



Canadian Nosocomial Infection Surveillance Program (CNISP)

Surveillance for Methicillin-resistant *Staphylococcus aureus* (MRSA) in Patients Hospitalized in Canadian Acute-Care Hospitals Participating in CNISP 2006-2007 Preliminary Results

Introduction

In 2007, 47 sentinel hospitals from nine Canadian provinces participated in the CNISP surveillance for MRSA and submitted data on MRSA cases for hospitalized patients.¹ The MRSA cases included in this surveillance consist of only the MRSA cases that are identified for the first time in one of the CNISP sentinel hospitals. It does not include MRSA cases previously identified at other CNISP sentinel hospitals, cases identified in emergency wards, clinics and outpatient settings or previously identified cases that are re-admitted with MRSA.

The denominator data for the calculation of the MRSA rates includes the number of patient admissions and the number of patient days for each hospital. Of the 47 participating CNISP hospitals, 17 admitted both adults and children, 23 admitted only adult, and 7 admitted only children. The list of participating hospitals is provided in the Appendix.

Results

There was a slight increase (1%) in the total number of cases reported to CNISP in 2007. There were a total of 5955 MRSA cases during the 2007 MRSA surveillance period compared to 5867 in 2006. The number of cases of MRSA acquired in the reporting CNISP hospitals decreased in 2007 by 8%; whereas there was an increase in the number of community-associated MRSA (CA-MRSA) of 6%.

Table 1. Site of MRSA acquisition, 2006-2007

	2006	2007
Acquired in the Reporting CNISP Hospital	3594 (61%)	3147 (53%)
Acquired in Another Acute Care Hospital	475 (8%)	541 (9%)
Acquired in a Long-term Care Facility	454 (8%)	413 (7%)
Acquired from Another Healthcare Exposure	-	103 (2%)
Community-associated	893 (15%)	1227 (21%)
Unknown	411 (7%)	524 (9%)
Overall	5867	5955

¹ MRSA case definition: Isolate of *Staphylococcus aureus* from any body site and resistance of the isolate to oxacillin.

Overall MRSA Results

The overall MRSA results include all “newly identified” MRSA cases which are:

1. Healthcare-Associated (formerly Nosocomial):
 - Acquired in the reporting CNISP hospital
 - Acquired in another acute-care hospital other than the reporting hospital
 - Acquired in a long-term care facility
 - Acquired from another healthcare exposure
2. Community-associated²
3. Cases identified as acquisition unknown.

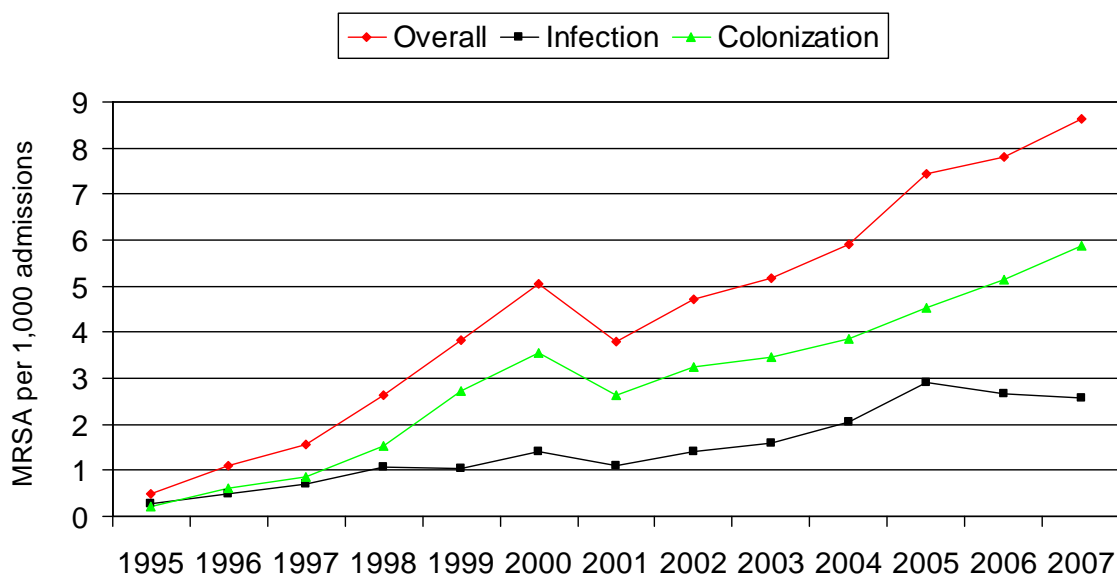
Table 2. 2006 overall MRSA incidence rate per 1,000 patient admissions and 10,000 patient days by region

	Rate per 1,000 patient admissions			Rate per 10,000 patient days		
	All	Infection	Colonization	All	Infection	Colonization
Western	6.31	3.45	2.86	9.44	5.17	4.28
Central	9.36	2.05	7.30	10.90	2.39	8.51
Eastern	6.52	2.50	4.01	6.86	2.63	4.22
Overall	7.75	2.67	5.14	9.90	3.39	6.51

Table 3. 2007 overall MRSA incidence rate per 1,000 patient admissions and 10,000 patient days by region

	Rate per 1,000 patient admissions			Rate per 10,000 patient days		
	All	Infection	Colonization	All	Infection	Colonization
Western	7.30	3.56	3.63	11.74	5.72	5.85
Central	10.12	1.75	8.10	12.58	2.18	10.06
Eastern	6.70	2.70	4.00	7.57	3.05	4.52
Overall	8.62	2.57	5.87	11.63	3.47	7.92

Figure 1. Overall MRSA incidence rates per 1,000 patient admissions from 1995 to 2007



² Definition for CA-MRSA: Patients were hospitalized for less than 72 hours AND have no history of an admission in an acute-care hospital or long-term facility in the previous 12 months AND have no indwelling medical devices.

Figure 2. Overall MRSA incidence rates per 10,000 patient days from 1995 to 2007

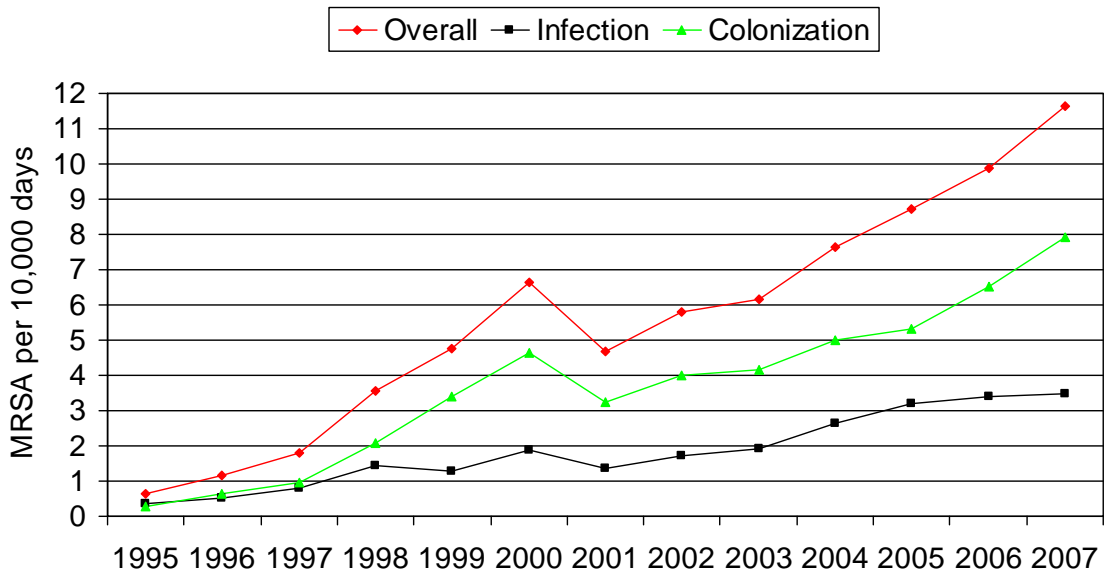
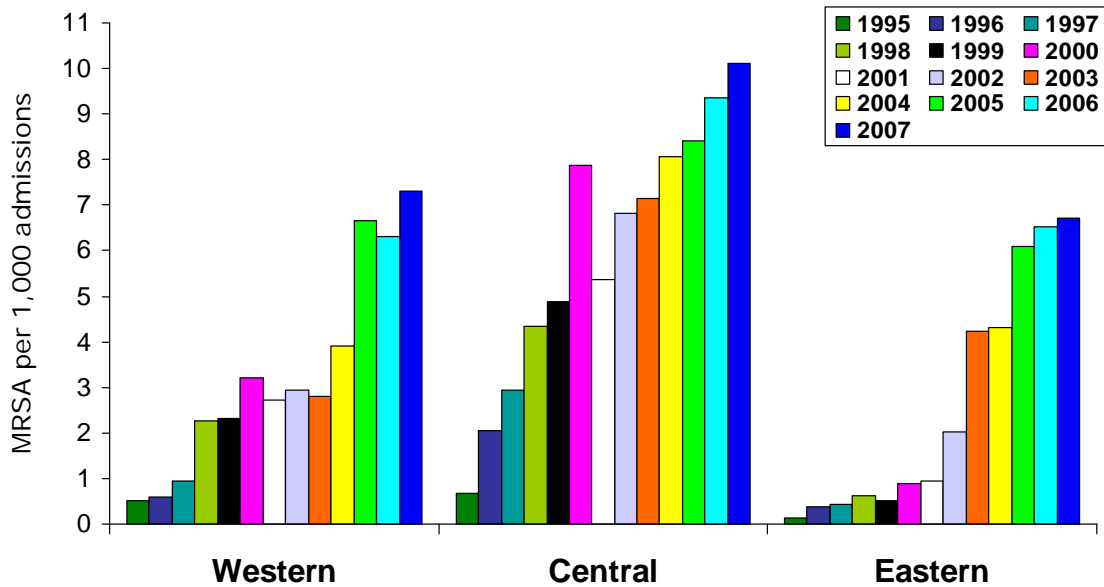
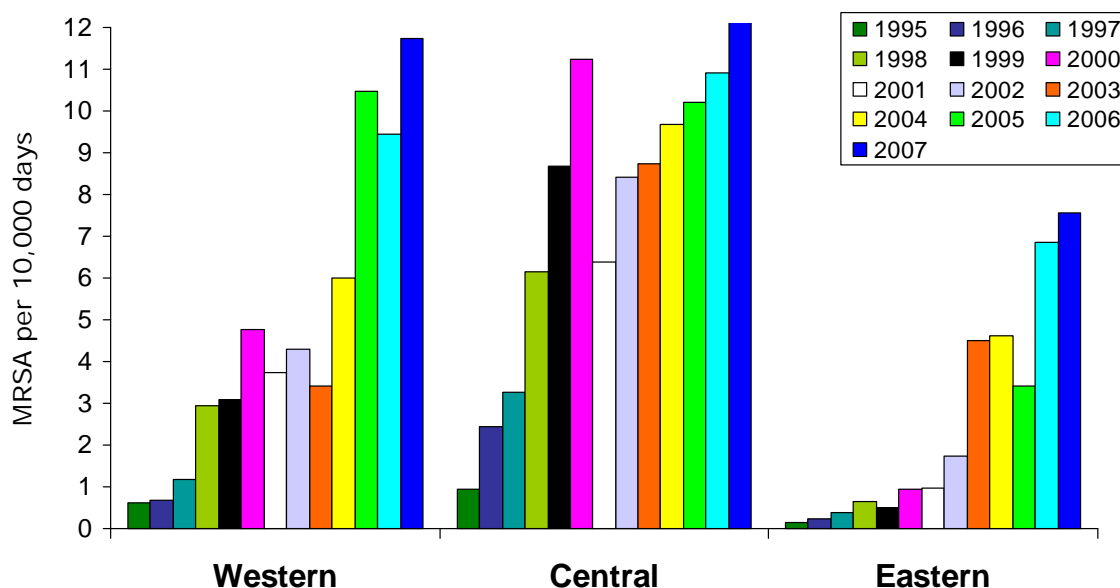


Figure 3. Overall MRSA incidence rates per 1,000 patient admissions by region from 1995 to 2007³



³ **Western** includes CNISP hospitals in British Columbia, Alberta, Saskatchewan, Manitoba; **Central** includes CNISP hospitals in Ontario and Quebec; and **Eastern** includes CNISP hospitals in Newfoundland and the Maritimes.

Figure 4. Overall MRSA incidence rates per 10,000 patient days by region from 1995 to 2007



Healthcare-associated (HA-MRSA) to the Reporting CNISP Hospitals MRSA Results

The healthcare-associated to the reporting CNISP hospitals MRSA results includes all “newly identified” MRSA cases that were acquired in the participating CNISP hospitals.

Table 4. 2006 HA-MRSA to the reporting hospital incidence rates per 10,000 patient days

	Rate per 10,000 patient days		
	All	Infection	Colonization
Western	5.18	2.74	2.44
Central	6.98	1.51	5.47
Eastern	4.61	1.74	2.87
Overall	6.07	1.97	4.09

Table 5. 2007 HA-MRSA to the reporting hospital incidence rates per 10,000 patient days

	Rate per 10,000 patient days		
	All	Infection	Colonization
Western	5.89	2.75	3.07
Central	6.46	1.08	5.15
Eastern	5.54	2.30	3.24
Overall	6.15	1.79	4.20

Figure 5. HA-MRSA to the reporting hospital incidence rates per 1,000 patient admissions from 1995 to 2007

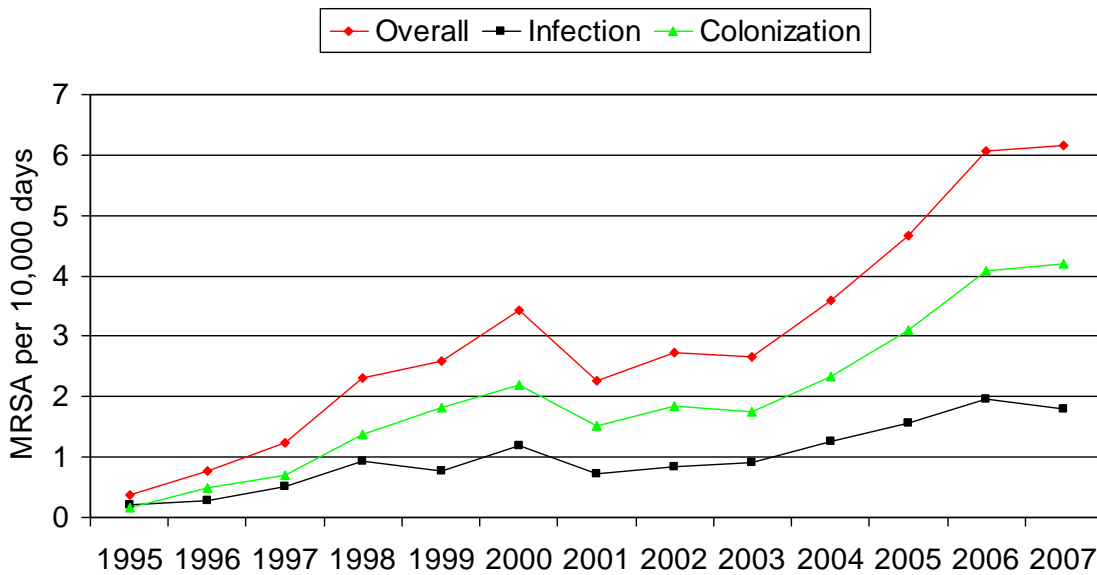
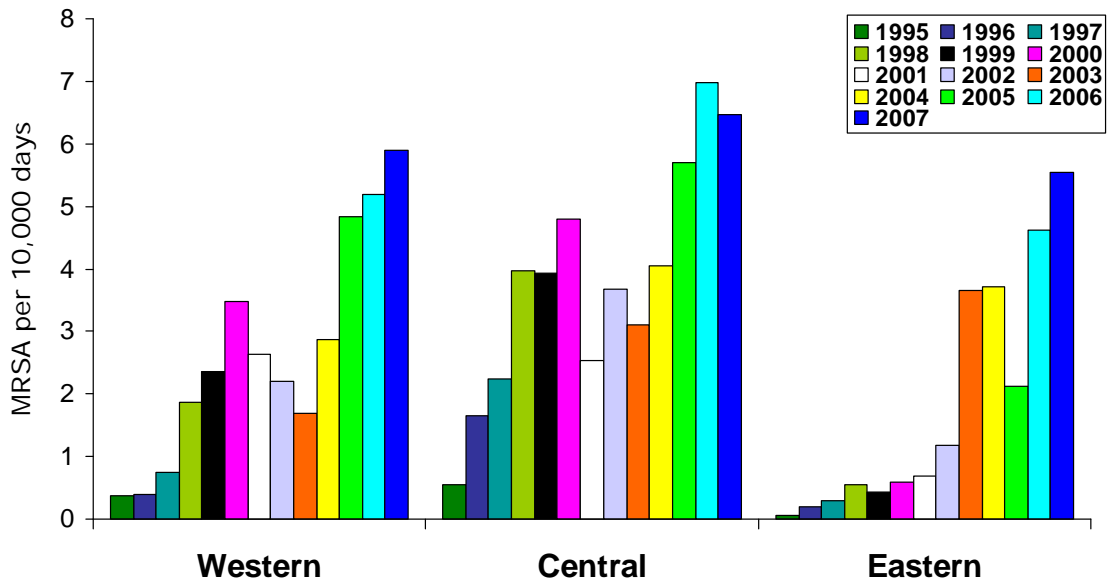


Figure 6. HA-MRSA to the reporting hospital incidence rates per 10,000 patient days from 1995 to 2007



Members of the Canadian Hospital Epidemiology Committee who participate in the surveillance for methicillin-resistant *Staphylococcus aureus* and their affiliated hospitals

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- Royal Jubilee Hospital

Dr. Elizabeth Bryce, Vancouver, British Columbia

- Vancouver General Hospital
- Richmond General Hospital
- University of British Columbia Hospital
- Lion's Gate Hospital
- Powell River Hospital
- St. Mary's Hospital
- Squamish Hospital

Dr. Eva Thomas, Vancouver, British Columbia

- Children's and Women's Health Center

Dr. Elizabeth Henderson and Dr. John Conly, Calgary, Alberta

- Peter Lougheed Centre
- Rockyview General Hospital
- Foothills Hospital
- Alberta Children's Hospital

Dr. Geoffrey Taylor, Edmonton, Alberta

- University of Alberta Hospital

Dr. Sarah Forgie, Edmonton, Alberta

- Stollery Children's Hospital

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- Princess Margaret Hospital

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- St Joseph's Healthcare, Hamilton
- Hamilton Health Sciences, Henderson Site
- Hamilton Health Sciences, General Site

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 - The Ottawa Heart Institute
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- Dr. Dorothy Moore, Montreal, Quebec**
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- Dr. Sophie Michaud, Sherbrooke, Québec**
- CHUS -Hôpital Fleurimont
- Dr. Nathalie Turgeon, Québec, Québec**
- Hôtel-Dieu de Québec du CHUQ
- Dr. William Thompson, Moncton, New Brunswick**
- South East Regional Health Authority: The Moncton Hospital
- Dr. Lynn Johnston, Halifax, Nova Scotia**
- QE II Health Sciences Centre
 - Halifax Infirmary
 - Victoria General Hospital
 - Rehabilitation Centre
 - Veterans Memorial Building
- Dr. Joanne Langley, Halifax, Nova Scotia**
- IWK Health Centre
- Dr. Jim Hutchinson, St. John's, Newfoundland**
- The General Hospital & Miller Centre Sites
 - Janeway Site
 - St. Clare Site