High Impact Intervention
Care bundle to reduce the risk from *Clostridium difficile*

Aim

To reduce the risk of infection from and the presence of *Clostridium difficile* (*C. difficile*) by outlining guidance for prevention and management.

Context

The aim of the care bundle, as set out in this high impact intervention (HII), is to ensure appropriate and high quality patient care. Regular auditing of the care bundle actions will support cycles of review and continuous improvement in care settings.

Registered providers must audit compliance against key policies and procedures for infection prevention, in line with the relevant legislation at the time of publication[1].

C. difficile infection (CDI) is a diagnosis in its own right. It is a spectrum of disease ranging from mild diarrhoea to a severe and life-threatening condition. It is transmitted by clostridial spores, which are shed in large numbers by infected patients and are capable of surviving in the environment for long periods. Those most at risk are older patients and those who have had a recent course of antibiotics[1,2]. Also, of the approximately 25,000 cases of CDI reported in England in 2009/10, 21% were in younger age groups not previously considered to be high risk, which is a concern[2]. NHS organisations need to ensure that they have policies and systems in place that make provision for prompt diagnosis, isolation and cohort nursing of patients infected with *C. difficile*, together with effective procedures for infection control, environmental decontamination and antibiotic prescribing[1].

Five main factors have been identified as being necessary to reduce the incidence of *C. difficile* infection[3]. These factors, if rigorously applied, will contribute to a reduction in infection rates. They are: prudent antibiotic prescribing[1,2], hand hygiene[1,2,4], environmental decontamination[1,2,3,5,6,7,8], isolation/cohort nursing and use of personal protective equipment[1,2,3,9,12,13].

Why use the care bundle?

This care bundle is based on the EPIC guidelines[6], recommendations from the guidance document '*Clostridium difficile* infection: How to deal with the problem'[6], expert advice and other national infection prevention and control guidance. It should be used to support the implementation of local and national policy. Its purpose is to act as a way of improving and measuring the implementation of key elements of care.

The risk of infection reduces when all of the appropriate elements within the clinical process are performed every time for every patient. The risk of infection increases when one of more elements of a procedure are excluded or not performed. Monitoring of the elements outlined in the care bundle below will ensure that all the necessary elements are appropriately performed (as required by the particular situation).

The care bundle should be used when cases of CDI are either suspected or proven. Trusts should adhere to national guidance and develop local diagnosis processes and approaches, such as use of the Bristol Stool Chart and laboratory testing.

Please note that the asterisks (*) refer to some important points below the care bundle.

Staff competence and training:

In line with policy, staff should be appropriately trained and competent in any stated procedure or care process. Assessment of competence is not a specific care action within the HII as it is a pre-requisite for any care delivered. Registered care providers will have mechanisms for assuring training, assessment and recording of competence.

Elements of the care process

Preventing the spread of *Clostridium difficile**
Prudent antibiotic prescribing
- Antibiotics are prescribed according to national guidance** and local policy.   - Stop dates are included in antimicrobial prescriptions and these are adhered to   - The use of broad spectrum antimicrobials is minimised.   - Antibiotic polypharmacy is avoided where possible.   - Long duration antibiotic therapy is avoided where possible.   - The reason for antibiotic prescribing is documented in the patient's notes so that treatment decisions can be easily reviewed and for audit and training purposes   - Antimicrobial medication should be reviewed daily and documented as such.
Correct hand hygiene***
Hands are washed with soap and water before and after each contact with patients with suspected or proven CDI or any diarrhoea, and after contact with the patient's immediate environment or body fluids.****
Environmental decontamination
- Enhanced cleaning methods are implemented in areas with patients with CDI.*****   - Environmental cleaning of rooms, bed spaces, commodes, bedpans, slipper pans and disposable bedpan holders, toilets and bathroom areas of patients with CDI is carried out daily using a neutral detergent followed by chlorine-based disinfectants (at least 1,000 parts-per-million (ppm) available chlorine).   - Deep clean and decontamination of rooms of CDI patients takes place following the patient's transfer or discharge.
Personal protective equipment
- Personal protective equipment (PPE) (e.g. single use gloves and aprons) is used when in the immediate environment of patients with CDI.   - Disposable gloves and aprons must be worn when handling body fluids.   - PPE is correctly removed and disposed of following use.
Isolation/cohort nursing
- A single room, preferably with ensuite, is used if available.   - Cohort care for CDI patients is used if single rooms are not available.   - An isolation ward is used if there are sufficient numbers to justify this (i.e. more than can be catered for in single rooms or by cohort care).   - Hand washing facilities are in place.   - CDI patients have their own dedicated toileting facilities.   - Equipment such as tourniquets or blood pressure cuffs etc are issued for single patient use.   - The use of commodes at the patient's bedside is avoided (as much as possible) when cohort nursing in communal bays.   - Where commodes are used each patient is allocated their own and they are thoroughly cleaned daily and between each use using chlorine based disinfectant (at least 1,000 ppm available chlorine).

NOTES:

* Use of severity scoring is recommended in national guidance[3].

** Saving Lives includes a summary of best practice for antimicrobial prescribing. This is available at www.clean-safe-care.nhs.uk

*** Use of the World Health Organisations "5 moments of hand hygiene" is recommended.

**** Alcohol hand gel is not effective against *C. difficile* spores. Therefore, washing hands with soap and water is always recommended – regardless of the use of hand gel.

***** Further information on cleaning and decontamination can be found in the Department of Health's *High Impact Intervention No. 8 – Care bundle to improve the cleaning and decontamination of clinical equipment* (2009), which was developed to assist trusts to "achieve compliance under criterion 2 of the Code of Practice 2009 by providing a focus for activity and a method for measuring the implementation of policies and procedures for reducing reservoirs of infection."[11]

Using the care bundle and the electronic tool

The use of this care bundle will support cycles of review and continuous improvement, which will deliver appropriate and high quality patient care.

Audits of compliance with the care bundle should be carried out regularly and the results recorded at the point of care. They should be carried out by peers and the results can be collected manually or electronically depending on what is appropriate. The use of an electronic, graphical package such as the HII electronic tool provided is recommended, as this will increase the understanding and usefulness of the overall results.

The electronic tool will:
- Collect, collate and produce different views of the information.
- Clearly identify when actions within the care bundle have or have not been performed.
- Provide information to support the development of plans to resolve any issues and improve the quality of care.
- Support a culture of continuous improvement.

Recording and making sense of the results

- Print an audit sheet from the HII electronic tool or alternatively create one such as the example below.
- When a care bundle action is performed, insert a Y in the relevant column. If the action is not performed, insert an X in the relevant column.
- When the care action is not performed, as it is not applicable (for example local policy has determined it as not applicable in all or certain situations) insert an N/A to demonstrate that local policy is being adhered to. (This is then recognised as a Y when total compliance is being calculated).
- Calculate the totals and compliance levels manually or enter the results into the HII electronic tool to calculate these for you.
- The goal is to perform every appropriate action of care every time it is needed and achieve 100% compliance with the care bundle. The "All actions performed" column should be filled with a Y when all the appropriate actions have been completed on every required occasion. See the example below.
- Where actions have not been performed, overall compliance will be less than 100%. This provides immediate feedback for users of the tool on those care bundle actions not completed, and action can then be taken to improve compliance levels.

Example audit sheet

Care Actions \\ Observation	Care action 1	Care action 2	Care action 3	Care action 4	**All actions**
1	Y	N	Y	Y	**N**
2	Y	Y	N	Y	**N**
3	Y	Y	N/A	Y	**Y**
4	Y	Y	Y	N	**N**
5	Y	Y	Y	Y	**Y**
Total number of times an individual action was compliant	**5**	**4**	**4**	**4**	**2**
% when action of care was given	**100%**	**80%**	**80%**	**80%**	**40%**

- This example tool shows that while most care actions were performed, on only two occasions were ALL actions performed correctly while all actions was only 40% and as a result the risk of infection was significantly increased. (Please note for observation no 3. the N/A was calculated as a Y and overall compliance was achieved).
- When the information has been entered into the HII electronic tool a compliance graph for each action of care and for overall compliance with the care bundle can be produced. This will show where to focus the improvement efforts to achieve full compliance and achieve high quality patient care.

Best practice guides

Clostridium difficile infection: How to deal with the problem[2].

Recommended resources

- Many guidelines and papers are available in the National Resource for Infection Control at www.nric.org.uk
- The EPIC website http://www.epic.tvu.ac.uk/links/index.html
- The HPA website http://www.hpa.org.uk/HPA/
- The National Patient Safety Agency has many patient safety focused resources: http://www.nrls.npsa.nhs.uk/resources/?entryid45=59848

References

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6. Pratt RJ, Pellowe CM, Wilson JA, Loveday HP et al. epic2: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. Journal of Hospital Infection 2007, 65: S1–S64. Available at http://www.epic.tvu.ac.uk/PDF%20Files/epic2/epic2-final.pdf (accessed 05 January 2010).

7. National Patient Safety Agency. The national specifications for cleanliness in the NHS. London: NPSA. 2007. Available at www.nrls.npsa.nhs.uk/resources/?entryid45=59818 (accessed 05 January 2010).

8. National Patient Safety Agency. Revised Healthcare Cleaning Manual. London: NPSA. 2009. Available at http://www.nrls.npsa.nhs.uk/resources/patient-safety-topics/environment/?entryid45=61830 (accessed 05 January 2010)

9 Department of Health. Saving Lives: reducing infection, delivering clean and safe care – Isolating patients with healthcare-associated infection: A summary of best practice. London: Department of Health. 2007.

10. Department of Health and the Infection Control Nurses Association. Audit tools for monitoring infection control standards. London: Infection Control Nurses Association. 2004.

11. Department of Health (2009) High Impact Intervention No. 8 – Care bundle to improve the cleaning and decontamination of clinical equipment in Saving Lives: reducing infection, delivering clean safe care, London: Department of Health Available at http://www.clean-safe-care.nhs.uk (accessed 25 February 2010)