring CDAD were based on side-room isolation, chlorine disinfection of ward environments and a review of antibiotic prescribing guidelines. Although the weekly prevalence and incidence of new cases were initially encouraging, a second surge of CDAD cases emerged in the autumn/winter period. The trust then decided to develop an isolation unit to which all patients who were affected would be transferred.

SPECIALISED ISOLATION AND TREATMENT UNIT
In December 2006 Poplar Ward opened as a designated isolation and treatment unit specifically for C. difficile. One of the first of its kind, its aim was to combat the spread of CDAD and improve treatment.

Caring for all patients affected by CDAD in one place allowed a coordinated approach to patient treatment involving several specialties and provided an opportunity to ‘deep clean’ and decontaminate affected wards. The project also allowed the development and refinement of particular skills in a dedicated team to optimise every element of care for all patients.

The objectives of the isolation unit were to:

- Cohort all patients with CDAD within an isolation facility;
- Prevent the spread of C. difficile spores in the hospital and reduce cross-infection;
- Develop the highest standard of care and specific expertise in managing disease associated with the new strain;
- Allow meticulous ward decontamination;
- Reduce the incidence of C. difficile infection;
- Improve patient and public awareness of CDAD, its cause and treatment.

An operational policy was devised and implemented that clearly outlined the unit’s operational management. The initiative has presented excellent opportunities for staff development in infection control and staff morale has risen considerably.

Following transfer of affected patients to the isolation unit all wards were meticulously cleaned and decontaminated before new patients were admitted.

Infection control measures
All staff – including nursing and medical staff and all workers who have direct contact with patients – wear scrubs while working in the unit. In addition, they are not allowed outside the unit in scrubs, to ensure cross-infection does not occur. Nurses’ uniforms have been found to be contaminated with pathogens (Perry et al, 2001). Aprons and gloves are replaced immediately before each and every episode of direct patient contact or care and after any activity or contact that potentially results in hands and clothing becoming contaminated.

The infection control team gave initial advice on handwashing technique, with preparation requiring wetting hands under tepid running water before applying an antimicrobial preparation. The handwash solution must come into contact with all surfaces of the hand, paying particular attention to nails. There have been no skin reactions to date.

Appropriate daily environmental cleaning of the ward is carried out. Cleaning staff designated to the unit maintain the highest level of hygiene, and avoid duties that involve the handling of meals.

When the new unit was set up, terminal cleaning of wards where patients developed CDAD was carried out. This extensive cleaning regimen includes the removal of heating and ventilation grills, light-fitting.
BACKGROUND

- C. difficile-associated disease commonly affects older people who have co-morbidities and receive antibiotics. Broad-spectrum antibiotics kill the normally protective colonic flora, allowing proliferation of this organism, causing inflammation and diarrhoea.
- The Department of Health outlined seven high-impact interventions to prevent and control healthcare-associated infections. High-impact intervention number 7 focuses on reducing the risk from C. difficile (DH, 2007).
- The government also launched a national campaign earlier this year to remind health professionals about the problem of antibiotic resistance and combat overuse of antibiotics (DH, 2008).

Covers, all surfaces and medical equipment. When a new patient develops CDAD, terminal cleaning of the bed area or side ward occurs after they have been transferred to the isolation unit and before a new patient is admitted to that area.

Nursing care

Monitoring blood results is a vital part of caring for patients with CDAD and any underlying medical or surgical condition. All the unit staff received phlebotomy and cannulation training. Blood samples are initially taken daily while diarrhoea is in its active stage. Monitoring albumin levels and electrolyte balance allows for early correction where possible. Restoring electrolyte balance has been a major challenge.

Nutritional status is assessed using the Burton score. Monitoring dietary input allows early identification of any need to follow alternative routes of feeding, for example via nasogastric or percutaneous endoscopic gastrostomy tube in some cases. All patients start a high-protein diet on admission to the unit, although dietary intake is problematic as many patients have had a reduced appetite for a long time.

Hydration is important due to the prevalence of liquid stools. Monitoring fluid balance is paramount to detect dehydration early. Patients’ clinical signs are monitored closely using an early warning tool to enable quick and timely action. Bowel actions are monitored using the Bristol Stool Chart. Patients are not discharged until they have passed normal stool (graded 4–5 on this chart) for at least 48 hours. In the early stages, when stools are in liquid form, a faecal collector is used for patients who are bedbound and compliant. Patients with C. difficile infection must be observed for distended abdomen and the potential for paralytic ilius. Other symptoms include pain, discomfort, nausea and vomiting.

Patient dignity, privacy and respect are also high priorities. CDAD affects patients who are immunocompromised, elderly and frail. Patient hygiene is an important factor in their care. Feeling comfortable and knowing prompt attention will be paid to their needs has made a significant difference to patients’ psychological experience and well-being.

Communication

Patients and visitors are given written information on admission to the unit. This explains what CDAD is and how it is contracted and treated, using a question and answer format. We also discuss care with them. Further information is displayed on noticeboards to ensure that all visitors are aware of our policies and procedures to help compliance and understanding.

Communication with local and national media has helped promote the isolation unit and the work the trust is doing to lower the risk of the public contracting C. difficile.

PROGRESS

Our preventative measures have virtually eradicated the old strain of C. difficile and, by August 2007, they reduced the 027 strain to just two cases in Walsall. All fluid stools were tested for C. difficile, including previous strains as well as 027. We identified early in the treatment that the old strain had disappeared. We have seen a general reduction in the overall number of patients with CDAD, as well as improvements in standards of care and treatment, and decreased mortality.

Audit

Our experience of the new strain of C. difficile has shown that the antibiotics previously recommended as safe are now those most likely to trigger CDAD. This was demonstrated by an audit on the inducers of CDAD, after restricting prescribing of high-risk antibiotics. The clinical dilemma is that many older patients who are acutely ill die without antibiotics but may contract CDAD if treated. The antibiotic policy needs continuous review.

Close daily working between the pharmacist and microbiologist in the isolation unit allows protocols to be optimised and changes to be piloted and evaluated quickly.

CONCLUSION

The unit has been successful in all its primary aims and objectives. The measures undertaken have virtually eradicated disease from the old strain, which has never been achieved before.

Major improvements have also occurred in infection control procedures. The increased virulence of the new strains, however, means that an even higher standard will be required.

These improved patient outcomes have established our groundbreaking approach as highly effective in managing disease from the new strain. It is now being followed by other NHS trusts.

REFERENCES

