

HEALTHCARE-ASSOCIATED INFECTIONS IN MICHIGAN HOSPITALS

Quarterly Summary Report of Participating Hospitals

April 1 – June 31, 2010

Michigan Department of Community Health

Surveillance of Healthcare-Associated & Resistant Pathogens (SHARP) Unit

Introduction

The Surveillance of Healthcare-Associated & Resistant Pathogens (SHARP) Unit within the Bureau of Epidemiology at the Michigan Department of Community Health (MDCH) will quarterly provide an update on activities funded under the American Recovery and Reinvestment Act (ARRA) which address the surveillance and prevention of healthcare-associated infections (HAIs) in participating hospitals in Michigan. This report will include data that can be used to show trends in the incidence of specific multidrug-resistant organisms. As additional hospitals agree to participate in these activities, the information and data will vary from quarter to quarter. The report will also contain acronyms for frequently used terms.

Additional background information on HAIs, pertinent definitions related to HAIs, Michigan's HAI Surveillance and Prevention Plan, Michigan's HAI Prevention Advisory Group, and Michigan's collaborative initiatives funded under ARRA, can be found in the *September – December 2009 Quarterly Summary Report of Participating Hospitals*, posted at www.michigan.gov/hai. These materials will be updated as new information becomes available.

Acronyms

APIC	Association for Professionals in Infection Control & Epidemiology, Inc.
ARRA	American Recovery and Reinvestment Act
CAUTI	Catheter-Associated Urinary Tract Infection
CDC	Centers for Disease Control & Prevention
CDAD	<i>Clostridium difficile</i> -Associated Disease
CLABSI	Central Line-Associated Bloodstream Infection
HAI	Healthcare-Associated Infection
HHS	U.S. Department of Health & Human Services
MDCH	Michigan Department of Community Health
MDRO	Multidrug-Resistant Organism
MHA	Michigan Health & Hospital Association
MPRO	Michigan's Quality Improvement Organization
MRSA	Methicillin-Resistant <i>Staphylococcus aureus</i>
NHSN	National Healthcare Safety Network
SHARP	Surveillance of Healthcare-Associated & Resistant Pathogens Unit
SSI	Surgical Site Infection
VAP	Ventilator-Associated Pneumonia

Michigan Surveillance Initiative

Under ARRA funding, Michigan is currently recruiting acute care hospitals to voluntarily participate with SHARP on the surveillance of HAIs. Initial surveillance efforts are focusing on methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* (*C. difficile*) as identified by the hospital laboratory. Surveillance data is collected by hospitals using the National Healthcare Safety Network (NHSN), an online reporting system developed and implemented by the Centers for Disease Control and Prevention (CDC). Hospitals wishing to participate in this surveillance initiative can voluntarily agree to share their NHSN data with SHARP through use of a signed data use agreement and the ‘confer rights’ process within NHSN.

SHARP is asking participating hospitals to confer rights to their MRSA and *C. difficile* data by using the Multidrug-Resistant Organism/*Clostridium difficile*-Associated Disease (MDRO/CDAD) module, LabID Event reporting option of NHSN. The SHARP Unit’s goal is to have 30 hospitals sharing their data with MDCH by October 2010, and 50 hospitals by October 2011. NHSN data shared with SHARP will be de-identified by patient and hospital name. Reports of aggregate data from participating hospitals will be published quarterly, and will provide a means to monitor HAI trends in Michigan over time.

Surveillance Initiative Statistics

Between April 1 and June 31, 2010, fourteen (14) Michigan hospitals were participating in SHARP’s HAI surveillance initiative. Eight (8) of these hospitals were monitoring MRSA, and seven (7) were monitoring *C. difficile*, using the LabID Event option of the MDRO/CDAD module. Areas of surveillance varied between the participating hospitals but could include the intensive care unit (ICU), labor and delivery, and/or medical/surgical units dependent upon individual hospital choice. Data from this quarter, as well as from the previous two quarters, will be used to establish baselines rates of positive laboratory tests for MRSA and *C. difficile* in participating hospitals.

Participating hospitals are also collecting data from other modules within NHSN: Central Line-Associated Bloodstream Infection (CLABSI – 11 hospitals), Ventilator-Associated Pneumonia (VAP – 11 hospitals), Surgical Site Infection (SSI – 8 hospitals), and Catheter-Associated Urinary Tract Infection (CAUTI – 4 hospitals). As additional hospitals participate with the SHARP Unit and confer rights to these modules, summaries of these data may be included in future quarterly reports if sufficient numbers of hospitals begin sharing these types of data.

MRSA Data Analysis

Between April 1 and June 30, 2010, 148 isolates of MRSA were reported from seven (7) of eight (8) participating hospitals who use the LabID Event option of the MDRO/CDAD module. One of the eight hospitals did not report any MRSA during this quarter. LabID Events for MRSA are defined by NHSN as all first positive MRSA clinical isolates for each calendar month for each unique patient, regardless of specimen source. Specimens must be collected for clinical purposes and not for the purpose of active surveillance testing or screening. Note that within the MDRO/CDAD module of NHSN there is no determination of whether a MRSA isolate represents patient colonization or infection.

Data for this quarter indicate that wounds (47 isolates or 32% of all MRSA specimens) and sputum (39 isolates or 27% of all MRSA specimens) were the predominant overall sites for all MRSA isolates this quarter, followed by abscesses and urinary specimens (13 isolates each or 9%

each of all MRSA specimens), blood (8 isolates or 5%), and other (28 isolates or 19% of all MRSA isolates).

Nineteen (19) of the 148 total MRSA isolates for this quarter were reported to be healthcare-onset (13%), and the remainder (129 isolates or 87%) were reported to be community-onset. NHSN defines 'healthcare-onset' as a 'LabID Event specimen collected >3 days after admission to the facility (i.e., on or after day 4).' 'Community-onset' is defined by NHSN as a 'LabID Event specimen collected as an outpatient or an inpatient ≤3 days after admission to the facility (i.e., days 1, 2, or 3 of admission).'

For this quarter, sputum accounted for the majority of MRSA **healthcare-onset** isolates (10 of 19 isolates or 53%), blood (3 isolates or 16%), wound (2 isolates or 11%), and other (4 isolates or 21%) of all healthcare-onset isolates). Sixteen (84%) of the 19 healthcare-onset MRSA isolates were from patients in intensive care units, one (5%) was from a patient in a medical/surgical unit, and the location of two patients was not identified (11%). The majority of **community-onset** isolates were from wounds (45 of 128 isolates, or 35%), followed by sputum (29 isolates or 23%), abscess and urinary (13 each or 10% each), blood (5 isolates or 4%), and other (23 isolates or 18%).

C. difficile Data Analysis

For this quarter, there were 57 reports of *C. difficile* identified in seven of the seven hospitals which use the LabID Event option of the MDRO/CDAD module. Eighteen (18) of the 57 reports were considered to be **healthcare-onset** (32%), 15 (26%) were considered to be **community-onset healthcare-facility associated**, and 24 (42%) were reported to be **community-onset**. *Community-onset healthcare facility-associated* is defined as a 'community-onset LabID Event collected from a patient who was discharged from the facility ≤ 4 weeks prior to date stool specimen collected.' Ten (56%) of the 18 healthcare-onset cases were in ICU patients, seven (39%) were in Med/Surg patients, and the location of one (6%) healthcare-onset case was unidentified.

Summary of Quarterly Data

A summary of quarterly data collected from participating hospitals since September 2009 is attached to this report. Note that data from previous quarters has not been updated when additional hospitals are added each quarter, even though these additional hospitals may have provided back data to the SHARP Unit. At the end of 2010, a final cumulative report will be provided with data collected from all participating hospitals for the entire year. This final report will include updated data for each quarter.

Quarterly MRSA Statistics from Participating Hospitals

	Sept – Dec 2009 MRSA Data	Jan – March 2010 MRSA Data	Apr – June 2010 MRSA Data
Total # of Hospitals Who have Conferred Rights	4	10	14
Total # of Hospitals with Complete Data for Quarter	4	9	14
# Using MDRO/CDAD Lab ID Event for MRSA	3 of 4	6 of 9	7 of 14
# Aggregated MRSA Isolates	71	91	148
Overall Healthcare-Onset	11%	32%	(19) 13%
Overall Community-Onset	89%	68%	(129) 87%
Wound Isolates	73%	42%	(47) 32%
% Healthcare-Onset	--	14%	(2) 11%
Sputum Isolates	20%	42%	(39) 27%
% Healthcare-Onset	--	66%	(10) 53%
Blood Isolates	7%	13%	(8) 5%
% Healthcare-Onset	--	14%	(3) 16%
Abscess Isolates			(13) 9%
% Healthcare-Onset			(0) 0%
Urinary Specimen			(13) 9%
% Healthcare-Onset			(0) 0%
Other Isolates	--	3%	(28) 19%
% Healthcare-Onset	--	7%	(4) 21%
ICU Patients	Unable to calculate	76%	(16) 84%
Med/Surg Pts	Unable to calculate	10%	(1) 5%
Other Location			(0) 0%
Unknown Location	Unable to calculate	14%	(2) 11%

Quarterly *C. difficile* Statistics from Participating Hospitals

	Sept – Dec 2009 <i>C. difficile</i> Data	Jan – March 2010 <i>C. difficile</i> Data	Apr – June 2010 <i>C. difficile</i> Data
Total # of Hospitals Who have Conferred Rights	4	10	14
Total # of Hospitals with Complete Data for Quarter	4	8	14
# Using MDRO/CDAD Lab ID Event for <i>C. difficile</i>	3 of 4	4 of 8	7 of 14
# Aggregated <i>C. difficile</i> reports	18	14	57
Healthcare-Onset	0%	64%	(18) 32%
Comm-Onset Healthcare-Assoc			(15) 26%
Community-Onset	100%	36%	(24) 42%
ICU Patients	Unable to calculate	11%	(10) 56%
Med/Surg Pts	Unable to calculate	89%	(7) 39%
Other Location/Unknown	Unable to calculate	--	(1) 6%