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OUR STANDARD OF CARE

Infection Control

Infections acquired in hospital have been on the rise across North America and around the world in the last several years. Understandably, they are a cause for patient concern. While it is impossible to completely eliminate hospital acquired infections, the Heart Institute takes the minimization of these infections very seriously.

We monitor patients when they are first admitted, during their hospital stay and at discharge. This allows us to determine whether patients entered the hospital with a pre-existing infection or developed an infection while admitted. Our infection control program enables us to quickly identify infection, manage outbreak situations, provide education to staff and physicians, and develop infection control practices.

The Heart Institute is committed to educating patients to help them understand their conditions and to better participate in their care.

Infection Rates at the Heart Institute

The following are infection and hand hygiene compliance rates at the Heart Institute for the last twelve months or, for newer items, the available reporting periods.

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C. difficile

Clostridium difficile is also known as *C. difficile* or "C. diff." It is a bacteria commonly found in the environment, including in human and animal intestines and feces. Not normally dangerous, *C. difficile* can infect patients taking antibiotics, the elderly, and people with compromised health. Infection can cause diarrhea, fever, abdominal pain, and, in extreme cases, death.

The bacteria are spread through contact with contaminated surfaces, especially in washrooms, or with feces. The best prevention is good hygiene, including thorough washing of the hands.

***C. difficile* Infection Rates**

Month	Cases	Patient Days*	Incidence/1,000 Patient Days*
February 2011	0	3,592	0.00
March 2011	1	3,868	0.26
April 2011	0	3,834	0.00
May 2011	0	3,918	0.00
June 2011	0	3,633	0.00
July 2011	1	3,288	0.30
August 2011	0	3,632	0.00
September 2011	0	3,638	0.00
October 2011	4	3,915	1.02
November 2011	0	3,808	0.00
December 2011	2	3,784	0.53
January 2012	2	4,306	0.50
February 2012	0	3,777	0.00

The following measures were taken to reduce the incidence of contamination of C.difficile:

- All patients were placed on contact precautions in a private room until 48 hours after last episode of diarrhea
- Additional housekeeping was commenced on the affected units, including twice daily cleaning of frequent contact points including any patient care equipment in hallways (scales, chairs, ect). Furthermore, twice daily cleaning of rooms where positive C.difficile patients were located.
- Staff reminders about vigilant monitoring of all patients to ensure those patients who develop symptoms of C.difficile are promptly isolated and specimens are sent for testing.

* Patient days indicate the total number of days spent by patients at the Heart Institute in a given month. The incidence rate is used as a standardized measure for comparison across healthcare facilities. The benchmark target set by the Public Health Agency of Canada's Canadian Nosocomial Infection Surveillance Program (CNISP) for *C. difficile* infections per 1,000 patient days is 0.64.

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Methicillin-resistant *Staphylococcus aureus* (MRSA)

MRSA stands for methicillin-resistant *Staphylococcus aureus*. *Staphylococcus aureus* is a common bacterium or germ which commonly lives in the nose and on the skin. Most people who carry the *Staphylococcus aureus* bacterium do not have an infection. Sometimes people will develop infections with this bacterium and will require treatment. When the infection is in your blood, this is called bacteremia.

When common antibiotics such as penicillins are not able to destroy *Staphylococcus aureus*, the bacterium is called "resistant", or in this case MRSA. Infections caused by MRSA are not necessarily more serious than infections caused by the regular *Staphylococcus aureus* bacterium. However, only a few antibiotics will treat MRSA infections.

MRSA is spread by direct contact with an infected person, their excretions, or with contaminated materials. The bacteria can live on hands or other surfaces, so the best prevention is good hygiene. Hands should be washed thoroughly with soap and water or with alcohol hand rub after using the bathroom or blowing your nose, and before touching wounds and dressings.

MRSA Infection Rates

Month	Cases	Patient Days*	Incidence/1,000 Patient Days*
February 2011	0	3,592	0.00
March 2011	0	3,868	0.00
April 2011	0	3,834	0.00
May 2011	0	3,918	0.00
June 2011	0	3,633	0.00
July 2011	0	3,288	0.00
August 2011	0	3,632	0.00
September 2011	0	3,638	0.00
October 2011	0	3,915	0.00
November 2011	0	3,808	0.00
December 2011	0	3,784	0.00
January 2012	0	4,306	0.00
February 2012	0	3,777	0.00

* Patient days indicates the total number of days spent by patients at the Heart Institute in a given month. The incidence rate is used as a standardized measure for comparison across healthcare facilities.

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Vancomycin-resistant Enterococcus (VRE)

VRE stands for vancomycin-resistant enterococcus. Vancomycin is an antibiotic used to treat infections. Enterococcus is a common bacterium that is normally found in the lower intestine. Sometimes people develop infections with this bacterium and require treatment. Only a few antibiotics can effectively treat enterococcal infections, and one of them is vancomycin. If the enterococcus bacterium develops resistance to vancomycin (vancomycin-resistant enterococcus), the antibiotic vancomycin will not be able to destroy the bacteria. There are other antibiotics that will treat VRE infections, however.

VRE is usually spread on the hands of caregivers who have come in direct contact with an infected person. Excretions and feces are the most likely source of contamination. Without proper cleaning with disinfectants, VRE can survive for long periods on bathroom and hospital room surfaces. Thorough hand washing with soap and water or an alcohol rub is the best prevention against the spread of infection.

VRE Infection Rates

Month	Cases	Patient Days*	Incidence/1,000 Patient Days*
February 2011	0	3,592	0.00
March 2011	0	3,868	0.00
April 2011	0	3,834	0.00
May 2011	0	3,918	0.00
June 2011	0	3,633	0.00
July 2011	0	3,288	0.00
August 2011	0	3,632	0.00
September 2011	0	3,638	0.00
October 2011	0	3,915	0.00
November 2011	0	3,808	0.00
December 2011	0	3,784	0.00
January 2012	0	4,306	0.00
February 2012	0	3,777	0.00

* Patient days indicates the total number of days spent by patients at the Heart Institute in a given month. The incidence rate is used as a standardized measure for comparison across healthcare facilities.

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Central Line Infection (CLI)

A central line is a catheter inserted in a patient's vein in order to supply them with blood, fluid replacement and/or nutrients. Central lines also let health care providers monitor fluids and make determinations about the heart and blood. CLI occurs when a central line becomes infected and bacteria spreads to the bloodstream.

CLI is more likely to occur in an intensive care unit (ICU) or with patients that have a serious underlying illness or debilitation, are receiving bone marrow or chemotherapy, or have a central line in for an extended period of time. Symptoms of CLI include redness, pain or swelling around the catheter site or pain or tenderness along the path of the catheter. There may also be fluid drainage from the skin around the catheter, and the patient may experience sudden fever or chills.

CLI is treated with antibiotics but the infections are preventable. Patients should wash their hands often with soap and water or alcohol-based rub and try not to touch their line or dressing. Health care providers or anyone else touching the line should wash their hands thoroughly.

CLI Infection Rates

Quarter	Cases	Central Line Days*	Incidence/1,000 Central Line Days*
Q4 – Jan to Mar 2011	1	2,114	0.47
Q1 - Apr to June 2011	0	2,045	0.00
Q2 – Jul to Sep 2011	1	2,047	0.49
Q3 – Oct to Dec 2011	0	2,154	0.00

* Central line days indicates the total number of days of inserted central lines at the Heart Institute in a given quarter. The incidence rate is used as a standardized measure for comparison across healthcare facilities.

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Ventilator-Associated Pneumonia (VAP)

Patients who need assistance breathing with a mechanical ventilator for more than 48 hours are at increased risk for developing pneumonia, a serious lung infection. Patients who are on a ventilator for more than five days, who are residents of a nursing home, or who have been hospitalized or have taken antibiotics within the last 90 days are at the greatest risk.

Symptoms of VAP include fever, low body temperature, foul smelling mucous or phlegm coughed up from the lungs or airway, and hypoxia, which is decreased oxygen levels in the blood.

VAP can be prevented through frequent hand washing using soap and water or an alcohol-based hand rub, by keeping the patient's head elevated at 30 to 45 degrees, and by taking patients off mechanical ventilation as soon as possible.

VAP Infection Rates

Quarter	Cases	Mechanically Ventilated Days*	Incidence/1,000 Mechanically Ventilated Days*
Q4 - Jan to Mar 2011	1	1,014	0.99
Q1 – Apr to June 2011	0	970	0.00
Q2 – Jul to Sep 2011	0	1,026	0.00
Q3 – Oct to Dec 2011	1	1,098	0.91

* Mechanically ventilated days indicate the total number of days of patients on mechanical ventilation at the Heart Institute in a given quarter. The incidence rate is used as a standardized measure for comparison across healthcare facilities.

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Hand Hygiene Compliance

Research shows that hand hygiene is the single most effective way to reduce the risk of health care-associated infections. Alcohol-based hand rub is the preferred method for decontaminating hands when they are not visibly soiled. Hand washing with soap and running water is necessary when hands are visibly soiled.

Hand hygiene involves everyone in the hospital, including patients. Hand cleaning is one of the best ways you and your health care team can prevent the spread of many infections. Everyone, including visitors, should practice good hand hygiene before and after entering patient rooms.

Hand Hygiene Compliance Rates

The Heart Institute posts hand hygiene compliance rates quarterly, using the following formula:

$$\frac{\text{\# of times hand hygiene performed X 100}}{\text{\# of observed hand hygiene indications}}$$

These percentages reflect:

1) Hand hygiene before initial patient/patient environment contact by health care provider type (i.e., nurses, physicians, allied health professionals, housekeeping, support staff, etc.).
2) Hand hygiene after patient/patient environment contact by healthcare provider (i.e., nurses, physicians, allied health professionals, housekeeping, support staff etc.).

Hand Hygiene (HH) Compliance Rates

Month	HH Opportunity*	HH Performed	Observations	Compliance (%)
March 2011	Before Patient/ Environment Contact	95	115	82.61%
	After Patient/ Environment Contact	148	156	94.87%

* Hand hygiene opportunity indicates a point in time at which hand hygiene should occur. The compliance rate of HH Performed divided by Observations is used as a standardized measure for comparison across healthcare facilities.

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Surgical Checklist Compliance

Research shows that that the use of checklists during surgical interventions can improve health outcomes for patients. These checklists and preoperative briefings have been shown to reduce preventable delays, improve operating room efficiency and create shorter wait times for patients with acute illnesses, lower nurse turnover rate and increase job satisfaction.

The Surgical Checklist encompasses three aspects:

Briefing: The preoperative evaluation of the conscious patient prior to induction of the anesthesia with all members present.

Time Out: The time out immediately prior to incision.

Debriefing: The preparations for appropriate postoperative care prior to the patient leaving the operating room.

The Heart Institute posts surgical checklist compliance rates twice a year, using the following formula:

$$\frac{\text{\# of times all three phases of the surgical safety checklist was performed}}{\text{Total Surgeries}} \times 100 = \%\ \text{compliance}$$

Surgical Checklist Compliance Rates

Quarter	Number of Cases	SSCL Completed	Compliance (%)
Q4 – Jan to Mar 2010	405	395	97.53%
Q1 – Apr to June 2011	385	349	90.63%
Q2 – Jul to Sep 2011	379	347	91.56%
Q3 – Oct to Dec 2011	401	355	88.53%