

MSH-UHN First Episode *C.difficile* (CDI) Management Algorithm

Frequently Asked Questions

(Version # 3-November 2014)

1) Why was this algorithm developed?

In a review of UHN and MSH data, we found that one new case of nosocomial CDI occurs across all sites every two days. A chart audit demonstrated variation in that management of CDI within the different specialties providing patient care, and that this has contributed to critical incidents. The objective of the CDI management algorithm is to standardize care of patients that are admitted or anticipated to be admitted to the hospital with a diagnosis of CDI for the purpose of providing best possible patient care.

2) How was this algorithm developed?

A large stakeholder group consisting of representation from diverse disciplines across Mt. Sinai Hospital (MSH) and University Health Network (UHN) worked with a small project working group over a ten-month period to develop and refine the algorithm. Consultation was obtained from different departments and divisions across MSH and UHN including Emergency Medicine, Gastroenterology, General Surgery, Infection (Prevention and) Control, Infectious Diseases, Microbiology, Nursing, Clinical Dietitians, and Pharmacy. The draft algorithm was reviewed by members of the MSH-UHN Antimicrobial Stewardship Program to integrate the appropriate antibiotic recommendations. The algorithm was then taken to various committees across hospital sites to obtain feedback and approval.

3) How will this algorithm improve patient outcomes?

The ability to intervene promptly, standardize care, and ensure appropriate monitoring is fundamental to beneficial patient outcomes. This algorithm has been developed with an interdisciplinary approach combined with antimicrobial stewardship strategies.

4) How will the algorithm be evaluated for its effectiveness within the clinical setting?

We will monitor the algorithm in practice throughout the months post-implementation. An Infectious Diseases Resident, Dr. Shaqil Peermohamed, will be evaluating the impact of the algorithm on practice. In doing so, the following patient outcomes will be examined: disease-free survival at 60 days, length of hospital stay and rates of severe adverse events such as ICU admission, morbidity and mortality.

5) Why is abdominal x-ray not present in the management recommendations within the algorithm?

With broad consultation involving the project stakeholders, it was decided that routinely utilizing abdominal x-rays in the treatment and management of CDI patients does not have a great clinical impact on the care decisions made by clinicians. We therefore recommend utilizing CT scans for clinical decisions when patients with CDI have severe or complicated/fulminant disease.

6) How were the risk factors for CDI within the algorithm established?

The risk factors within the algorithm were established with literature review, broad consultation from the project stakeholders, and based on the results of the multi-site chart audit. The chart audit completed by the project team highlighted present gaps in care related to the management of CDI patients and the common medical comorbidities linked with CDI.

7) How do I know that a patient has diarrhea?

There is no perfect and practical definition of diarrhea. In most cases, for the purposes of CDI, you know the patient has diarrhea if their bowel pattern is outside of their norm, if they are having numerous watery bowel movements, and if the stool specimen takes the shape of the specimen container.¹

8) What is the best strategy for testing stool for CDI?

Testing for CDI or its toxins should be performed only on unformed or diarrheal stool, unless there is an ileus suspected due to *C. difficile*. Neither testing for asymptomatic patients nor for a patient's cure are encouraged²

9) What role does Infection (Prevention and) Control have in the algorithm?

Both Infection Control at MSH and Infection Prevention and Control (IPAC) at UHN were involved throughout the development of the algorithm. The prompt detection of patients with diarrhea, enhanced precautions, attention to environmental cleaning and good hand hygiene are very important steps in caring for patients with CDI.

10) Why does this algorithm not address the management of patients with recurrent CDI?

The intent of the algorithm is to be a simple tool that can be utilized across hospital sites and on different inpatient units. The algorithm is specific to the first episode of CDI and there are future plans to develop an algorithm that guides the management of recurrent episodes. At present, recurrent CDI should prompt strong consideration for consultation from Infectious Diseases.

11) How does this algorithm assist clinicians when they are caring for patients with atypical cases of CDI?

One of the key aspects of the algorithm is the involvement of consulting teams early in the course of infection to improve patient outcomes. In doing so, the patients that have atypical infections will be managed promptly by a diverse clinical team and treated appropriately. Another key aspect of the algorithm that will assist in managing atypical cases is the importance of close monitoring and continued follow-up until clinical resolution or discharge.

12) What role do RNs have in the algorithm?

One of the main goals of the algorithm is to empower RNs or Patient Care Coordinators to oversee the algorithm in practice and offer guidance in some important aspects of clinical decision making. In following the algorithm, RNs or Patient Care Coordinators will be able to continue to assess and re-assess the patient when appropriate and ensure that all clinicians involved in the care of the patient are continually engaged.

13) Why were probiotics not addressed in the algorithm?

There is conflicting evidence regarding the effectiveness of probiotics in preventing CDI ². Additionally, this algorithm focuses on treatment, rather than prevention. The algorithm does include recommendations to consult a Registered Dietitian if appropriate in the care of the patient.

14) What special considerations need to be made for patients that are discharged on vancomycin?

Prescribers should complete Exceptional Access Program (EAP) documentation for oral vancomycin prior to patient discharge. Further information regarding EAP can be found at: http://www.health.gov.on.ca/en/pro/programs/drugs/eap_criteria_list.aspx

References:

- 1) Baqui AH, Black RE, Yunus M, Hoque AR, Chowdhury HR, Sack RB. Methodological issues in diarrhoeal diseases epidemiology: definition of diarrhoeal episodes. *Int J Epidemiol.* 1991; 20:1057-63.
- 2) Cohen SH, Gerding DN, Johnson S, Kelly CP, Loo VG, McDonald CL et al/Clinical practice guidelines for *Clostridium difficile* infection in adults: 2010 Update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America. *Infection Control Hosp Epidemiol* 2010; 3(5).

The algorithm was developed in consultation with:

Shohreh Abrouie, Clinical Nurse Specialist, Mt. Sinai Hospital

Marcia Cameron, Patient Care Coordinator, University Health Network

Julie Cepo, Registered Dietician, Mt. Sinai Hospital

Ingrid Daley, Patient Care Coordinator, University Health Network

Dina D'Agostina-Rose, Senior Clinical Director, University Health Network

Dr. James Downar, Palliative Care and Intensive Care Physician, University Health Network

Dr. Kevin Duplisea, Antimicrobial Stewardship Program Pharmacotherapy Specialist,
University Health Network

Dr. David Dushenski, Deputy Director of the Emergency Department and Emergency
Medicine Physician, Mt. Sinai Hospital

Dr. Susy Hota, Infection Prevention and Control Physician, University Health Network

Dr. Rupert Kaul, Infectious Disease Physician, University Health Network

Dr. Camille Lemieux, Associate Director Infection Prevention and Control, University Health
Network

Dr. Tony Mazzulli, Microbiologist-in-Chief, Mt. Sinai Hospital

Dr. Allison McGeer, Director of Infection Control Department, Mt. Sinai Hospital

Mark McIntyre, Clinical Practice Leader Department of Pharmacy, Mt. Sinai Hospital

Cindy Miller, Registered Dietician, Mt. Sinai Hospital

Dr. Matthew Morgan, Vice President, Patient Experience and Outcomes, Mt. Sinai Hospital

Dr. Andrew Morris, Director of Antimicrobial Stewardship Program, Mt. Sinai Hospital and
University Health Network

Emily Musing, Executive Director of Pharmacy, Clinical Risk and Quality, University Health
Network

Yoshi Nakamachi, Program Manager, Antimicrobial Stewardship Program, University Health
Network and Mt. Sinai Hospital

Dr. Susan Poutanen, Microbiologist and Infectious Disease Consultant, Mt. Sinai Hospital

Dr. Fayez Quereshy, Surgical Oncologist and Minimally Invasive Surgery Physician, University

Health Network

Joy Richards, Vice President Health Professions and Chief Nurse, University Health Network

Elke Ruthing, Manager Patient and Family Education Program, University Health Network

Dr. Jeff Singh, Critical Care Physician, University Health Network

Sarah West, Project Manager, Antimicrobial Stewardship Program, Mt. Sinai Hospital

Dr. Adam Weizman, Gastroenterologist, University Health Network

Gary Wong, Pharmacy Practice Leader, University Health Network

Andrew Wyllie, Drug Information Pharmacist, Mt. Sinai Hospital

Samira Zanjani, Patient Care Coordinator, University Health Network

The algorithm has been reviewed by the following committees:

- Pharmacy and Therapeutics, Mt. Sinai Hospital
- Pharmacy and Therapeutics, University Health Network
- Infection Prevention and Control Committee, University Health Network
- Professional Nursing Practice Committee, University Health Network
- Quality of Care Committee, University Health Network
- Infectious Disease Department Business Meeting, University Health Network
- Patient Care Coordinator Committee, University Health Network

Associated Links:

- 1) Antimicrobial Stewardship Program webpage: antimicrobialstewardship.com
- 2) The First Episode *Clostridium Difficile* Infection (CDI) Management Algorithm: http://www.antimicrobialstewardship.com/sites/default/files/cdi_algorithm-final-oct_011.pdf
- 3) CDI algorithm e-learning at Mt. Sinai Hospital: <http://info2/departments/informatics/elearning>
- 4) CDI algorithm e-learning at the University Health Network: https://rod.sumtotalsystems.com/uhn/app/SYS_login.aspx