

MDCH SHARP NHSN USERS CONFERENCE CALL
Wednesday, March 25th, 2015

Thank you to those who were able to join our bi-monthly NHSN users' conference call. If you were unable to participate on this call, we hope that you will be able to participate next month. Any healthcare facility is welcome to participate in these calls, whether they are sharing NHSN data with us or not. These conference calls are voluntary. Registration and name/facility identification are **not** required to participate.

Our monthly conference calls will be held on the 4th Wednesday **every other** month at 10:00 a.m. **Our next conference call is scheduled for May 27th, 2015**

Call-in number: 877-336-1831

Passcode: 9103755

Webinar: <http://breeze.mdch.train.org/mdchsharp/>

Suggestions for agenda items and discussion during the conference calls are always welcome! Please contact Allie at murada@michigan.gov to add items to the agenda.

HIGHLIGHTS FROM CONFERENCE CALL

Welcome & Introductions

Allie welcomed participants on the call and SHARP staff in the room were introduced. Participants were reminded to put their phones on mute or to press *6.

Update on Reports

Allie provided the 2013 Annual Report for download (it is also provided at the www.michigan.gov/hai website). She showed the TAP reports to the group, which are included as an appendix to the overall report. Hospital contacts were sent their letter rank in an email from Allie. Participants were advised to contact Allie if they did not receive a letter.

NHSN Updates

Allie presented a brief powerpoint containing 2015 NHSN changes and updates along with an overview of the CDI protocol (attached below).

NHSN in SNFs

Noreen encouraged skilled nursing facilities to continue their enrollment into NHSN. Currently, only 3 Michigan SNFs share data with the SHARP Unit via NHSN; this number has to increase to at least 5 for the SHARP Unit to publish aggregate numbers.

Clostridium difficile

Dr. Richard Van Enk, Director of Infection Prevention and Epidemiology at Bronson Methodist Hospital presented an excellent powerpoint on CDI (attached below).

Next Meeting

The next SHARP Unit NHSN conference call is scheduled for May 27th, 2015 at 10:00 a.m.

2015 NHSN CHANGES


Important Updates and Protocol Review

Allison Murad
SHARP NHSN User Group Call
3/25/15


NHSN SSI PROTOCOL CHANGE

- NHSN has rescinded the changes to the Inpatient and Outpatient operating room definitions
 - Users will be notified when protocol is updated – please note that it is currently **not** updated on their website!
- 2015 NHSN SSI protocol will refer to inpatient and outpatient operative procedures rather than operative procedures that are performed on inpatients or outpatients

NHSN SSI PROTOCOL CHANGE

- Definition for all surgical cases performed on or after January 1, 2015:
 - NHSN Inpatient Operative Procedure: An NHSN operative procedure performed on a patient whose date of admission to the healthcare facility and the date of discharge are different calendar days
 - NHSN Outpatient Operative Procedure: An NHSN operative procedure performed on a patient whose date of admission to the healthcare facility and date of discharge are the same calendar day
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MDRO/CDI CHANGES

- Reminder: FacWideIn LabID surveillance now also requires location-specific surveillance of the same organism from each ED and Obs unit in acute care hospitals.
 - When adding FacWideIn to the monthly reporting plan, all ED and Obs locations mapped in NHSN will automatically be added to the monthly reporting plan for this additional location-specific reporting
 - Remember: ED and Obs locations will require reporting of both events (numerator) and encounters (denominator)
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CDI PROTOCOL SPOTLIGHT


WHY IS *C.DIFFICILE* SURVEILLANCE IMPORTANT?

- *C.difficile* infections contribute to approximately 14,000 deaths/year
 - 400% increase from 2000-2007
 - Hospital stays from CDI tripled in the last decade
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CDI LABID REPORTING

- Allows laboratory testing data to be used without clinical evaluation of the patient (less labor intensive method of tracking)
 - These provide proxy infection measures of healthcare acquisition, exposure burden, and infection burden based primarily on laboratory and admission data
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FACWIDEIN REPORTING

- Includes inpatient locations PLUS location specific reporting from each outpatient emergency department (ED) and 24-hour observation location
 - This means:
 - LabID specimens collected in ED and obs locations must be entered into NHSN and assigned to the location (outpatient) in which the specimen was collected, regardless of subsequent inpatient admission of patient
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FACWIDEIN REPORTING

- Specimens collected from any other affiliated outpatient location (not ED or obs) can be reported to the inpatient admitting location if collected on the same calendar day as inpatient admission



CDI SETTINGS

- Can occur in any inpatient or outpatient location except locations known to predominantly house babies:
 - NICU, specialty care nursery (SCN), babies in labor, deliver, recovery, post-partum (LDRP), well-baby nurseries, or well-baby clinics




CDI LABID EVENT DEFINITION

- A toxin-positive *C.difficile* stool specimen for a patient in a location with no prior *C.difficile* specimen result reported within 14 days for the patient and location
 - CDI Positive Laboratory Assay: a positive laboratory test result for *C.difficile* toxin A and/or B, (includes molecular assays (PCR) and/or toxin assays) OR a toxin-producing *C.difficile* organism detected by culture or other laboratory means performed on a stool sample


CATEGORIZATION OF *C.DIFFICILE* LABID EVENTS


- NHSN will categorize *C.difficile* LabID events – you must still report all CDI events
 - Community-Onset (CO): LabID Event specimen collected in an outpatient location or in an inpatient location ≤ 3 days after admission to the facility (day 1 (admission), day 2, day 3)
 - Healthcare Facility-Onset (HO): LabID Event specimen collected >3 days after admission to the facility (on or after day 4)
 - Community-Onset Healthcare Facility-Associated (CO-HCFA): CO LabID event collected from a patient who was discharged from the facility ≤ 4 weeks prior to the date of current stool specimen collection

FURTHER CATEGORIZATION

- Incident CDI Assay: any CDI LabID Event from a specimen obtained >8 weeks after the most recent CDI LabID Events (or with no previous CDI LabID Event documented) for that patient
 - Recurrent CDI Assay: Any CDI LabID Event from a specimen obtained >2 weeks and ≤8 weeks after the most recent CDI LabID Event for that patient
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WHAT IS REPORTED TO CMS?



- CDI Assay = Incident
 - Onset = HO
 - However, **all** CDI LabID Events must be reported to NHSN. NHSN will categorize and send appropriately.
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NEW DEVELOPMENTS IN *CLOSTRIDIUM DIFFICILE* DISEASE

March 25, 2015
SHARP Project
NHSN User Group


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Outline

- Epidemiology
- Diagnosis
- Treatment
- Prevention

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Introduction

- Recent studies show that *C. difficile* colitis is:
 - Increasing in incidence (or in recognition)
 - Increasing in new populations; becoming a **community-acquired** and **pediatric** pathogen
 - The **most common hospital-acquired pathogen and infection** (overtaking *Staphylococcus aureus*)
 - The most common cause of infectious diarrhea
 - Certainly higher than Campylobacter (14.3 cases/100,000), but *C. difficile* is not reportable

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Epidemiology

- A 2011 CDC epidemiology study of 10 representative US areas (not Michigan), 121 laboratories
 - Lessa, F. C. et al. 2015. Burden of *Clostridium difficile* infection in the United States. NEJM 372:825-834.
- ***C. difficile* is the #1 nosocomial pathogen**
 - Estimated annual US incidence of 453,000
- **Most *C. difficile* disease is community-onset or community-acquired**
 - Only 24.2% of infections were nosocomial (occurred after the third day of admission)
- Incidence is **higher among women, whites and people over 65**
- **Recurrence** rate was 21%

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Epidemiology

- A large CDC telephone study of community-onset disease patients
 - Chitnis, A. S. et al. 2013. Epidemiology of community-associated *Clostridium difficile* infection, 2009 through 2011. JAMA 173:1359-1367.
- Outpatient disease is **associated with antibiotics (64%) and proton pump inhibitors**
 - **Most of the antibiotic use was inappropriate**
- Incidence is **higher in whites and women**
- Significant risk of exposure is **exposure to children in diapers**
- Exposure to meat or animals (pets or occupational) was not significant

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Epidemiology of recurrence

- **Recurrence is common** if the underlying risk factors are not changed
 - Defined as complete cure after treatment but then reappearance of symptoms after treatment and the initial cure
- **50% of relapses are reinfections;** the initial *C. difficile* is gone but the patient is re-exposed and gets it again, could be the same or a new strain
 - A classic case; patient is cured but someone gives the patient an antibiotic again and the disease comes right back

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Diagnosis

- **Nucleic acid amplification** (PCR) tests of stool are now the gold standard, not antigen tests
 - Some laboratories are pre-screening specimens for the organism first (a two-step protocol), but the NAAT is still the definitive test and stand-alone NAAT testing is cost-effective if you have significant incidence
- Do not use NAAT results as a test of cure and do not test asymptomatic patients
 - Patients can remain PCR-positive for 6 weeks after cure and 10% of carriers are asymptomatic

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Treatment; antibiotics

- Recommended antibiotic treatment **has not changed**; nothing is significantly better
 - Mild to moderate (<6 stools/day, no leukocytosis); **metronidazole** 250 mg PO 4 times per day for 10-14 days
 - Cheap (\$0.86/tablet) and effective for mild disease
 - Cure rate of 90% but relapse is common
 - Severe to fulminant or complicated; **vancomycin** 125 or 500 mg 4 times per day for 10-14 days or ?
 - More expensive (\$31 per dose), some complicated tapering regimens are used for severe cases
 - Better for severe disease, can give intra-rectally

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Treatment; antibiotics

- **Fidaxomicin** (Dificid™), introduced in 2011, is still not replacing conventional antibiotics (metronidazole and vancomycin)
 - Because of high cost (\$2800 per course) and limited success
 - Same success as conventional therapy for initial treatment, some advantage in reduced recurrence
- **Other antibiotics**, alone or in combination, are being studied; **no clear success** yet
 - Rifaximin, tigecycline, doxycycline, linezolid, some investigational drugs

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Treatment; Fecal Microbiota Transplantation (FMT)

- Youngster, I. et al. 2014. Oral, capsulized frozen fecal microbiota transplantation for relapsing *Clostridium difficile* infection. JAMA 312:1772-1778.
 - A small study (20 patients) at Massachusetts General Hospital
 - Patients took 15 capsules over 2 days
 - 14/20 had complete cure after 1 treatment
 - 4/6 initial failures were cured after a 2nd treatment
 - No adverse reactions in any patients
- **Transplant using either directed or random donor microbiota is becoming the preferred treatment for mild to moderate recurring or severe disease**

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Treatment; antibody

- A monoclonal antitoxin antibody drug containing antibody against toxins A and B is in phase 3 trials (Merck)
 - Given as a single-dose injection in addition to and during antibiotic therapy
 - Reduced relapses but duration of illness and hospitalization did not differ from placebo
- Some patients with severe disease have been given immune globulin; no clear benefit

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Prevention

- Infection prevention
- Probiotics
- Vaccines
- Minimizing risk factors

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Prevention; inpatient special precautions

- **No changes** in the recommendations; **contact precautions** with a preference for using soap and water for hand hygiene instead of alcohol-based sanitizer
- Some hospitals are looking at the new room-treatment machines, UV radiation or gas, for terminal cleaning of rooms of *C. difficile* patients but this is not yet recommended or the standard of care

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Prevention by probiotics

- A recent metaanalysis showed that **probiotics reduce the risk of *C. difficile*** by 66%
 - Johnson, B. et al. 2012. Probiotics for the prevention of *Clostridium difficile* associated diarrhea; a systematic review and metaanalysis. Ann. Intern. Med. 157:878-888
- Probiotics are increasingly being used as low-risk measures that may prevent disease
 - Either biologically-active foods like yogurt or capsule form

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Prevention by minimizing risk factors

- Antibiotics
 - The **predisposing antibiotics** include penicillins, cephalosporins, fluoroquinolones and clindamycin (all kill anaerobes and large numbers of intestinal bacteria)
 - Drugs that are **less likely to cause disease** include aminoglycosides, sulfonamides, macrolides, vancomycin and tetracyclines (do not kill as many intestinal bacteria)
 - If a patient has a history or is at risk of *C. difficile* (>65), it is good to try to **avoid the bad antibiotics** if we can

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Prevention by minimizing risk factors

- Proton pump inhibitors
 - **Omeprazole** (OTC; Gasec, Losec, Prilosec, Zegerid, Ocid, Lomac, Omepral, Omez, Omepep, UlcerGard, GastroGard, Altosec)
 - **Lansoprazole** (Prevacid, Zoton, Monolimum, Inhibitol, Levant, Lupizole)
 - **Dexlansoprazole** (Kapidex, Dexilant)
 - **Esomeprazole** (Nexium, Esotrex, Esso)
 - **Pantoprazole** (Protonix, Somac, Pantoloc, Pantozol, Pantomed, Zurcal, Zentro, Pan, Controloc, Tecta)
 - **Rabeprazole** (AcipHex, Pariet, Erraz, Zechin, Rabecid, Nzole-D, Rabeloc, Razo, Dorafem)
- All reduce the stomach acid, used for gastritis
- **Most use is inappropriate**
- These drugs increase the risk of *C. difficile* about as much as antibiotics

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Prevention by patient education

- *C. difficile* disease is heavily influenced by risk factors that the patient may control
- It is important to **teach the patient** about these risk factors so they can minimize their risk
 - Avoid: antibiotics, PPIs, changing baby's diapers
 - Use: probiotics, healthy diet, hand hygiene
 - Some helpful websites:
 - <http://www.cdc.gov/hai/organisms/cdiff/Cdiff-patient.html>
 - <http://www.mayoclinic.org/diseases-conditions/c-difficile/basics/definition/con-20029664>
 - <http://www.webmd.com/digestive-disorders/clostridium-difficile-colitis?page=1#1>

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Conclusions

- The single most promising approach to preventing *C. difficile* disease is reducing the unnecessary use of antibiotics and proton pump inhibitor drugs
- Although antibiotics are often used for first-line treatment of *C. difficile*, it is increasingly being recognized that antibiotics cause the disease and more antibiotics are not the answer
- *C. difficile* is not just a hospital-acquired disease anymore

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