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SHARP: Bringing HAIs into Focus

Surveillance for Healthcare-Associated and Resistant Pathogens Unit, Michigan Department of Community Health

www.michigan.gov/hai

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Welcome the newest "SHARPie"

Noreen Mollon is the new Infection Prevention Consultant in the SHARP unit. In this position, Noreen will assist in healthcare-associated infection (HAI) and multidrug-resistant organism (MDRO) outbreak investigations, as well as provide infection prevention (IP) guidance to the Michigan Department of Community Health (MDCH), healthcare facilities, and the public.

She received her BS in Microbiology from the University of Michigan and her MS in Epidemiology from Michigan State University.

Noreen has been with MDCH since 2005. She worked in Environmental Health from 2005-2009 and served as the TB Epidemiologist from 2009-2013. Noreen now brings her epidemiologic and (TB) infection prevention expertise to the SHARP Unit where we are excited to help her broaden her IP horizons. Please welcome Noreen!

MollonN@michigan.gov

CRE IN THE NEWS – VITAL SIGNS REPORT

On Tuesday, March 5th, CDC released a Vital Signs report on Carbapenem-Resistant Enterobacteriaceae (CRE). Vital Signs are published on the first Tuesday of the month as part of the CDC *Morbidity and Mortality Weekly Report (MMWR)* journal. These monthly reports offer recent data and 'calls to action' on important public health issues. The March 5th report emphasized that CRE has increased over the past decade (1% to 4% overall).

Although CRE bacteria are not yet common nationally, the percentage of Enterobacteriaceae that are CRE has increased fourfold. During just the first half of 2012, almost 200 healthcare facilities, 4% of hospitals and 18% of long-term acute care facilities nationwide, treated at least one patient infected with CRE. One type of CRE, a resistant form of Klebsiella pneumoniae, has shown a sevenfold increase in that same time period. In the U.S., over 10% of the Klebsiella sp. are CRE. And most CRE are still healthcare-associated, as opposed to community-associated. In the U.S., northeastern states report the most cases of CRE. Because patients can carry CRE from one healthcare setting to another, facilities are encouraged to work together regionally to implement CRE prevention programs.

CDC also held a Vital Signs Town Hall Teleconference on March 12th entitled "Stopping Carbapenem-resistant Enterobacteriaceae Infections: Making Health Care Safer". Each town hall teleconference features lessons learned and success stories from the state, tribal, local or territorial perspective. This call highlighted Colorado and Oregon's experiences with CRE surveillance and prevention efforts.

For more information on Michigan's CRE surveillance and prevention efforts, please contact Brenda Brennan.

—*Brenda Brennan*, BrennanB@michigan.gov

Michigan Department of Community Health
MDCH
Rick Snyder, Governor
James K. Haveman, Director

Norovirus in Healthcare Settings

Since January 1, 2013; a total of 101 norovirus outbreaks have been reported in Michigan. This is the highest number of outbreaks ever reported during the January 1st—April 24th time period. A new strain of norovirus (GII.4 Sydney) emerged in the fall of 2012 and has caused 82% of laboratory confirmed outbreaks in 2013. The majority (73%) of 2013 outbreaks were reported in healthcare facilities.

Norovirus symptoms, including vomiting and diarrhea, start 12–48 hours after exposure and can last for 1–2 days. The virus is extremely contagious and is typically spread from person-to-person. Hand sanitizers are not effective at killing the virus and should not be used during an outbreak. Ill employees should not return to work until 72 hours after symptoms resolve. Cleaning with bleach is the most effective method of disinfecting contaminated surfaces.

Facilities should report suspected norovirus outbreaks to their local health department. Free testing can be arranged with the Michigan Department of Community Health Bureau of Laboratories. For more information regarding environmental cleaning and norovirus, please visit: www.michigan.gov/cdinfo or contact the Michigan Department of Community Health at (517) 335-8165.

—Jennifer Beggs, *BeggsJ@michigan.gov*

New SIR for MRSA Bacteremia and CDI LabID Events

With the new CMS mandate to report MRSA bacteremia and CDI LabID events effective January 2013, NHSN has developed a Standardized Infection Ratio (SIR) analysis option to evaluate these two modules. The new SIRs for MRSA bacteremia and CDI use national in-plan, facility-wide inpatient data from 2010-2011 as a baseline time period. Hospital-onset (HO) MRSA bacteremia and CDI LabID incidence rates from the baseline period were evaluated to select potential risk adjustment variables for SIR calculation.

Three variables were found to be significant in predicting HO MRSA bacteremia LabID incidence: medical school affiliation, facility bedsize, and community-onset (CO) MRSA bacteremia prevalence rate. Four variables were found to be significant in predicting HO CDI LabID incidence: CDI test type, medical school affiliation, facility bedsize, and CO CDI prevalence rate.

In the analysis section of NHSN, you are now able to calculate an SIR for your hospital by quarter. Currently, an SIR can only be calculated for your entire facility (the FacWideIn variable). This is because CDC performed their adjustment on the FacWideIn variable due to the CMS mandate of facility-wide reporting. In the future, we are hoping to be able to compare specific units to each other.

In the table below, you can see trend SIR data for MRSA bacteremia and CDI SIRs in Michigan, which includes all of the hospitals sharing data with the SHARP Unit. We encourage you to go into the analysis section of NHSN and experiment with this new option. More information on this new SIR can be found at: http://www.cdc.gov/nhsn/PDFs/mrsa-cdi/RiskAdjustment-MRSA-CDI.pdf. To refresh your knowledge on the SIR, the NHSN SIR Newsletter can be found at: http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf.

—*Allison Gibson Murad, MuradA@michigan.gov*

Michigan MRSA bacteremia and CDI LabID
Standardized Infection Ratios (SIRs)

Infection	Time Period	Participating Hospitals	Patient Days	Observed[1]	Expected[2]	SIR[3]	P-value[4]	Confidence Interval[5]
MRSA bacteremia LabID[6]	2012 Q1	12	269,902	11	18.408	*0.598*	0.0456	0.298, 1.069
	2012 Q2	16	283,110	18	18.185	0.990	0.5451	0.580, 1.577
	2012 Q3	20	282,978	19	19.346	0.982	0.5292	0.585, 1.546
	2012 Q4	28	424,419	29	28.740	1.009	0.5054	0.670, 1.459
	2013 Q1	51	681,003	55	47.987	1.146	0.1726	0.858, 1.499
CDI LabID[7]	2012 Q1	17	248,082	190	173.588	1.095	0.1146	0.942, 1.265
	2012 Q2	22	274,353	171	195.909	0.873	0.0384	0.745, 1.017
	2012 Q3	24	311,152	239	232.887	1.026	0.3530	0.898, 1.168
	2012 Q4	30	411,631	333	317.523	1.049	0.1995	0.937, 1.170
	2013 Q1	52	677,461	548	536.489	1.021	0.3153	0.936, 1.113

Highlight: Indicates significantly fewer infections than expected based on p-value and CI agreement
Highlight: Indicates significantly more infections than expected based on p-value and CI agreement
Highlight: Indicates significantly different infections based on either p-value and CI
[1]Observed: Number of infections reported during the time frame.
[2]Predicted: The number of infections predicted based on risk factors.
[3]SIR: Standardized Infection Ratio: Ratio of observed events compared to the number of predicted events, accounting for the appropriate risk factors. An SIR of 1 can be interpreted as having the same number of events that were predicted. An SIR that is between 0 and 1 represents **fewer** events than predicted, while an SIR of greater than 1 represents **more** events than expected.
[4]P-value: An SIR p-value of <0.05 is considered significantly different than expected. It can be either significantly worse (if the SIR is greater than 1 and the p-value is <0.05) or significantly better (if the SIR is less than 1 and the p-value is <0.05).
[5]Confidance Interval: 95% confidence interval around the SIR estimate. A 95% CI indicates that 95% of the time, the actual SIR will fall within this interval.
[6]MRSA bacteremia LabID: Methicillin-resistant *Staphylococcus aureus* bacteremia laboratory-identified event
[7]CDI LabID: *Clostridium difficile* laboratory-identified event

MRSA/CDI Initiative Update

Quarterly Champion Conference Calls

These calls are intended to provide communication and networking among the prevention initiative facility champions. The calls provide an opportunity for sharing facility updates and changes, make requests for policies, resources, and contacts, and provide champions with an opportunity to highlight action plan interventions. The calls are set up as a webinar, so callers can view presentations and other materials.

The first Champion conference call was held on March 6, 2013. On this call Cindy Nelson, Infection Preventionist from the University of Michigan hospital, shared their CDI Toolkit. Discussion included the need to reach out and include community health care facilities and work with area physicians in infection prevention and control intervention to reduce MRSA and CDI. There were 28 attendees on the call and it was viewed by all as a success.

Next call: May 21, 2013. Michelle Hammond, Infection Preventionist at Huron Medical Center, will present on their hospital's CSI Campaign: Coming together to Stomp out Infections! And Andrea Hubbard, Assistant Director of Nursing at Hoyt Nursing and Rehabilitation Center will present on their handwashing campaign.

Train the Trainer Education

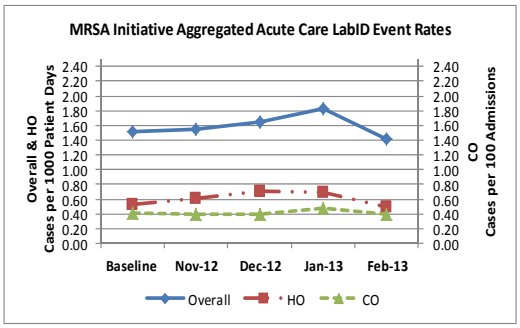
The MRSA and CDI Train the Trainer materials, targeted to local public health department professionals and long term care facilities, are in final review. Education committee reviewed on 4/22/13. The MRSA/CDI Collaborative review is in process. Final product will be highlighted at the May 2013 HAI Prevention Advisory Group meeting. The target date for public access is June 1, 2013.

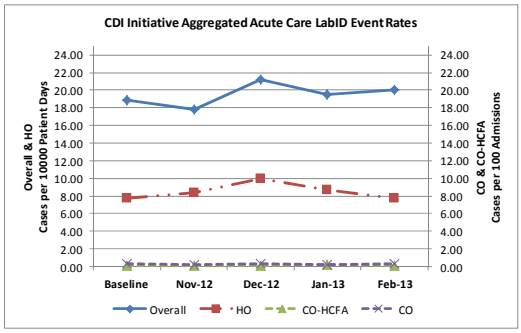
Site Visits

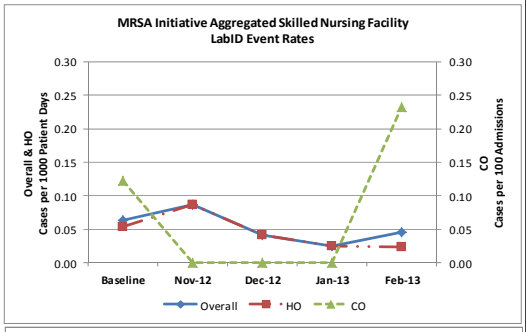
Regions 1,2N, 3, 5, 7, and 8 will be scheduled in the next few months. These 2nd round visits will evaluate implementation phase of action plans and will be completed by August 1, 2013.

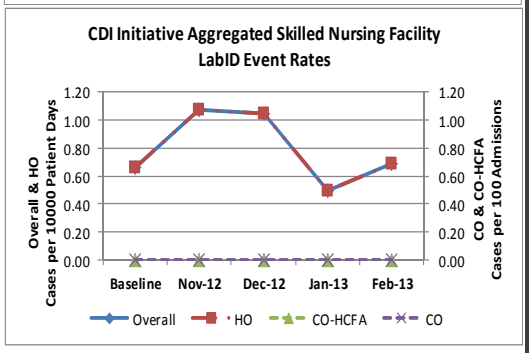
Data Collection and Reports

Hospitals and skilled nursing facilities submitted MRSA and CDI infection data (and denominators) to MDCH on a monthly basis for the baseline data collection period (May-Oct 2012). The project is currently in the 4th month of remeasurement since facility action plans were implemented. The following graphs show the aggregate monthly MRSA and CDI LabID event rates for hospitals and SNFs participating in the Initiative.









KEY

HO (Healthcare-onset): specimens collected >3 days after admission per 1,000 (MRSA) or 10,000 (CDI) patient days

CO (Community-onset): specimens collected ≤3 days after admission per 100 admissions

CO-HCFA (Community-onset, Healthcare facility-associated): community-onset specimens collected from patients discharged from the facility ≤4 weeks prior to collection date per 100 admissions.

—Gail Denkins, DenkinsG@michigan.gov

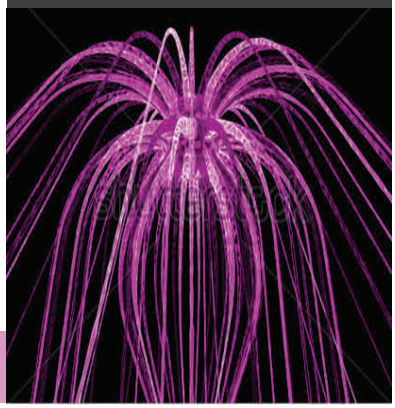
—Bryan Buckley, BuckleyB2@michigan.gov

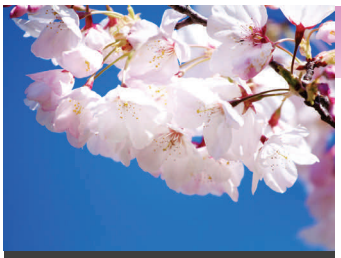
NEW SHARP DATA USE AGREEMENT

Hospitals participating in the MDCH SHARP National Healthcare Safety Network (NHSN) healthcare-associated infection (HAI) surveillance initiative have been notified through the NHSN Group function of a new Data Use Agreement (DUA). Due to CDC terminology change from ventilator-associated pneumonia (VAP) to ventilator-associated events (VAE), MDCH legal counsel advised the SHARP Unit that **all hospitals sharing NHSN data with SHARP must sign this new agreement.**

The new agreement includes the updated VAE terminology, as well as a data release option. The data release section allows hospitals to indicate which NHSN data they would like MDCH SHARP to share with the Michigan Health & Hospital Association (MHA) and/or with the Vermont Oxford Network (VON). In taking advantage of this option, participating hospitals will no longer need to enter this data into MHA Care Counts. Hospitals that did not receive this new DUA via NHSN email, or who have questions about the agreement, may contact Judy Weber.

—Judy Weber
Healthcare Facility Liaison
SHARP Unit
517-335-8331
WeberJ4@michigan.gov





Save the Date

5/9–5/10: MSIPC Spring Conference, Lansing, MI

5/16: MDCH Communicable Disease Conference, East Lansing, MI

5/21: MRSA/CDI Champion Call

5/22: SHARP NHSN User Group Call and Case Studies

6/8–6/10: APIC 40th Annual Conference, Ft. Lauderdale, FL

10/23–10/25: MSIPC Fundamentals of Infection Control, Dewitt, MII

11/7–11/8: MSIPC Fall Conference, Lansing, MI

Helpful Links

www.michigan.gov/hai

www.mhakeystonecenter.org

www.mpro.org

www.mi-marr.org

www.msipc.org

www.apic.org

www.hhs.gov/ash/initiatives/hai/

www.hospitalcompare.hhs.gov

www.cdc.gov/nhsn

www.cdc.gov/HAI/prevent/prevention.html

www.cdc.gov/HAI/organisms/cre

www.cdc.gov/HAI/organisms/cdiff/Cdiff_infect.html

Carbapenem-Resistant *Enterobacteriaceae* (CRE) Surveillance and Prevention Initiative Update

Data Collection

The CRE Surveillance and Prevention Initiative just completed the baseline data collection period (September 1, 2012–February 28, 2013). On March 1, facilities entered the intervention period which will last through August 31, 2014. Facilities enrolled in the Initiative will continue to voluntarily submit their CRE data and receive monthly data feedback reports highlighting their facility-specific data as well as overall initiative data trends.

Communications and Website

MDCH communicates with its enrolled facilities via monthly newsletter, "CRE News". Each newsletter contains updates, activities, data highlights and important reminders. The CRE Surveillance and Prevention Initiative's webpage is now LIVE thanks to Allie Murad. Please go to www.michigan.gov/hai and look under MDCH SHARP HAI Prevention Initiatives. The site includes Initiative updates, presentations from the CRE Educational Conference, Initiative Tools, General Resources, and a list of the CRE Collaborative members

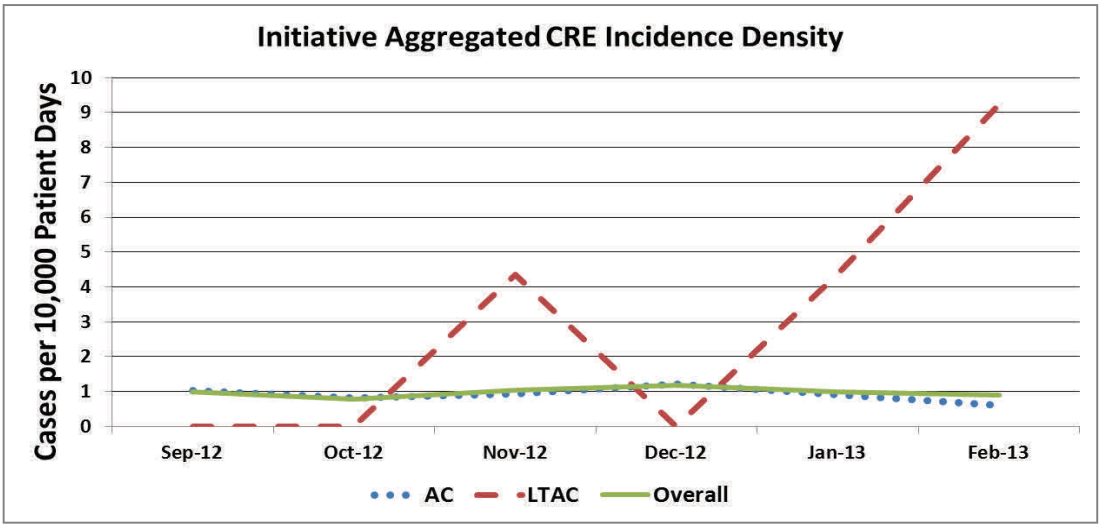
CRE Prevention Plans

On March 1, enrolled facilities submitted their CRE Prevention Plans to MDCH. Facilities could submit more than one plan, as long as it met specific needs of the facility and was approved by the facility's CRE Prevention Team. MDCH received 33 prevention plans for our 21 enrolled facilities. The plans illustrate a wide variety of possible interventions that will be implemented. Some examples of these interventions include focusing on terminal cleaning, education on various topics pertaining to CRE (for patients, physicians, and/or staff), laboratory detection and confirmation, monitoring invasive devices, screening high risk groups, trying new products, additional quality control checks, improving communication between facilities, and the development of practitioner-specific reports illustrating approvals of carbapenem usage. MDCH looks forward to following the facilities' progress throughout this initiative.

—Brenda Brennan, BrennanB@michigan.gov
—Bryan Buckley, BuckleyB2@michigan.gov

Data Highlights

The figure below represents the aggregate Initiative CRE incidence during the baseline period.



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