

Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bloodstream Infections

Surveillance Results: 2013-2014

From April 1, 2013, to March 31, 2014, 88 healthcare facilities participated in the surveillance of methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections, for a combined total of 4,939,160 inpatient days (Table 1). Together, these facilities reported 97 cases of healthcare-associated MRSA. The incidence rate was 0.20 / 10,000 patient-days. This incidence rate has declined over the past five years. The proportion of methicillin resistance in healthcare-associated *S. aureus* bloodstream infections was 16.9%. Data was extracted from Si-SPIN on May 23th, 2014 and updated on June 3st 2014 for complications.

Updated : February 24, 2016

Version française [1]

Table 1 - Participation of Healthcare Facilities in the Surveillance of MRSA Bloodstream Infections, Québec, 2009-2010 to 2013-2014

	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Installations (N)	87	87	88	88	88
Admissions (N)	606,187	615,164	629,067	640,026	648,384
Inpatient days (N)	4,899,811	4,951,162	4,980,856	5,004,986	4,939,160
MRSA bloodstream infections					
Healthcare-associated (cat. 1a et 1b) (N)	174	168	144	147	97

Total (cat. 1a, 1b, 1c, 1d, 2, 3 et 4) (N)	347	334	300	300	263
<i>S. aureus</i> bloodstream infection					
Healthcare-associated (cat. 1a et 1b) (N)	643	676	610	660	533
Total (cat. 1a, 1b, 1c, 1d, 2, 3 et 4) (N)	1,750	1,743	1,774	1,941	1,822

Open all

Incidence Rates

In 2013-2014, the incidence rate for healthcare-associated MRSA was 0.20 / 10,000 patient-days (Figure 1 and Table 2). The incidence rate of healthcare-associated MRSA in pediatric facilities was equal to zero in 2013-2014.

Figure 1 - Incidence Rate of Healthcare-associated MRSA (cat. 1a + 1b), by Type of Healthcare Facility, Québec, 2013-2014 (Incidence Rate per 10,000 Patient-Days [95% CI])

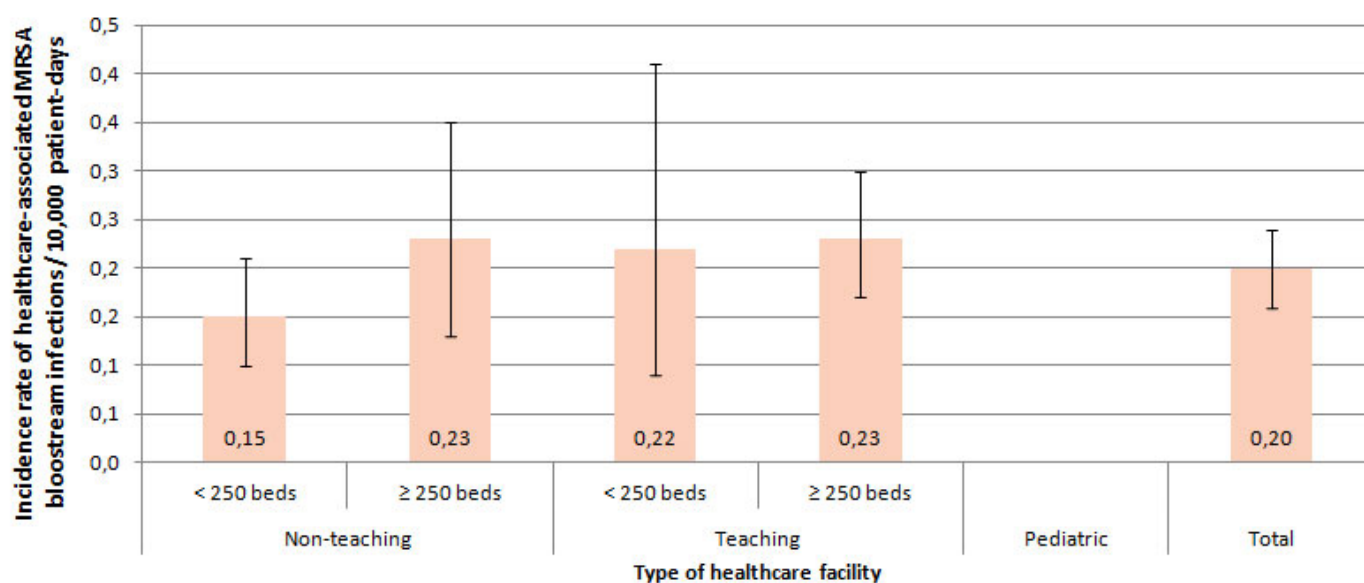


Table 2 - Percentile Distribution and Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections (cat. 1a + 1b) by type of Healthcare Facility, Québec, 2013-2014 (Incidence Rate per 10,000 Patient-Days [95% CI])

Type of Healthcare Facility	Distribution Indicator						Incidence Rate [95% CI]
	Min.	25%	50%	75%	90%	Max.	
Non-teaching facilities							
< 250 lits (N = 55)	0.16	0.29	0.39	0.54	0.97	1.29	0.15 [0.10-0.21]

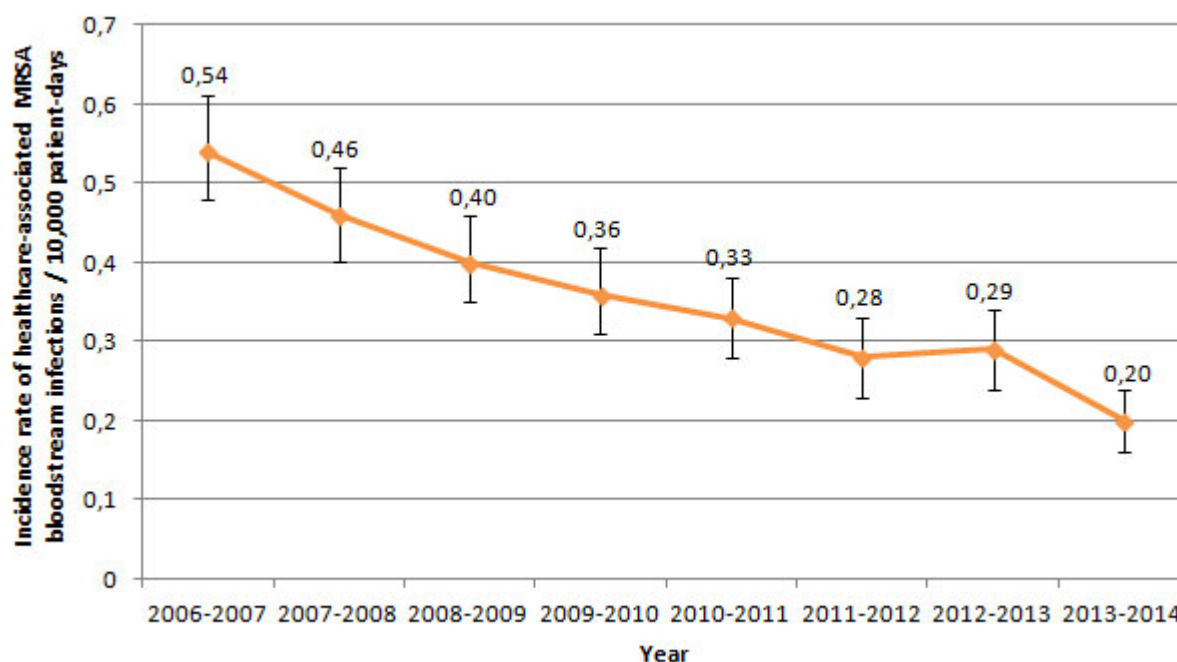
≥ 250 lits (N = 7)	0.16	0.19	0.19	0.23	0.35	0.35	0.23 [0.13-0.35]
Teaching facilities							
< 250 lits (N = 6)	0.15	0.15	0.23	0.64	0.64	0.64	0.22 [0.09-0.41]
≥ 250 lits (N =18)	0.11	0.20	0.23	0.44	0.53	1.01	0.23 [0.17-0.30]
Pediatric facilities (N =2)	0	0	0	0	0	0	0
Total (N = 88)	0.11	0.19	0.26	0.44	0.71	1.29	0.20 [0.16-0.24]

Incidence Rate Trends

The incidence rate of healthcare-associated MRSA bloodstream infections decreased in the past five years (Figure 2). The incidence rate of healthcare-associated MRSA bloodstream infections was 0.54 per 10,000 patient-days during the first year of mandatory surveillance (2006-2007).

Compared with 2012-2013, the incidence rate of healthcare-associated MRSA bloodstream infections in 2013-2014 decreased significantly (Table 3).

Figure 2 - Incidence Rate of Healthcare-associated MRSA Bloodstream Infections (cat. 1a + 1b) for Participating Healthcare Facilities, Québec, 2006-2007 to 2013-2014 (Incidence Rate per 10,000 Patient-Days [95% CI]) (N = 82)



Note: data analyzed are those from healthcare facilities that participated in the surveillance from 2006-2007 to 2013-2014.

Table 3 - Incidence Rate of Healthcare-associated MRSA Bloodstream Infections (cat. 1a + 1b) by type of Healthcare Facility for Participating Healthcare Facilities, Québec, 2009-2010 to

2013-2014 (Incidence Rate per 10,000 Patient-Days [95% CI]) (N = 86)

	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Non-teaching facilities					
< 250 beds (N = 53)	0.23 [0.16-0.31]	0.24 [0.17-0.32]	0.23 [0.16-0.31]	0.22 [0.16-0.30]	0.15 [0.10-0.21]
≥ 250 beds (N = 7)	0.32 [0.20-0.47]	0.26 [0.15-0.39]	0.27 [0.16-0.40]	0.35 [0.23-0.50]	0.23 [0.13-0.35]
Teaching facilities					
< 250 beds (N = 6)	0.52 [0.29-0.82]	0.41 [0.21-0.68]	0.31 [0.14-0.54]	0.67 [0.41-1.00]	0.24 [0.10-0.45]
≥ 250 beds (N = 18)	0.47 [0.38-0.57]	0.46 [0.37-0.56]	0.36 [0.28-0.45]	0.28 [0.21-0.36]	0.23 [0.17-0.30]
Pediatric facilities (N = 2)	0	0	0	0.31 [0.08-0.68]	0*
Total (N = 86)	0.36 [0.31-0.42]	0.34 [0.29-0.39]	0.29 [0.24-0.34]	0.29 [0.24-0.34]	0.20 [0.16-0.24]*

Note: data analyzed are those from healthcare facilities that participated in the surveillance from 2009-2010 to 2013-2014.

* Significant statistical difference ($p < 0.05$) between healthcare-associated MRSA bloodstream infections of 2012-2013 and 2013-2014.

Number of Cases

In total, 263 cases of MRSA bloodstream infections were reported, of which 163 (62.0%) were healthcare-associated (cat. 1a, 1b, 1c, 1d, 2) and 127 (48.3%) were related to the reporting facility (cat. 1a, 1b, 1c, 1d) (Table 4)

Table 4 - Cases of MRSA and *S. aureus* Bloodstream Infections by Presumed Origin of Acquisition, Québec, 2013-2014 (N, %)

Category	Origin of Acquisition	MRSA		<i>S. aureus</i>	
		N	%*	N	%
1a	Healthcare-associated with a current hospitalisation in the reporting facility	87	4.8%	480	26.3%
1b	Healthcare-associated with a previous hospitalisation in the reporting facility	10	0.5%	53	2.9%
1c	Healthcare-associated with ambulatory care in the reporting facility	25	1.4%	190	10.4%
1d	Healthcare-associated with long term care unit in the reporting facility	5	0.3%	19	1.0%
2	Healthcare-associated with another facility	36	2.0%	84	4.6%
3	Community-associated	74	4.1%	808	44.3%
4	Unknown origin of acquisition	26	1.4%	188	10.3%

Total

263 14.4% 1822 100.0%

* Percentage of MRSA compared to total *S. aureus*.

Catheter related to bloodstream infections represented the most frequently reported type of infection (18.9%) followed by primary bloodstream infections (14.8%) among 122 healthcare-associated MRSA bloodstream infections (cat. 1a, 1b and 1c) in 2013-2014 (Table 4). This was followed by pneumonia (10.7%), primary bloodstream infections related to hemodialysis venous access (9.0%), symptomatic urinary infections (8.2%), primary deep incisional infections (7.4%), skin infections (6.6%), endocarditis (4.9%), surgical organ/space site infections (4.9%) soft tissue infections (3.3%), primary superficial incisional infections (1.6%), other urinary infections (1.6%) and osteomyelitis (1.6%) (Figure 3 and Table 5). More than half of primary bloodstream infections (53.8%), deep incisional primary infections (77.8%) and soft tissue infections (100%) occurred in teaching healthcare facilities with 250 beds or more (Table 5).

A total of 37 deaths were observed, yielding a 30-days case fatality of 30.3%.

Figure 3 - Breakdown of Healthcare-Associated MRSA Bloodstream Infections (cat. 1a, 1b and 1c) by Type of Infection, Québec, 2013-2014 (N = 122)

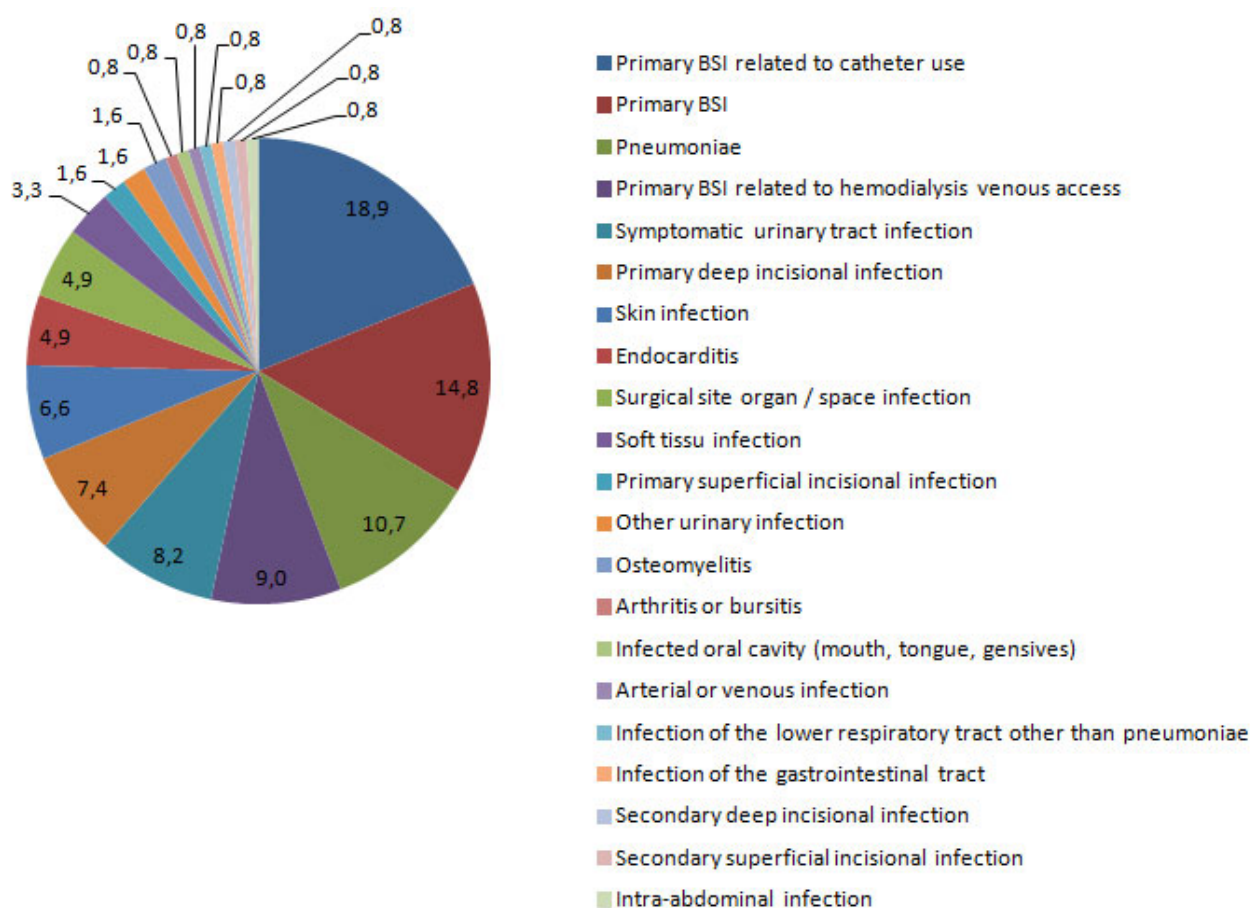


Table 5 - Number of cases Corresponding to Each type of Infection Associated with Healthcare-Associated MRSA Bloodstream Infections (cat. 1a, 1b and 1c) by Type of Facility, Québec, 2013-2014 (N=122)

	Primary Bloodstream Infection			Secondary Bloodstream Infection			
	Primary	PBSI-C	PBSI-HD	Pneumonia	Symptomatic urinary tract infection	Primary deep incisional infection	Skin infection
Non-teaching facilities							
< 250 beds	4	6	1	3	3	1	0
³ 250 beds	9	0	2	2	2	0	3
Teaching facilities							
< 250 beds	1	1	0	2	0	1	1
³ 250 beds	4	16	8	6	5	7	4
Pediatric facilities	0	0	0	0	0	0	0
Total	18	23	11	13	10	9	8

	Secondary Bloodstream Infection							
	Endocarditis	Surgical site organ / space infection	Soft tissue infection	Primary superficial incisional infection	Other urinary infection	Osteomyelitis	Autres sites	Total
Non-teaching facilities								
< 250 beds	3	2	0	1	2	1	3	30
³ 250 beds	1	0	0	0	0	0	2	21
Teaching facilities								
< 250 beds	1	1	0	0	0	0	0	8
³ 250 beds	1	3	4	1	0	1	3	63
Pediatric facilities	0	0	0	0	0	0	0	0
Total	6	6	4	2	2	2	8	122

PBSI-C: Primary bloodstream infection related to catheter use

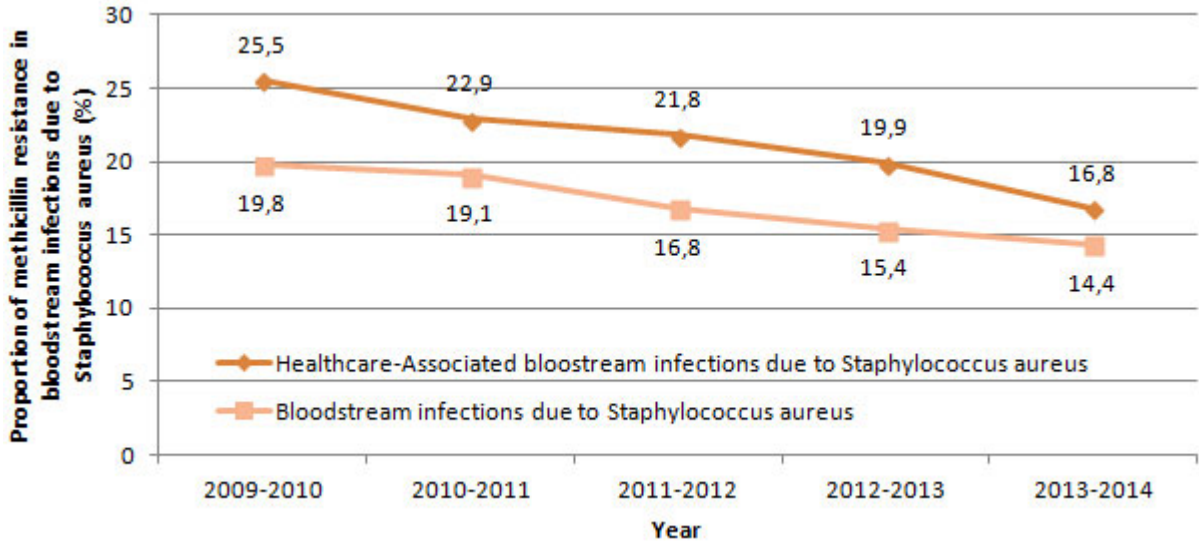
PBSI-HD: Primary bloodstream infection related to hemodialysis venous access

Microbiology

The proportion of methicillin resistance in healthcare-associated bloodstream infections due to *S. aureus* dropped between 2009-2010 and 2013-2014 to 16.9% (Figure 4)

Figure 4 - Proportion of Methicillin Resistance in Healthcare-Associated Bloodstream

Infections (cat. 1a and 1b) and all Bloodstream Infections (cat. 1a, 1b, 1c, 1d, 2, 3 and 4), Québec, 2009-2010 to 2013-2014 (N = 86)



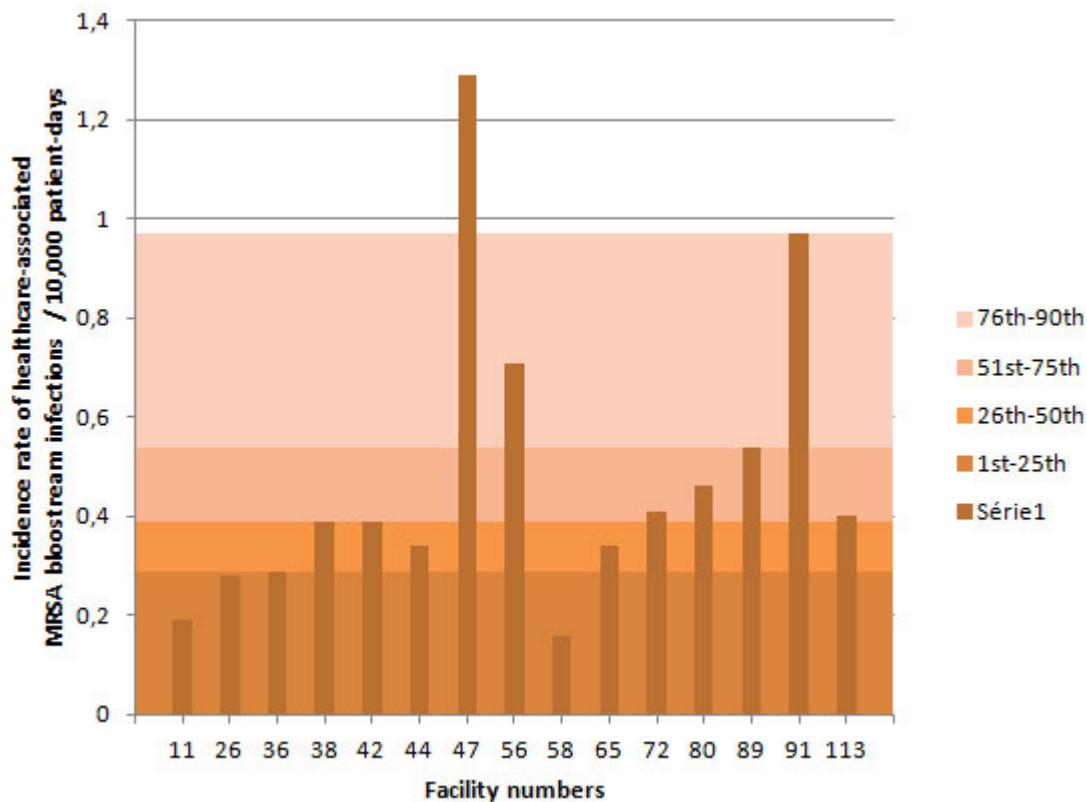
Note: data analyzed are those from healthcare facilities that participated in the surveillance from 2009-2010 to 2013-2014.

Laboratory surveillance of MRSA strains is carried out at the Laboratoire de santé publique du Québec (LSPQ) approximately every two years. This monitoring took place in 2013-2014 and results will be integrated into this report shortly.

Data per Healthcare Facility

The incidence rate of healthcare-associated MRSA bloodstream infections and percentile ranking by type of facility are shown in Figures 5 through 8.

Figure 5 - Incidence Rate and Percentile Ranking of Healthcare-associated MRSA Bloodstream Infections (cat. 1a and 1b) by Facility for non-Teaching Healthcare Facilities with Less than 250 Beds, Québec, 2013-2014



NB: Facilities 16, 23, 32, 35, 37, 39, 41, 45, 46, 49, 51, 52, 53, 61, 63, 64, 67, 70, 71, 74, 75, 76, 77, 81, 82, 83, 84, 85, 86, 88, 95, 96, 97, 99, 103, 107, 109, 111, 112 and 130 did not report any cases in 2013-2014.

Figure 6 - Incidence Rate and Percentile Ranking of Healthcare-associated MRSA Bloodstream Infections (cat. 1a and 1b) by Facility for non-Teaching Healthcare Facilities with 250 or more Beds, Québec, 2013-2014

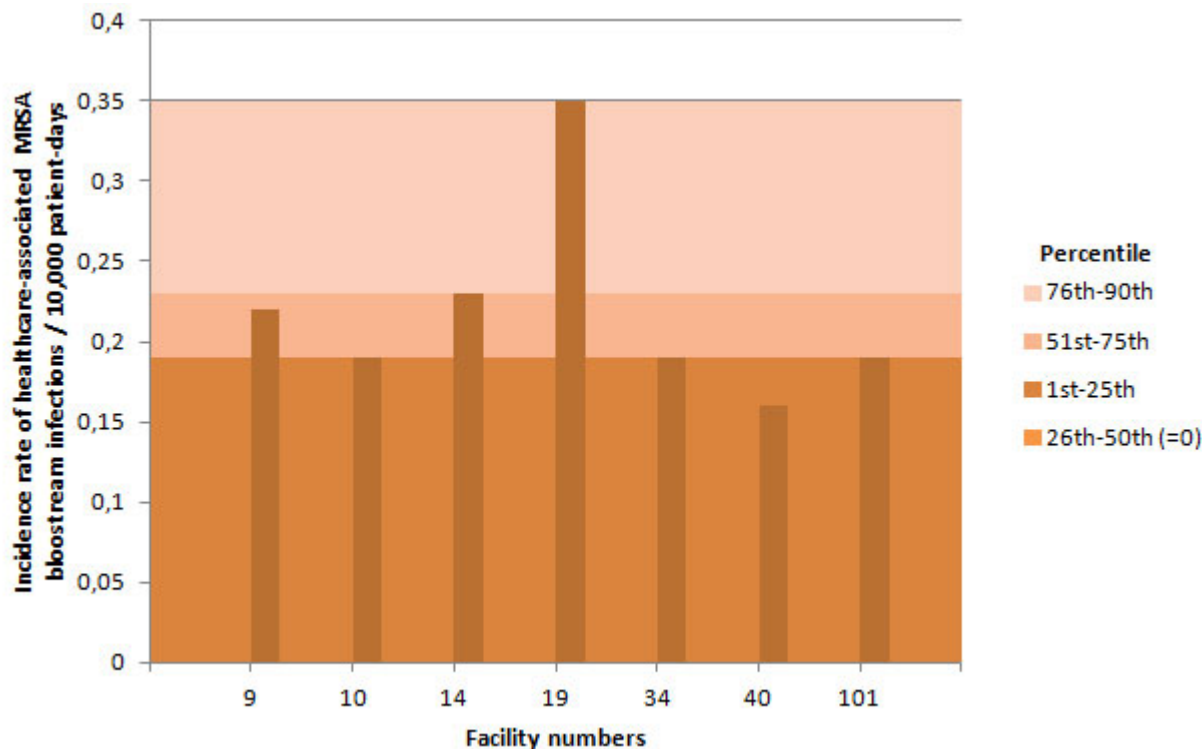
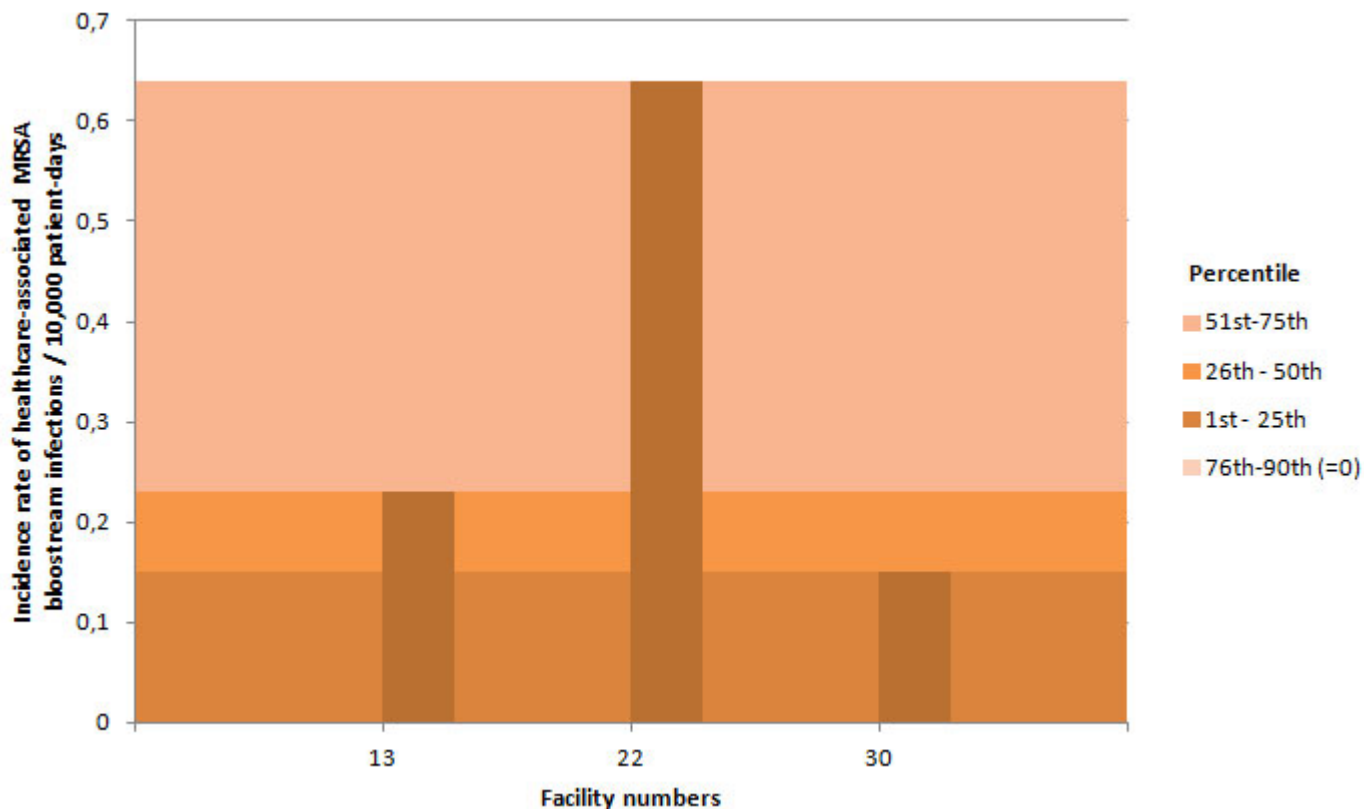
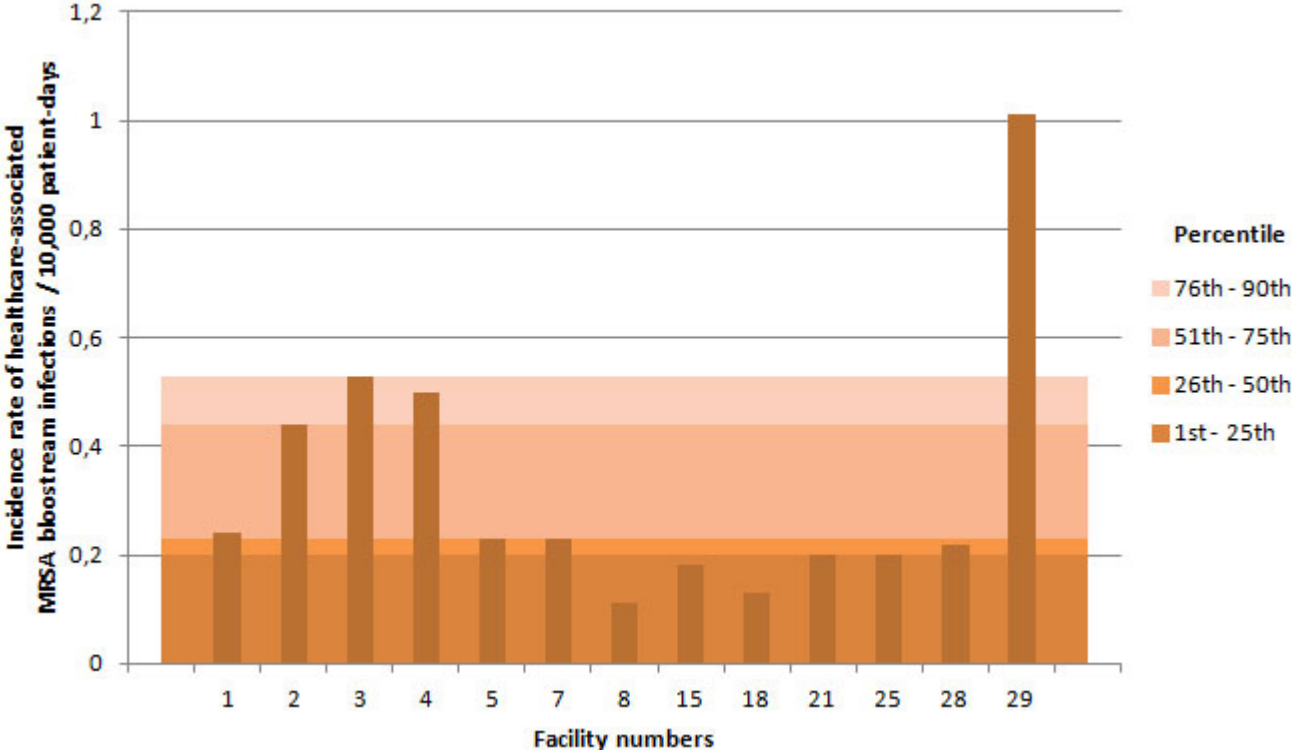


Figure 7 - Incidence Rate and Percentile Ranking of Healthcare-associated MRSA Bloodstream Infections (cat. 1a and 1b) by Facility for Teaching Healthcare Facilities with Less than 250 Beds, Québec, 2013-2014



NB: Facilities 48, 116 and 118 did not report any cases in 2013-2014.

Figure 8 - Incidence Rate and Percentile Ranking of Healthcare-associated MRSA Bloodstream Infections (cat. 1a and 1b) by Facility for Teaching Healthcare Facilities with 250 or more Beds, Québec, 2013-2014



NB: Facilities 20, 24, 27, 31 and 33 did not report any cases in 2013-2014.

At the local level, in 2013-2014, the incidence rate of healthcare-associated MRSA bloodstream infections ranged from 0 to 1.29 / 10,000 patient-days. The incidence rate for the past five years of surveillance is shown in Table 6. Significant variations compared to 2012-2013 are also indicated.

Overall, 4 facilities (4.5%) exhibited an increase in the incidence rate of healthcare-associated MRSA bloodstream infections per 10,000 patient-days, compared to the 2012-2013 surveillance year, and 18 facilities (20.2%) exhibited a significant decrease in this incidence rate. Furthermore, the provincial incidence rate of healthcare-associated MRSA bloodstream infections per 10,000 patient-days in 2013-2014 significantly decreased as compared to 2012-2013.

Table 7 presents the number of healthcare-associated MRSA bloodstream infections and the proportion of methicillin resistance in healthcare-associated *S. aureus* bloodstream infections for the past five years.

Table 6 - Incidence rate of Healthcare-associated MRSA Bloodstream Infections (cat. 1a and 1b) by Facility, Québec, 2009-2010 to 2013-2014 (Incidence Rate per 10,000 Patient-Days [95% CI])

HR	Facility		Incidence rate of healthcare-associated MRSA bloodstream infections / 10,000 patient-days [95% CI]				
	Number	Name	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
01	16	HÔPITAL RÉGIONAL DE RIMOUSKI	0.17 [0-0.67]	0.18 [0-0.70]	0.19 [0-0.74]	0	0
	32	CENTRE HOSPITALIER RÉGIONAL DU GRAND-PORTAGE	0	0	0.31 [0-1.22]	0.32 [0-1.25]	0*

	61	CENTRE NOTRE-DAME-DE-FATIMA	0.96 [0-3.76]	1.07 [0-4.20]	1.02 [0-4.01]	0	0
	71	HÔPITAL DE MATANE	0.74 [0-2.91]	0	0	0	0
	77	HÔPITAL D'AMQUI	0	0	0	0	0
	84	HÔPITAL DE NOTRE-DAME-DU-LAC	0	0	0	0	0
		BAS-SAINT-LAURENT	0.22 [0.04-0.54]	0.15 [0.01-0.43]	0.24 [0.05-0.59]	0.08 [0-0.31]	0*
02	20	HÔPITAL DE CHICOUTIMI	0.10 [0-0.40]	0	0	0.22 [0.02-0.63]	0*
	67	HÔPITAL ET CENTRE DE RÉADAPTATION DE JONQUIÈRE	0	0.25 [0-0.97]	0	0.25 [0-0.98]	0*
	74	HÔPITAL DE DOLBEAU-MISTASSINI	0	0.51 [0-2.01]	0	0	0
	88	HÔPITAL, CLSC ET CENTRE D'HÉBERGEMENT DE ROBERVAL	0	0	0	0	0
	112	HÔPITAL D'ALMA	0.61 [0.06-1.75]	0.31 [0-1.21]	0	0	0
		SAGUENAY-LAC-SAINT-JEAN	0.14 [0.03-0.34]	0.14 [0.03-0.34]	0	0.14 [0.03-0.34]	0*
03	2	HÔPITAL DE L'ENFANT-JÉSUS	0.29 [0.07-0.65]	0.07 [0-0.28]	0.36 [0.11-0.75]	0.07 [0-0.28]	0.44 [0.16-0.86]*
	7	PAVILLON L'HÔTEL-DIEU DE QUÉBEC	0.23 [0.02-0.66]	0.34 [0.06-0.84]	0.12 [0-0.47]	0.47 [0.12-1.04]	0.23 [0.02-0.66]
	24	HÔPITAL DU SAINT-SACREMENT	0	0	0	0.17 [0-0.68]	0*
	27	PAVILLON CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL	0	0	0.17 [0.02-0.48]	0	0
	28	PAVILLON SAINT-FRANÇOIS D'ASSISE	0.33 [0.06-0.81]	0.33 [0.06-0.81]	0.11 [0-0.43]	0.67 [0.24-1.31]	0.22 [0.02-0.63]
	33	INSTITUT UNIVERSITAIRE DE CARDIOLOGIE ET DE PNEUMOLOGIE DE QUÉBEC	0.11 [0-0.42]	0.21 [0.02-0.60]	0.31 [0.06-0.76]	0.20 [0.02-0.58]	0*
	86	HÔPITAL DE LA MALBAIE	0	0	0	0	0
		CAPITALE-NATIONALE	0.17 [0.08-0.29]	0.15 [0.07-0.26]	0.20 [0.10-0.33]	0.23 [0.12-0.37]	0.17 [0.08-0.29]
04	23	HÔTEL-DIEU D'ARTHABASKA	0	0	0	0.18 [0-0.71]	0*
	31	PAVILLON SAINT-JOSEPH	0.43 [0.14-0.89]	0.25 [0.05-0.61]	0.08 [0-0.32]	0.16 [0.02-0.45]	0*
	41	HÔPITAL DU CENTRE-DE-LA-MAURICIE	0	0	0	0	0
	44	HÔPITAL SAINTE-CROIX	0.17 [0-0.66]	0	0.17 [0-0.66]	0.34 [0.03-0.97]	0.34 [0.03-0.98]
	85	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX DU HAUT-SAINT-AURICE	0	0	0	0	0
		MAURICIE ET CENTRE-DU-QUÉBEC	0.22 [0.08-0.43]	0.10 [0.02-0.25]	0.07 [0.01-0.20]	0.17 [0.05-0.35]	0.07 [0.01-0.20]
05	15	HÔPITAL FLEURIMONT	0.24 [0.04-0.59]	0.08 [0-0.32]	0.08 [0-0.32]	0.17 [0.02-0.49]	0.18 [0.02-0.52]
	30	HÔTEL-DIEU DE SHERBROOKE	0	0	0.14 [0-0.56]	0.14 [0-0.56]	0.15 [0-0.59]
	49	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX MEMPHRÉMAGOG	0	0	0	0	0
	75	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX DU GRANIT	0	0	0	0	0
		ESTRIE	0.14 [0.03-0.34]	0.05 [0-0.19]	0.10 [0.01-0.28]	0.14 [0.03-0.35]	0.15 [0.03-0.37]
06	3	HÔPITAL ROYAL VICTORIA	0.32 [0.08-0.71]	0.74 [0.34-1.30]	0.24 [0.04-0.59]	0.34 [0.09-0.75]	0.53 [0.19-1.04]
	4	HÔPITAL NOTRE-DAME DU CHUM	0.94 [0.47-1.58]	0.85 [0.40-1.46]	1.01 [0.52-1.66]	0.43 [0.14-0.89]	0.50 [0.18-0.98]
	5	HÔPITAL GÉNÉRAL JUIF	1.10 [0.66-1.65]	0.61 [0.30-1.02]	0.39 [0.15-0.73]	0.29 [0.09-0.60]	0.23 [0.06-0.51]
	6	HÔPITAL DE MONTRÉAL POUR ENFANTS	0	0	0	1.10 [0.29-2.44]	0*
	8	PAV. MAISONNEUVE / PAV. MARCEL-LAMOUREUX	0.53 [0.24-0.93]	0.55 [0.26-0.94]	0.22 [0.06-0.49]	0.11 [0.01-0.31]	0.11 [0.01-0.31]
	12	CENTRE HOSPITALIER UNIVERSITAIRE SAINTE-JUSTINE	0	0	0	0	0
	13	INSTITUT DE CARDIOLOGIE DE MONTRÉAL	0	0.24 [0-0.94]	0	0.24 [0-0.94]	0.23 [0-0.91]
	21	HÔPITAL SAINT-LUC DU CHUM	0.33 [0.06-0.81]	0.83 [0.36-1.50]	0.52 [0.17-1.07]	0.50 [0.16-1.03]	0.20 [0.02-0.57]
	22	HÔTEL-DIEU DU CHUM	1.07 [0.46-1.94]	0.13 [0-0.51]	0.76 [0.27-1.49]	1.12 [0.51-1.97]	0.64 [0.20-1.32]
	25	HÔPITAL DU SACRÉ-COEUR DE MONTRÉAL	0.62 [0.29-1.06]	1.06 [0.62-1.62]	0.76 [0.39-1.25]	0.52 [0.22-0.94]	0.20 [0.04-0.49]
	26	HÔPITAL DE VERDUN	1.05 [0.42-1.97]	0.54 [0.14-1.20]	0.79 [0.29-1.55]	0.27 [0.03-0.77]	0.28 [0.03-0.80]

	29	HÔPITAL GÉNÉRAL DE MONTRÉAL	0.36 [0.09-0.80]	1.16 [0.61-1.88]	0.73 [0.31-1.32]	0.77 [0.33-1.40]	1.01 [0.46-1.78]
	34	HÔPITAL SANTA CABRINI	0.10 [0-0.40]	0.21 [0.02-0.60]	0.30 [0.06-0.73]	0.66 [0.26-1.24]	0.19 [0.02-0.54]
	36	HÔPITAL GÉNÉRAL DU LAKESHORE	0.59 [0.15-1.31]	0.30 [0.03-0.86]	0.61 [0.16-1.35]	0.72 [0.23-1.49]	0.29 [0.03-0.84]
	38	HÔPITAL JEAN-TALON	0.38 [0.07-0.93]	0.53 [0.10-1.30]	0.18 [0-0.70]	0.57 [0.11-1.39]	0.39 [0.04-1.11]
	48	CENTRE HOSPITALIER DE ST. MARY	0.64 [0.20-1.32]	1.01 [0.43-1.83]	0.25 [0.02-0.72]	1.12 [0.51-1.97]	0*
	76	HÔPITAL DE LACHINE	0.40 [0-1.58]	2.22 [0.70-4.59]	0	0	0
	80	HÔPITAL FLEURY	0.26 [0-1.02]	0.50 [0.05-1.43]	0.46 [0.04-1.32]	0.23 [0-0.90]	0.46 [0.04-1.32]
	83	HÔPITAL DE LASALLE	0	0.38 [0-1.49]	0.83 [0.08-2.38]	0.83 [0.08-2.38]	0*
	116	INSTITUT THORACIQUE DE MONTRÉAL	0.43 [0-1.68]	0.43 [0-1.69]	0.45 [0-1.76]	0.45 [0-1.76]	0*
	118	HÔPITAL NEUROLOGIQUE DE MONTRÉAL	0.86 [0.08-2.47]	0.83 [0.08-2.37]	0	0	0
		MONTRÉAL	0.54 [0.44-0.66]	0.64 [0.53-0.76]	0.45 [0.36-0.56]	0.47 [0.37-0.58]	0.28 [0.21-0.37]*
07	39	HÔPITAL DE GATINEAU	0	0.17 [0-0.66]	0	0	0
	40	HÔPITAL DE HULL	0.44 [0.08-1.08]	0.28 [0.03-0.80]	0	0	0.16 [0-0.62]
	51	HÔPITAL DE MANIWAKI	0	0	0.68 [0-2.67]	0	0
	95	CENTRE HOSPITALIER DU PONTIAC	0.75 [0-2.94]	0	0	0.72 [0-2.82]	0*
	111	HÔPITAL DE PAPINEAU	0	0	0	0	0
		OUTAOUAIS	0.23 [0.06-0.51]	0.17 [0.03-0.41]	0.05 [0-0.20]	0.05 [0-0.21]	0.06 [0-0.23]
08	47	HÔPITAL DE ROUYN-NORANDA	0	0.92 [0.09-2.63]	0	0	1.29 [0.24-3.16]*
	52	CENTRE HOSPITALIER HÔTEL-DIEU D'AMOS	0.38 [0-1.49]	0	0.40 [0-1.57]	0	0
	65	HÔPITAL ET CLSC DE VAL-D'OR	0	0.33 [0-1.30]	0	0	0.34 [0-1.33]
	70	CENTRE DE SOINS DE COURTE DURÉE LA SARRE	0	0	0	0	0
	82	PAVILLON SAINTE-FAMILLE	0	0	0	2.69 [0.25-7.71]	0*
		ABITIBI-TÉMISCAMINGUE	0.10 [0-0.40]	0.31 [0.06-0.76]	0.10 [0-0.40]	0.21 [0.02-0.60]	0.43 [0.11-0.96]
09	64	HÔPITAL LE ROYER	0	0	0	0.72 [0.07-2.06]	0*
	72	HÔPITAL ET CENTRE D'HÉBERGEMENT DE SEPT-ÎLES	0.89 [0.08-2.55]	0	0	0	0.41 [0-1.61]
		CÔTE-NORD	0.38 [0.04-1.09]	0	0	0.40 [0.04-1.15]	0.20 [0-0.78]
10	96	CENTRE DE SANTÉ DE CHIBOUGAMAU	0	0	0	0	0
		NORD-DU-QUÉBEC	0	0	0	0	0
11	53	HÔPITAL DE CHANDLER	0	0	0.67 [0-2.63]	0	0
	91	HÔPITAL HÔTEL-DIEU DE GASPÉ	0	0.81 [0-3.17]	0	0.97 [0-3.80]	0.97 [0-3.79]
	97	HÔPITAL DE MARIA	0	0	0	0	0
	107	HÔPITAL DE L'ARCHIPEL ^a	0	0	0	0	0
	109	HÔPITAL DE SAINTE-ANNE-DES-MONTS	0	0	0	0	0
		GASPÉSIE-ÎLES-DE-LA-MADELEINE	0	0.17 [0-0.67]	0.16 [0-0.62]	0.17 [0-0.66]	0.17 [0-0.67]
12	18	HÔTEL-DIEU DE LÉVIS	1.35 [0.64-2.32]	0.39 [0.07-0.95]	0.37 [0.07-0.91]	0.13 [0-0.50]	0.13 [0-0.51]
	63	HÔPITAL DE SAINT-GEORGES	0.22 [0-0.87]	0	0.21 [0-0.83]	0	0
	89	HÔPITAL DE MONTMAGNY	0	0	0.87 [0.08-2.49]	0.47 [0-1.85]	0.54 [0-2.12]
	113	HÔPITAL DE THETFORD MINES	0.42 [0-1.64]	1.12 [0.21-2.75]	0.75 [0.07-2.15]	1.09 [0.2-2.67]	0.40 [0-1.56]
		CHAUDIÈRE-APPALACHES	0.73 [0.38-1.20]	0.35 [0.13-0.69]	0.45 [0.19-0.82]	0.29 [0.09-0.60]	0.19 [0.04-0.46]
13	19	HÔPITAL CITÉ DE LA SANTÉ	0.19 [0.03-0.47]	0.32 [0.1-0.66]	0.06 [0-0.24]	0.52 [0.24-0.92]	0.35 [0.13-0.69]
		LAVAL	0.19 [0.03-0.47]	0.32 [0.1-0.66]	0.06 [0-0.24]	0.52 [0.24-0.92]	0.35 [0.13-0.69]
14	11	HÔPITAL PIERRE-LE GARDEUR	0	0.10 [0-0.39]	0.20 [0.02-0.58]	0	0.19 [0.02-0.54]
	14	CENTRE HOSPITALIER RÉGIONAL DE LANAUDIÈRE	0.70 [0.25-1.37]	0	0.23 [0.02-0.66]	0.34 [0.06-0.84]	0.23 [0.02-0.66]
		LANAUDIÈRE	0.32 [0.11-0.63]	0.05 [0-0.20]	0.21 [0.05-0.47]	0.16 [0.03-0.39]	0.21 [0.06-0.46]
15	45	HÔPITAL DE SAINT-EUSTACHE	0.33 [0.03-0.95]	0.15 [0-0.60]	0	0.12 [0-0.47]	0*

56	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX D'ARGENTEUIL	0.60 [0-2.36]	0	1.32 [0.13-3.78]	0	0.71 [0-2.79]
81	HÔPITAL DE MONT-LAURIER	0	0.59 [0-2.31]	0	0	0
101	HÔPITAL RÉGIONAL DE SAINT-JÉRÔME	0.20 [0.02-0.57]	0.59 [0.21-1.16]	1.00 [0.48-1.72]	0.29 [0.06-0.71]	0.19 [0.02-0.54]
103	HÔPITAL LAURENTIEN	0.69 [0.07-1.97]	0.34 [0-1.33]	0	0	0
	LAURENTIDES	0.32 [0.13-0.6]	0.40 [0.18-0.70]	0.51 [0.26-0.84]	0.16 [0.04-0.36]	0.12 [0.02-0.29]
16 1	HÔPITAL CHARLES-LEMOYNE	0.54 [0.21-1.01]	0.15 [0.01-0.44]	0.56 [0.22-1.05]	0	0.24 [0.05-0.59]*
9	HÔPITAL DU HAUT-RICHELIEU	0.49 [0.13-1.09]	0.12 [0-0.48]	0.12 [0-0.47]	0.43 [0.11-0.96]	0.22 [0.02-0.63]
10	HÔPITAL PIERRE-BOUCHER	0.30 [0.06-0.73]	0.19 [0.02-0.54]	0.20 [0.02-0.57]	0	0.19 [0.02-0.55]*
35	HÔPITAL HONORÉ-MERCIER	0	0	0.15 [0-0.59]	0.44 [0.08-1.08]	0*
37	HÔTEL-DIEU DE SOREL	0.20 [0-0.78]	0.20 [0-0.78]	0.39 [0.04-1.12]	0.20 [0-0.78]	0*
42	HÔPITAL ANNA-LABERGE	0.41 [0.08-1.00]	0.42 [0.08-1.03]	0.28 [0.03-0.80]	0.13 [0-0.51]	0.39 [0.07-0.95]
46	HÔPITAL DE GRANBY	0	0	0.46 [0.04-1.32]	0.94 [0.24-2.09]	0*
58	HÔPITAL DU SUROÏT	0.35 [0.03-1.00]	0.34 [0.03-0.98]	0.34 [0.03-0.98]	0	0.16 [0-0.62]
99	HÔPITAL BROME-MISSISQUOI-PERKINS	0.39 [0-1.52]	0	0	0	0
130	HÔPITAL BARRIE MEMORIAL ^b	0	0.92 [0-3.60]	0	0	0
	MONTÉRÉGIE	0.33 [0.20-0.49]	0.19 [0.10-0.31]	0.30 [0.18-0.45]	0.19 [0.10-0.31]	0.17 [0.09-0.28]
	Total	0.36 [0.31-0.42]	0.34 [0.29-0.39]	0.29 [0.24-0.34]	0.29 [0.24-0.34]	0.20 [0.16-0.24]*

HR: Health region.

* Significant statistical difference ($p < 0.05$) between healthcare-associated MRSA bloodstream infections of 2012-2013 and 2013-2014.

When the incidence rate is 0, the confidence interval [CI] is not calculated.

^a Facility participating in the surveillance of bloodstream infections due to *S. aureus* as of Period 1 of 2011-2012.

^b Facility participating in the surveillance of bloodstream infections due to *S. aureus* as of Period 10 of 2009-2010.

Table 7 - Number of Healthcare-associated MRSA Bloodstream Infections and Proportion of Resistance to Methicillin by Healthcare-Associated *S. aureus* Bloodstream Infection (cat. 1a and 1b) by Facility, Québec, 2009-2010 to 2013-2014 (Number, [%])

HR	Facility		Number of healthcare-associated MRSA infections and proportion of resistance to methicillin by healthcare-associated <i>S. aureus</i> bloodstream infections (N [%])				
	Number	Name	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
01	16	HÔPITAL RÉGIONAL DE RIMOUSKI	1 (10.0%)	1 (16.7%)	1 (16.7%)	0	0
	32	CENTRE HOSPITALIER RÉGIONAL DU GRAND-PORTAGE	1 (50.0%)	0	1 (16.7%)	1 (50.0%)	0
	61	CENTRE NOTRE-DAME-DE-FATIMA	1 (100.0%)	1 (100.0%)	1 (100.0%)	0	0
	71	HÔPITAL DE MATANE	1 (100.0%)	0	0	0	0
	77	HÔPITAL D'AMQUI	0	0	0	0	0
	84	HÔPITAL DE NOTRE-DAME-DU-LAC	0	0	0	0	0
		BAS-SAINT-LAURENT	4 (28.6%)	2 (25.0%)	3 (23.1%)	1 (12.5%)	0
02	20	HÔPITAL DE CHICOUTIMI	1 (9.1%)	1 (10.0%)	1 (25.0%)	2 (11.1%)	1 (5.6%)
	67	HÔPITAL ET CENTRE DE RÉADAPTATION DE JONQUIÈRE	0	1 (25.0%)	0	1 (100.0%)	0
	74	HÔPITAL DE DOLBEAU-MISTASSINI	0	1 (50.0%)	0	0	0
	88	HÔPITAL, CLSC ET CENTRE D'HÉBERGEMENT DE ROBERVAL	0	0	0	0	0

112		HÔPITAL D'ALMA	2 (100.0%)	1 (25.0%)	0	0	0
		SAGUENAY-LAC-SAINT-JEAN	3 (20.0%)	4 (18.2%)	1 (5.9%)	3 (13.6%)	1 (4.3%)
03	2	HÔPITAL DE L'ENFANT-JÉSUS	5 (25.0%)	1 (4.2%)	5 (17.2%)	1 (3.2%)	6 (25.0%)
	7	PAVILLON L'HÔTEL-DIEU DE QUÉBEC	2 (8.0%)	3 (14.3%)	2 (7.4%)	4 (13.8%)	3 (13.0%)
	24	HÔPITAL DU SAINT-SACREMENT	0	0	0	1 (25.0%)	0
	27	PAVILLON CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL	0	0	2 (22.2%)	0	0
	28	PAVILLON SAINT-FRANÇOIS D'ASSISE	3 (23.1%)	4 (40.0%)	1 (20.0%)	6 (66.7%)	2 (14.3%)
	33	INSTITUT UNIVERSITAIRE DE CARDIOLOGIE ET DE PNEUMOLOGIE DE QUÉBEC	1 (10.0%)	2 (11.1%)	3 (33.3%)	2 (25.0%)	0
	86	HÔPITAL DE LA MALBAIE	0	0	0	0	0
		CAPITALE-NATIONALE	11 (13.4%)	10 (11.5%)	13 (16.3%)	14 (16.1%)	11 (13.3%)
04	23	HÔTEL-DIEU D'ARTHABASKA	0	0	0	1 (50.0%)	0
	31	PAVILLON SAINT-JOSEPH	5 (25.0%)	3 (37.5%)	1 (6.3%)	2 (15.4%)	0
	41	HÔPITAL DU CENTRE-DE-LA-MAURICIE	0	0	0	0	0
	44	HÔPITAL SAINTE-CROIX	1 (33.3%)	0	1 (16.7%)	2 (40.0%)	2 (40.0%)
	85	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX DU HAUT-SAINT-AURICE	0	0	0	0	0
		MAURICIE ET CENTRE-DU-QUÉBEC	6 (24.0%)	3 (14.3%)	2 (6.5%)	5 (23.8%)	2 (7.4%)
05	15	HÔPITAL FLEURIMONT	3 (15.8%)	1 (4.2%)	1 (7.7%)	2 (10.0%)	3 (13.6%)
	30	HÔTEL-DIEU DE SHERBROOKE	0	0	1 (33.3%)	1 (14.3%)	2 (33.3%)
	49	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX MEMPHRÉMAGOG	0	0	0	0	0
	75	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX DU GRANIT	0	0	0	0	0
		ESTRIE	3 (11.5%)	1 (2.9%)	2 (12.5%)	3 (10.3%)	5 (17.2%)
06	3	HÔPITAL ROYAL VICTORIA	7 (25.0%)	9 (26.5%)	5 (20.0%)	8 (22.2%)	8 (24.2%)
	4	HÔPITAL NOTRE-DAME DU CHUM	12 (32.4%)	11 (31.4%)	14 (35.9%)	6 (25.0%)	7 (20.6%)
	5	HÔPITAL GÉNÉRAL JUIF	19 (47.5%)	13 (32.5%)	8 (30.8%)	5 (17.2%)	7 (23.3%)
	6	HÔPITAL DE MONTRÉAL POUR ENFANTS	0	0	1 (10.0%)	4 (36.4%)	0
	8	PAV. MAISONNEUVE / PAV. MARCEL-LAMOUREUX	10 (28.6%)	10 (21.7%)	8 (21.6%)	2 (5.6%)	3 (11.5%)
	12	CENTRE HOSPITALIER UNIVERSITAIRE SAINTE-JUSTINE	0	0	0	0	0
	13	INSTITUT DE CARDIOLOGIE DE MONTRÉAL	0	1 (20.0%)	0	1 (25.0%)	1 (16.7%)
	21	HÔPITAL SAINT-LUC DU CHUM	4 (13.8%)	8 (27.6%)	5 (15.2%)	6 (23.1%)	3 (18.8%)
	22	HÔTEL-DIEU DU CHUM	8 (38.1%)	1 (7.1%)	6 (40.0%)	9 (33.3%)	5 (19.2%)
	25	HÔPITAL DU SACRÉ-COEUR DE MONTRÉAL	12 (33.3%)	19 (30.6%)	16 (30.8%)	10 (16.7%)	4 (15.4%)
	26	HÔPITAL DE VERDUN	8 (36.4%)	6 (26.1%)	6 (42.9%)	4 (33.3%)	2 (20.0%)
	29	HÔPITAL GÉNÉRAL DE MONTRÉAL	4 (13.3%)	19 (54.3%)	11 (36.7%)	10 (27.8%)	9 (34.6%)
	34	HÔPITAL SANTA CABRINI	1 (16.7%)	2 (20.0%)	3 (17.6%)	8 (47.1%)	3 (50.0%)

	36	HÔPITAL GÉNÉRAL DU LAKESHORE	4 (21.1%)	3 (21.4%)	5 (33.3%)	7 (63.6%)	2 (33.3%)
	38	HÔPITAL JEAN-TALON	3 (50.0%)	3 (50.0%)	1 (9.1%)	3 (50.0%)	2 (28.6%)
	48	CENTRE HOSPITALIER DE ST. MARY	7 (31.8%)	8 (50.0%)	2 (18.2%)	10 (35.7%)	0
	76	HÔPITAL DE LACHINE	1 (100.0%)	5 (83.3%)	1 (50.0%)	0	0
	80	HÔPITAL FLEURY	1 (16.7%)	2 (28.6%)	2 (18.2%)	1 (25.0%)	2 (33.3%)
	83	HÔPITAL DE LASALLE	0	1 (33.3%)	3 (60.0%)	2 (40.0%)	0
	116	INSTITUT THORACIQUE DE MONTRÉAL	1 (50.0%)	1 (50.0%)	1 (100.0%)	1 (100.0%)	0
	118	HÔPITAL NEUROLOGIQUE DE MONTRÉAL	2 (66.7%)	2 (66.7%)	0	0	0
		MONTRÉAL	104 (28.0%)	124 (30.3%)	98 (26.3%)	97 (24.9%)	58 (20.2%)
07	39	HÔPITAL DE GATINEAU	0	1 (20.0%)	0	0	0
	40	HÔPITAL DE HULL	3 (25.0%)	2 (28.6%)	0	0	1 (8.3%)
	51	HÔPITAL DE MANIWAKI	0	0	1 (33.3%)	0	0
	95	CENTRE HOSPITALIER DU PONTIAC	1 (100.0%)	0	0	1 (100.0%)	1 (100.0%)
	111	HÔPITAL DE PAPINEAU	0	1 (100.0%)	0	0	0
		OUTAOUAIS	4 (19.0%)	4 (30.8%)	1 (5.0%)	1 (10.0%)	2 (11.1%)
08	47	HÔPITAL DE ROUYN-NORANDA	2 (66.7%)	2 (50.0%)	0	0	3 (50.0%)
	52	CENTRE HOSPITALIER HÔTEL-DIEU D'AMOS	1 (50.0%)	0	1 (100.0%)	0	0
	65	HÔPITAL ET CLSC DE VAL-D'OR	3 (50.0%)	2 (40.0%)	0	1 (11.1%)	1 (50.0%)
	70	CENTRE DE SOINS DE COURTE DURÉE LA SARRE	0	0	0	0	0
	82	PAVILLON SAINTE-FAMILLE	0	0	0	2 (66.7%)	0
		ABITIBI-TÉMISCAMINGUE	6 (50.0%)	4 (33.3%)	1 (12.5%)	3 (23.1%)	4 (50.0%)
09	64	HÔPITAL LE ROYER	0	0	0	2 (66.7%)	0
	72	HÔPITAL ET CENTRE D'HÉBERGEMENT DE SEPT-ÎLES	2 (66.7%)	0	0	0	1 (100.0%)
		CÔTE-NORD	2 (66.7%)	0	0	2 (33.3%)	1 (25.0%)
10	96	CENTRE DE SANTÉ DE CHIBOUGAMAU	0	0	0	0	0
		NORD-DU-QUÉBEC	0	0	0	0	0
11	53	HÔPITAL DE CHANDLER	0	0	1 (50.0%)	0	0
	91	HÔPITAL HÔTEL-DIEU DE GASPÉ	2 (66.7%)	1 (50.0%)	0	1 (50.0%)	1 (33.3%)
	97	HÔPITAL DE MARIA	0	0	0	0	0
	107	HÔPITAL DE L'ARCHIPEL ^a	0	0	0	0	0
	109	HÔPITAL DE SAINTE-ANNE-DES-MONTS	0	0	0	0	0
		GASPÉSIE-ÎLES-DE-LA-MADELEINE	2 (28.6%)	1 (20.0%)	1 (33.3%)	1 (33.3%)	1 (10.0%)
12	18	HÔTEL-DIEU DE LÉVIS	10 (43.5%)	4 (30.8%)	3 (16.7%)	3 (14.3%)	2 (12.5%)
	63	HÔPITAL DE SAINT-GEORGES	2 (33.3%)	1 (50.0%)	1 (33.3%)	0	0
	89	HÔPITAL DE MONTMAGNY	0	0	2 (66.7%)	1 (33.3%)	1 (50.0%)
	113	HÔPITAL DE THETFORD MINES	1 (100.0%)	3 (75%)	2 (40.0%)	3 (27.3%)	1 (20.0%)
		CHAUDIÈRE-APPALACHES	13 (43.3%)	8 (40.0%)	8 (27.6%)	7 (18.4%)	4 (14.3%)

13	19	HÔPITAL CITÉ DE LA SANTÉ	6 (15.8%)	6 (13.6%)	3 (9.7%)	11 (19.3%)	7 (16.3%)
		LAVAL	6 (15.8%)	6 (13.6%)	3 (9.7%)	11 (19.3%)	7 (16.3%)
14	11	HÔPITAL PIERRE-LE GARDEUR	1 (10.0%)	3 (33.3%)	5 (35.7%)	1 (7.7%)	3 (15.0%)
	14	CENTRE HOSPITALIER RÉGIONAL DE LANAUDIÈRE	7 (33.3%)	0	2 (18.2%)	5 (26.3%)	3 (17.6%)
		LANAUDIÈRE	8 (25.8%)	3 (21.4%)	7 (28.0%)	6 (18.8%)	6 (16.2%)
15	45	HÔPITAL DE SAINT-EUSTACHE	2 (33.3%)	1 (12.5%)	0	1 (16.7%)	0
	56	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX D'ARGENTEUIL	1 (50.0%)	0	2 (33.3%)	0	2 (100.0%)
	81	HÔPITAL DE MONT-LAURIER	0	1 (50.0%)	0	0	0
	101	HÔPITAL RÉGIONAL DE SAINT-JÉRÔME	2 (14.3%)	6 (20.0%)	10 (29.4%)	3 (8.6%)	3 (17.6%)
	103	HÔPITAL LAURENTIEN	2 (100.0%)	1 (33.3%)	0	0	0
		LAURENTIDES	7 (29.2%)	9 (20.9%)	12 (26.7%)	4 (9.1%)	5 (16.7%)
16	1	HÔPITAL CHARLES-LEMOYNE	13 (36.1%)	2 (7.1%)	8 (27.6%)	0	5 (17.2%)
	9	HÔPITAL DU HAUT-RICHELIEU	5 (23.8%)	1 (5.9%)	1 (5.9%)	4 (18.2%)	2 (18.2%)
	10	HÔPITAL PIERRE-BOUCHER	4 (44.4%)	3 (27.3%)	3 (25.0%)	0	2 (28.6%)
	35	HÔPITAL HONORÉ-MERCIER	0	0	1 (16.7%)	3 (23.1%)	0
	37	HÔTEL-DIEU DE SOREL	1 (10.0%)	1 (9.1%)	2 (18.2%)	1 (9.1%)	1 (10.0%)
	42	HÔPITAL ANNA-LABERGE	3 (33.3%)	3 (37.5%)	2 (25.0%)	2 (20.0%)	4 (33.3%)
	46	HÔPITAL DE GRANBY	1 (16.7%)	0	3 (50.0%)	4 (33.3%)	0
	58	HÔPITAL DU SUROÛT	2 (25.0%)	4 (57.1%)	2 (25.0%)	1 (12.5%)	1 (25.0%)
	99	HÔPITAL BROME-MISSISQUOI-PERKINS	1 (16.7%)	0	0	0	0
	130	HÔPITAL BARRIE MEMORIAL ^b	0	1 (20.0%)	0	0	0
		MONTÉRÉGIE	30 (25.6%)	15 (13.4%)	22 (21.8%)	15 (14.2%)	15 (17.4%)
		Total	209 (25.6%)	194 (22.9%)	174 (21.9%)	173 (20.0%)	122 (16.9%)

HR: Heath region.

When the number of healthcare-associated MRS bloodstream infection is 0, no percentage is calculated.

^a Facility participating in the surveillance of bloodstream infections due to *S. aureus* as of Period 1 of 2011-2012.

^b Facility participating in the surveillance of bloodstream infections due to *S. aureus* as of Period 10 of 2009-2010.

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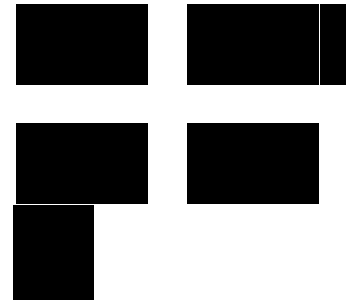
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