

# Public Reporting of CLI and VAP Rates

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# Session Objective

Provide details regarding the public reporting requirements for and answer question related to:

- Central Line Associated Blood Stream Infection (CLI)
- Ventilator Associated Pneumonia (VAP)

# Agenda

- Ministry Update and Public reporting requirements
- CLI and VAP case definitions
- CCIS reporting, public reporting
- MOHLTC Communications

## Ministry Update

- On May 28th the government announced public reporting on 8 patient safety indicators – including Central Line associated Blood Stream Infection (CLI), Ventilator Associated Pneumonia (VAP) and the Use of Prophylactic Antibiotic (SSI) to begin April 30, 2009, in all Ontario hospitals.
- The Critical Care Secretariat, Safer Healthcare Now (Ontario only), and the ministry will use the same definitions for the following indicators to first be reported on April 30, 2009: Central Line-Associated Primary Bloodstream Infection (CLI) in the ICU and Ventilator Associated Pneumonia Infection Rate (VAP) in the ICU. These indicators will be reported on a quarterly basis.

# Ministry Update – Public reporting requirements

Required Reporting	Indicator	Reporting Period	Eligible Hospitals
Sep 30, 2008	CDAD	Monthly	All hospitals
Dec 30, 2008	MRSA; VRE	Quarterly	All hospitals
Dec. 30, 2008	HSMR	Annually	Hospital corporations with minimum of 2,500 HSMR cases annually
Apr 30, 2009	VAP; CLI	Quarterly	All hospitals who are reporting into CCIS
Apr 30, 2009	SSI	Quarterly	All hospitals that perform total hip/knee replacements
Apr 30, 2009	Hand Hygiene Compliance	Annually	All hospitals

## Ministry Update – Public reporting requirements

- Reporting of CLI and VAP will be through the Ministry's *Critical Care Information System*. The system was developed by the Critical Care Secretariat in partnership with University Health Network-SIMS and launched in pilot sites March 2007. This evidence based, multifaceted program was designed to enable evidence-based decision-making to support:
  - system-wide capacity planning, and
  - targeted performance improvement initiatives.

## Why Public Reporting of CLI, VAP and SSI indicators?

### **Central Line Associated Bloodstream Infection in ICU**

- 90% of catheter-related bloodstream infections occur with central venous catheters, which are increasingly used in acute care settings.
- CLI prolongs hospitalization.
- There are prevention interventions known to impact infection rates.

### **Ventilator Associated Pneumonia in ICU**

- VAP is a serious lung infection that can occur in patients who need to be on a ventilator.
- In the US, about 15 percent (1 or 2 out of 10) of patients on ventilators develop VAP.
- About half of these patients die from it.

## Indicator Case Definition - CLI

### Note:

- 1) Include only ICU patients
- 2) Blood stream infection (BSI) is considered to be associated with a central line if the line was in place during the 48-hour period before the development of the BSI. If the time interval between the onset of infection and device use is greater than 48 hours, there should be compelling evidence that the infection is related to the central line.

# Indicator Case Definition - CLI

**Laboratory-Confirmed BSI:** Must meet at least one of the following criteria:

**Criterion 1:** Patient has a central line and has a **recognized pathogen** cultured from one or more blood cultures, and the pathogen cultured from the blood is not related to an infection or pathology from another site.

**Criterion 2:** Patient has at least one of the following signs or symptoms: fever (100.4 [38C]), chills, or hypotension, and signs and symptoms and positive laboratory results are not related to an infection at another site, and at least one of the following:

In association with a central line:

A common skin contaminant isolated from two or more blood cultures drawn separately (at least one from a venipuncture).

A common skin contaminant is cultured from at least one blood culture from a patient with an intravascular line, and the physician institutes appropriate antimicrobial therapy.

Positive antigen test on blood (e.g., *H. influenzae*, *S. pneumoniae*, *N. meningitidis*, or Group B streptococcus).

**Note:** Blood cultures should be drawn if any of the following apply to the patient:

Hypothermia or hyperthermia

Increased or decreased WBC

Other signs of sepsis including unexplained hypotension

## Indicator Case Definition - CLI

### **A recognized pathogen - examples include:**

- Staphylococcus aureus
- Enterococcus
- Escherichia coli
- Klebsiella species
- Enterobacter species
- Pseudomonas aeruginosa
- Candida species

### **A common skin contaminant - examples include:**

- Corynebacterium species (formerly Diphtheroids)
- Bacillus species
- Propionibacterium species
- Coagulase-negative staphylococcus, or micrococcus

## Indicator Case Definition - VAP

Ventilator-associated pneumonia (VAP) is defined as a pneumonia occurring in patients requiring, intermittently or continuously, mechanical ventilation through a tracheostomy or endotracheal tube for more than 48 hours.

Diagnostic criteria for VAP are as follows:

- New, worsening or persistent infiltrate consolidation or cavitation on CXR compatible with pneumonia and **1 of**:
  - a. WBC  $\geq$  12,000 or  $<$  4,000
  - b. Temperature greater than 38 degrees Celsius or less than 36 degrees Celsius with no other recognized cause

**And** both of the following:

- a. New onset of purulent sputum, or change in character of sputum, or increase in respiratory secretions or increase in suctioning requirements
- b. Worsening gas exchange (e.g., increasing oxygen requirements, worsening PaO<sub>2</sub>/FiO<sub>2</sub> ratio, increasing in minute ventilation)

**And**

The patient is being treated with antibiotics for VAP

# Tracking CLI Information in CCIS

Microsoft Photo Editor - CCIS Admission Page 20090121.jpg

File Edit View Image Effects Window Help

100%

[Occupied Beds: 8](#)  
[Available Beds: 12](#)  
[Not Available Beds: 0](#)  
Last Updated: 2008-11-14 11:19

Current Patient: [Patient ID] 15682

Admission Information

ICU Admission Date & Time: 2008 04 03 09 30 (24 hour clock)

ICU Admission Source: Inpatient - Rehab

ICU Admission Diagnosis: Musculoskeletal / Skin

Admitted to the unit as a result of a CCRT assessment:  Yes  No

Admitted to the unit with an existing Central Venous Line:  Yes  No

Admitted to the unit with an existing Central Line Infection:  Yes  No

Overflow Patient Received  Yes  No  
The patient would have been admitted by another area but is physically located in this critical care unit.

Patient is Awaiting Transfer / Discharge  Yes  No  
The patient is confirmed as ready for discharge or transfer from the ICU by the most responsible physician in the ICU.

Cursor: (731,462) Selection: 0,0:1032,1208 W.H: 1033,1209

11:27 AM

# Tracking VAP Information in CCIS



- Patient List
- Add New ICU Patient
- Group LSI Update
- Group MODS Update
- Group PELOD Update
- Bed Availability
- Occupied Beds: 13
- Available Beds: 1
- Not Available Beds: 0
- Last Updated: 2008-09-23 13:18
- Current Patient: Test, Vegas 7005943
- Patient Information
- Enter LSI(NEMS) ▶
- Enter MODS
- Enter PELOD
- Enter PIM 2
- Outcomes Update
- LSI (NEMS) History
- MODS History
- PELOD History
- Discharge From ICU

## Enter Life Support Intervention

Please enter this patient's life supporting indicators below.

Patient Name: **Test, Vegas** MRN: **7005943**

Please verify the date for this life support intervention update.

Date of Intervention Report:     
2008 09 23

### At any time during this period did the patient receive:

- Basic Monitoring  Yes  No
- Ventilation  Mechanical: Invasive Ventilation
- Mechanical: Non Invasive Ventilation
- Supplementary Ventilatory Care
- No Ventilation
- Central Venous Line  Yes  No
- Arterial Line  Yes  No
- Intravenous Vasoactive / Inotropic Medication  Single IV Vasoactive/Inotropic Medication
- Multiple IV Vasoactive/Inotropic Medication
- No IV Vasoactive/Inotropic Medication
- Other Intravenous Medication  Yes  No
- Intracranial Pressure Monitor  Yes  No
- Dialysis  Yes  No
- Extracorporeal Membrane Oxygenation  Yes  No
- Intra Aortic Balloon Pump  Yes  No
- Other Interventions within this unit  Yes  No
- Interventions outside this unit  Yes  No

### Outcomes

Incident of Ventilator Associated Pneumonia Diagnosed On:

Incident of Central Line Infection Diagnosed On:

An Unplanned Extubation Occurred On:

# Capturing CLI and VAP Information in CCIS


- An **Outcomes** section is included on the Life Support Intervention Page to assist in capturing incidents of **Ventilator Associated Pneumonia and Central Line Infection**.

**Enter Life Support Intervention**

Please enter this patient's life supporting indicators below.

Patient Name: **Test, HelloOPIS** MRN: **7006253**

Please verify the date for this life support intervention update.

Date of Intervention Report:      
2008 07 10

**At any time during this period did the patient receive:**

Basic Monitoring  Yes  No

Ventilation  Mechanical: Invasive Ventilation  
 Mechanical: Non Invasive Ventilation  
 Supplementary Ventilatory Care  
 No Ventilation

Central Venous Line  Yes  No

Arterial Line  Yes  No

Intravenous Vasoactive/Inotropic Medication  Single IV Vasoactive/Inotropic Medication  
 Multiple IV Vasoactive/Inotropic Medication  
 No IV Vasoactive/Inotropic Medication

Other Intervenous Medication  Yes  No

Intracranial Pressure Monitor  Yes  No

Dialysis  Yes  No

Extracorporeal Membrane Oxygen  Yes  No


Intra Aortic Balloon Pump  Yes  No

Other Interventions within this unit  Yes  No

Interventions outside this unit  Yes  No

**Outcomes**

Incident of Ventilator Associated Pneumonia Diagnosed On:

  
2008 07 07

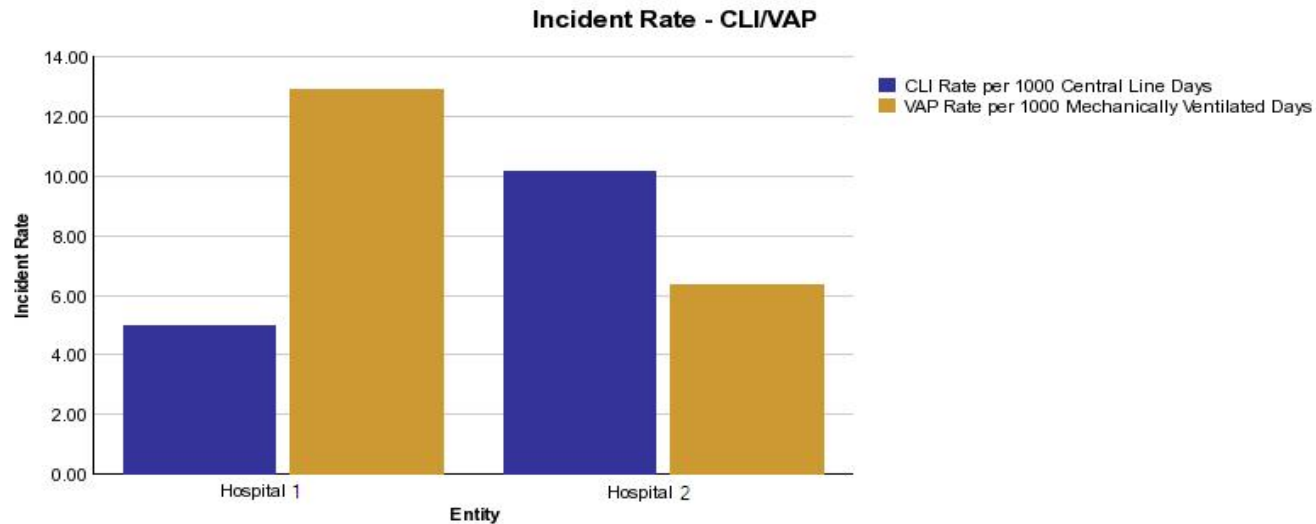
Incident of Central Line Infection Diaqnosed On:

**2008-07-08**

An Unplanned Extubation Occurred On:

# An Example of the CCIS Online Report to aid with posting publicly reportable indicator information on hospital website

## Comparison Report



	Central Line Infection Incidents (Diagnosed after day 2 of Critical Care Admissions)	Central Line Days	CLI Rate*	# of CLI Incidents Diagnosed within 2 days of Admission to Critical Care Unit	# of Patients admitted with Existing CLI (Excludes same site Level 3 & Level 2 Admission Sources)	Total # of CLI Incidents
<u>Hospital 1</u>	7	1411	<b>4.96</b>	1	9	17
<u>Hospital 2</u>	5	493	<b>10.14</b>	0	5	10

	Ventilator Associated Pneumonia Incidents (Diagnosed after day 2 of Critical Care Admissions)	Mechanically Ventilated Days	VAP Rate**	# of VAP Incidents Diagnosed within 2 days of Admission to Critical Care Unit	Total # of VAP Incidents
<u>Hospital 1</u>	9	697	<b>12.91</b>	0	9
<u>Hospital 2</u>	3	474	<b>6.33</b>	0	3

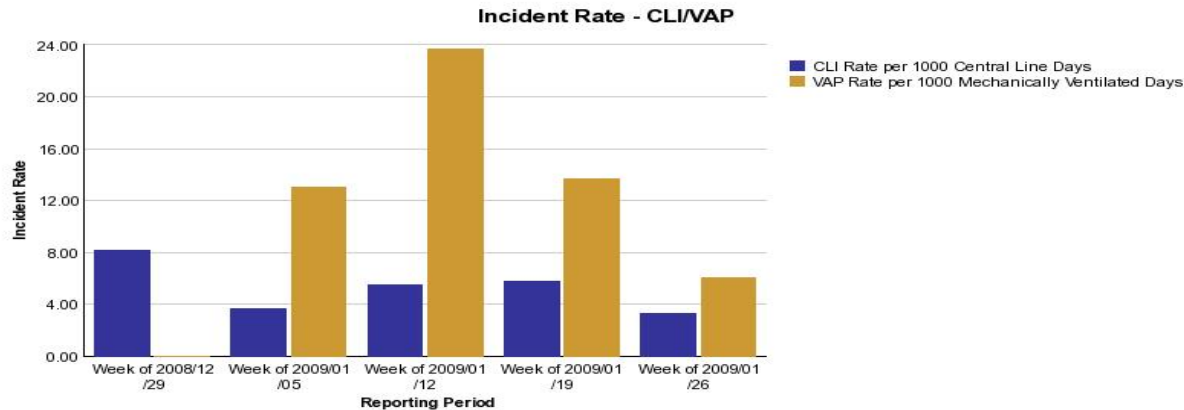
\* **CLI Rate** = (Number of CLI Incidents Diagnosed after day 2 of Critical Care Admissions / Number of Central Line Days) x 1000

\*\* **VAP Rate** = (Number of VAP incidents Diagnosed after day 2 of Critical Care Admissions / Number of Mechanically Invasive Ventilated Days) x 1000

**Note:** Incidents Diagnosed within the first 2 days of admission to a critical care unit are not included in the calculated rates.

# An Example of the CCIS Online Report to aid with posting publicly reportable indicator information on hospital website

## Trend Report



	Central Line Infection Incidents (Diagnosed after day 2 of Critical Care Admissions)	Central Line Days	CLI Rate*	# of CLI Incidents Diagnosed within 2 days of Admission to Critical Care Unit	# of Patients admitted with Existing CLI (Excludes same site Level 3 & Level 2 Admission Sources)	Total # of CLI Incidents
Week of 2008/12/29	1	122	8.20	0	4	5
Week of 2009/01/05	1	274	3.65	0	3	4
Week of 2009/01/12	2	364	5.49	0	1	3
Week of 2009/01/19	2	348	5.75	0	1	3
Week of 2009/01/26	1	303	3.30	0	0	1

	Ventilator Associated Pneumonia Incidents (Diagnosed after day 2 of Critical Care Admissions)	Mechanically Ventilated Days	VAP Rate**	# of VAP Incidents Diagnosed within 2 days of Admission to Critical Care Unit	Total # of VAP Incidents
Week of 2008/12/29	0	63	0	0	0
Week of 2009/01/05	2	153	13.07	0	2
Week of 2009/01/12	4	169	23.67	0	4
Week of 2009/01/19	2	146	13.70	0	2
Week of 2009/01/26	1	166	6.02	0	1

\* **CLI Rate** = (Number of CLI Incidents Diagnosed after day 2 of Critical Care Admissions / Number of Central Line Days) x 1000

\*\* **VAP Rate** = (Number of VAP Incidents Diagnosed after day 2 of Critical Care Admissions / Number of Mechanically Invasive Ventilated Days) x 1000

**Note:** Incidents Diagnosed within the first 2 days of admission to a critical care unit are not included in the calculated rates.

## Public reporting of CLI and VAP - MOHLTC

1. Data are collected in CCIS
2. Data are aggregated by the Critical Care Secretariat (CCS - MOHLTC) and sent to Health Analytics Branch (HAB - MOHLTC)
3. HAB analyzes aggregate data and sends to OHA for hospital confirmation process
4. Hospitals confirm the data to be posted to the public website
5. HAB posts hospital site specific data to MOHLTC public website
6. Hospital posts hospital site specific data to hospital's public website

**NOTE: Data are collected in CCIS, No other data submission is required.**

# Summary

- For CLI and VAP infection rates, hospitals will be required to submit data to the CCIS.
- The Critical Care Secretariat will provide the Health Analytics Branch of the MOHLTC with aggregate data for posting on the ministry website.
- The CCIS provides reports to help hospitals for tracking and calculating cases and rates for reporting information on their websites.
- As with other patient safety indicators, hospitals will have the opportunity to confirm their data prior to posting on the public website through the same verification process through the OHA as with CDAD, MRSA and VRE.
- Reporting will occur by hospital site on a quarterly basis.
- All hospitals with CCIS are required to report CLI and VAP.

# Summary - Reporting Timeframe

Period end date	CCIS transfer and WERS reporting date	Quarterly Reporting Data for
31 March 2009	15 April 2009	<ul style="list-style-type: none"><li>• Jan, Feb, Mar 2009 (CLI and VAP)</li><li>• Mar (SSI)</li></ul>
30 June 2009	15 July 2009	Apr, May, Jun 2009
30 September 2009	15 October 2009	Jul, Aug, Sep 2009
31 December 2009	15 January 2010	Oct, Nov, Dec 2009