



Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bloodstream Infections Surveillance Results 2012–2013

Healthcare-Associated Infections Provincial Surveillance Program

Volume 1 N° 2 | November 2013

From April 1, 2012, to March 31, 2013, 88 healthcare facilities took part in the surveillance of methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections, for a combined total of 5,011,231 patient days (Table 1). Together, these facilities reported 147 cases of healthcare-associated MRSA bloodstream infections. The incidence rate was 0.29/10,000 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 20%.

TABLE 1 Participation of Healthcare Facilities in the Surveillance of MRSA Bloodstream Infections, Québec, 2008–2009 to 2012–2013

	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Facilities (N)	86	87	87	88	88
Admissions (N)	618,919	609,721	618,894	632,784	643,569
Inpatient days (N)	4,928,421	4,907,708	4,958,847	4,988,415	5,011,231
MRSA bloodstream infections					
Healthcare-associated (cat. 1) (N)	197	174	168	144	147
Total (cat. 1, 2, 3 and 4) (N)	389	347	334	300	299
<i>S. aureus</i> bloodstream infections					
Healthcare-associated (cat. 1) (N)	698	643	676	610	660
Total (cat. 1, 2, 3 and 4) (N)	1,807	1,750	1,743	1,774	1,940

Incidence Rate

In 2012–2013, the incidence rate of healthcare-associated MRSA bloodstream infections (HA-MRSA BSI) was 0.29/10,000 patient days (Figure 1 and Table 2). The incidence rate of HA-MRSA BSI in teaching healthcare facilities with less than 250 beds was significantly greater than that of non-teaching facilities with less than 250 beds and teaching facilities with 250 or more beds (Figure 1). The incidence rate of HA-MRSA BSI in pediatric facilities does not differ from that of other facilities.

FIGURE 1 Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) by Type of Healthcare Facility, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

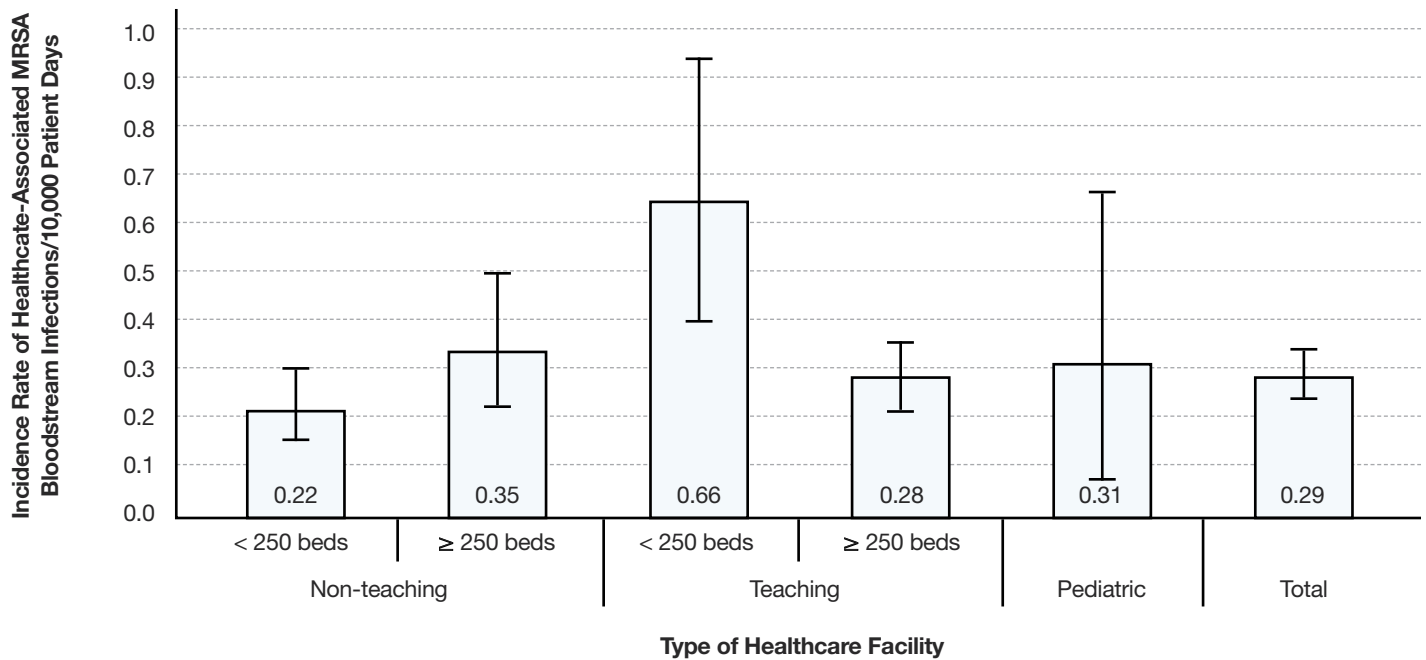


TABLE 2 Percentile Distribution and Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) by Type of Healthcare Facility, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

	Min.	25%	50%	75%	90%	Max.	Incidence Rate
Non-teaching facilities							
< 250 beds (N = 55)	0	0	0	0.27	0.72	2.69	0.22 [0.16-0.30]
≥ 250 beds (N = 7)	0	0	0.34	0.52	0.66	0.66	0.35 [0.23-0.50]
Teaching facilities							
< 250 beds (N = 6)	0	0.14	0.34	1.12	1.12	1.12	0.66 [0.41-0.97]
≥ 250 beds (N = 18)	0	0.13	0.21	0.47	0.67	0.77	0.28 [0.21-0.36]
Pediatric facilities (N=2)	0	0	0.55	1.10	1.10	1.10	0.31 [0.08-0.68]
Total (N = 88)	0	0	0.12	0.43	0.77	2.69	0.29 [0.25-0.34]

Incidence Rate Trends

The incidence rates for HA-MRSA BSIs have decreased in the past five years (Figure 2). The incidence rate for HA-MRSA BSIs was 0.54 per 10,000 patient days during the first year of mandatory surveillance (2006–2007).

Compared with 2011–2012, the incidence rates for MRSA BSIs in 2012–2013 grew considerably in teaching healthcare facilities with less than 250 beds (Table 3). For the first time in five years, the incidence rate of HA-MRSA BSIs in pediatric healthcare facilities was not zero.

FIGURE 2 Incidence Rates of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) for Participating Healthcare Facilities, Québec, 2006–2007 to 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI]) (N = 82)

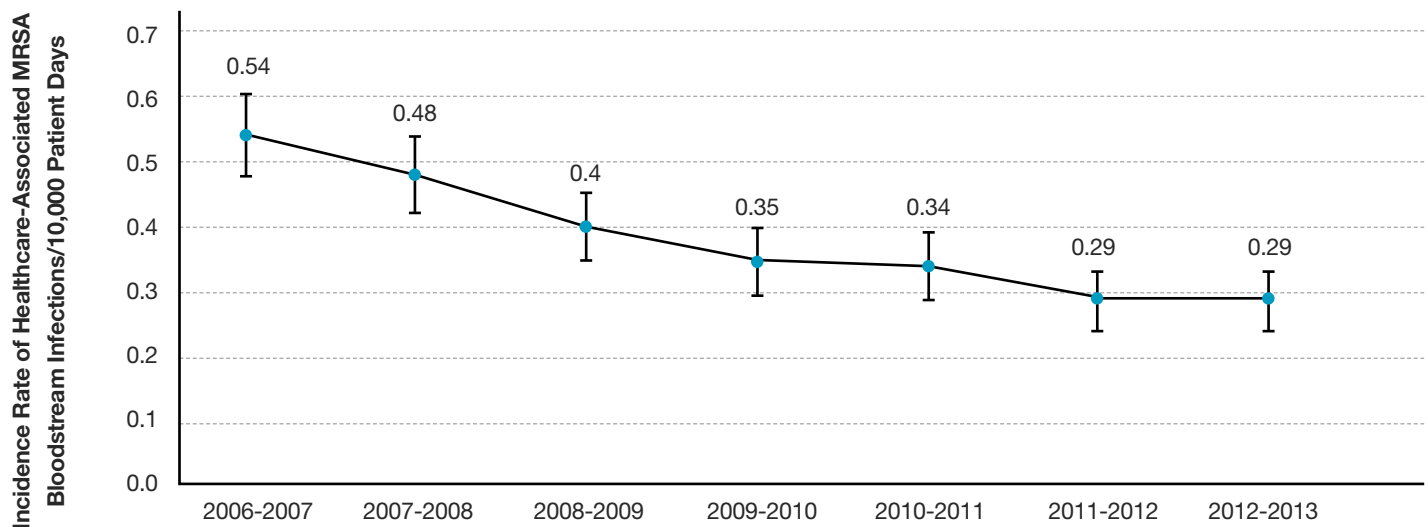


TABLE 3 Incidence Rates of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) by Type of Healthcare Facility for Participating Healthcare Facilities, Québec, 2008–2009 to 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI]) (N = 86)

	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Non-teaching facilities					
< 250 beds (N = 53)	0.23 [0.16-0.31]	0.23 [0.16-0.31]	0.24 [0.17-0.32]	0.23 [0.16-0.31]	0.22 [0.16-0.30]
≥ 250 beds (N = 7)	0.37 [0.24-0.53]	0.32 [0.20-0.47]	0.26 [0.15-0.39]	0.27 [0.16-0.40]	0.35 [0.23-0.50]
Teaching facilities					
< 250 beds (N = 6)	0.47 [0.02-0.73]	0.46 [0.26-0.71]	0.37 [0.20-0.60]	0.28 [0.13-0.48]	0.70 [0.45-1.00]
≥ 250 beds (N = 18)	0.53 [0.44-0.63]	0.44 [0.36-0.53]	0.44 [0.36-0.53]	0.34 [0.27-0.42]	0.27 [0.21-0.34]
Pediatric facilities (N=2)	0	0	0	0	0.31 [0.08-0.68]
Total (N = 86)	0.40 [0.35-0.46]	0.35 [0.30-0.40]	0.34 [0.29-0.39]	0.29 [0.24-0.34]	0.29 [0.24-0.34]

Description of Cases

In total, 299 cases of MRSA BSI were reported, two-thirds of which (67.6%) were healthcare-associated (cat. 1, 2a and 2b) and 173 of which (57.9 %) were related to the reporting facility (cat. 1 and 2b) (Table 4).

TABLE 4 Cases of MRSA and *S. aureus* Bloodstream Infections by Presumed Source of Acquisition, Québec, 2012–2013 (N, %)

Category	Source of Acquisition	2012–2013			
		MRSA		<i>S. aureus</i>	
		N	%*	N	%
1	Healthcare-Associated, related to the reporting facility	147	7.6%	660	34.0%
2a	Healthcare-Associated, related to another facility	29	1.5%	115	5.9%
2b	Healthcare-Associated, related to ambulatory care	26	1.3%	206	10.6%
3	Community	75	3.9%	787	40.6%
4	Unknown	22	1.1%	172	8.9%
Total		299	15.4%	1940	100%

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

Catheter related bloodstream infections (CRBSI) represented the most frequently reported type of BSI (23%) of the 173 HA-MRSA BSIs (cat. 1 and 2b) in 2012–2013 (Table 4). This was followed by BSIs secondary to pneumonia (17%), urinary infection (14%), surgical site infection (12%) and skin and soft tissue infection (12%) (Figure 3 and Table 5). More than half of the CRBSIs (57.5%) and BSIs secondary to surgical site infections (60.0%) occurred in teaching healthcare facilities with 250 or more beds.

FIGURE 3 Breakdown of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1 and 2b) by Type of Infection, Québec, 2012–2013 (N = 173)

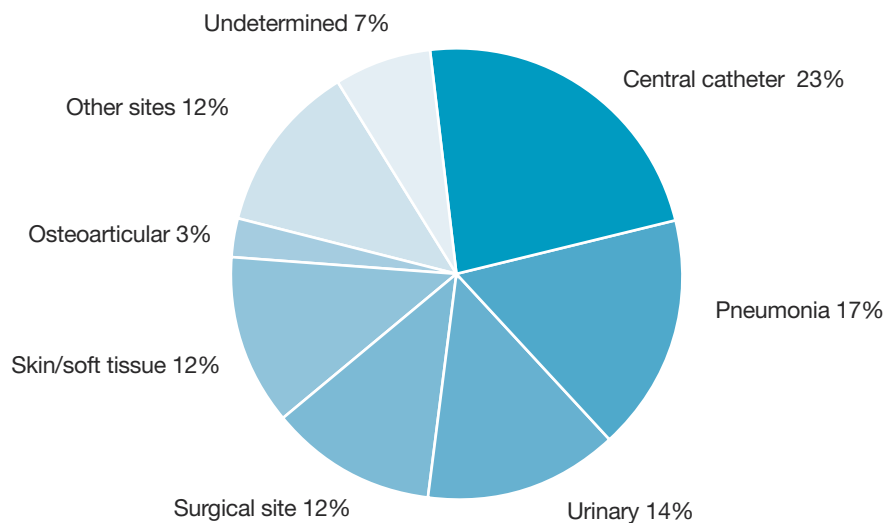


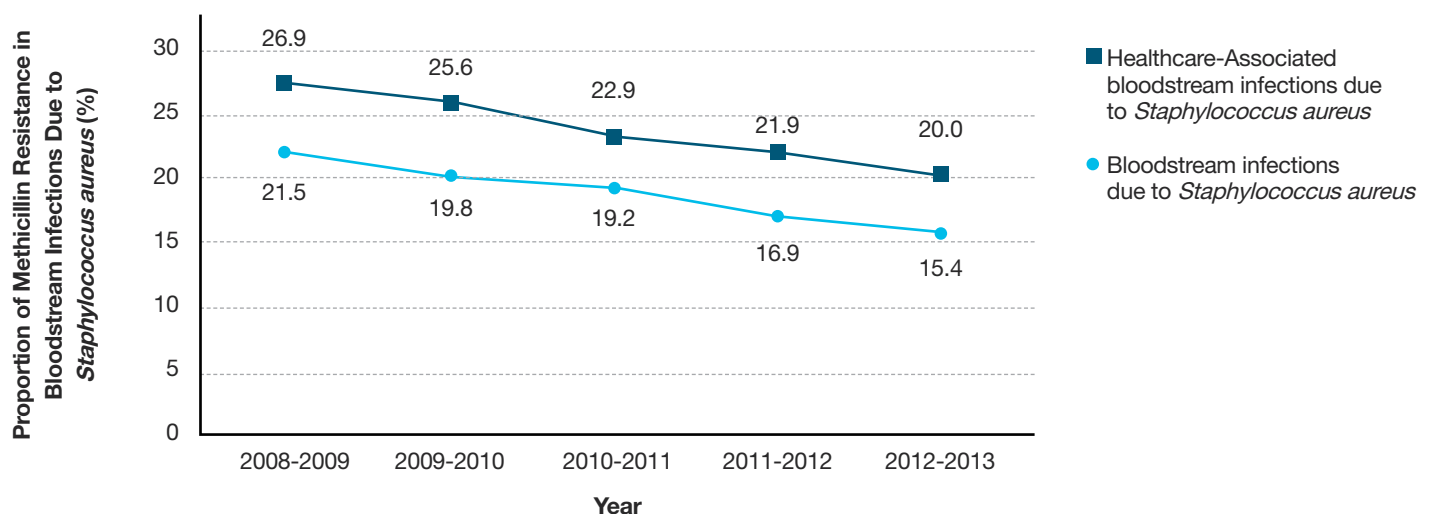
TABLE 5 Number of Cases Corresponding to Each Type of Infection Associated with Healthcare-Associated MRSA Bloodstream Infections (Cat. 1 and 2b) by Type of Facility, Québec, 2012–2013 (N = 173)

	Primary Bloodstream Infection	Secondary Bloodstream Infection							Total
	Central catheter	Pneumonia	Urinary	Surgical Site	Skin/Soft Tissue	Osteo-articular	Other Sites	Undetermined	
Non-teaching facilities									
< 250 beds	7	11	9	3	4	1	5	6	46
≥ 250 beds	6	4	4	2	5	1	6	3	31
Teaching facilities									
< 250 beds	4	3	2	2	5	0	4	2	22
≥ 250 beds	23	11	8	12	5	3	6	2	70
Pediatric facilities									
	0	0	2	1	1	0	0	0	4
Total	40	29	25	20	20	5	21	13	173

Microbiology

The proportion of methicillin resistance in HA-BSIs due to *S. aureus* dropped between 2008–2009 and 2012–2013 to 20.0% (Figure 4).

FIGURE 4 Proportion of Methicillin Resistance in Healthcare-Associated Bloodstream Infections (Cat. 1 and 2b) and All Bloodstream Infections (Cat. 1, 2a, 2b, 3 and 4), Québec, 2008–2009 to 2012–2013 (N = 86)



Laboratory surveillance of MRSA strains is carried out at the Laboratoire de santé publique du Québec (LSPQ) approximately every two years. No such surveillance was performed in 2012–2013.

Data per Facility

The incidence rates of HA-MRSA BSIs and the percentile rankings 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. 1) by Facility for Non-Teaching Healthcare Facilities with Less than 250 Beds, Québec, 2012–2013

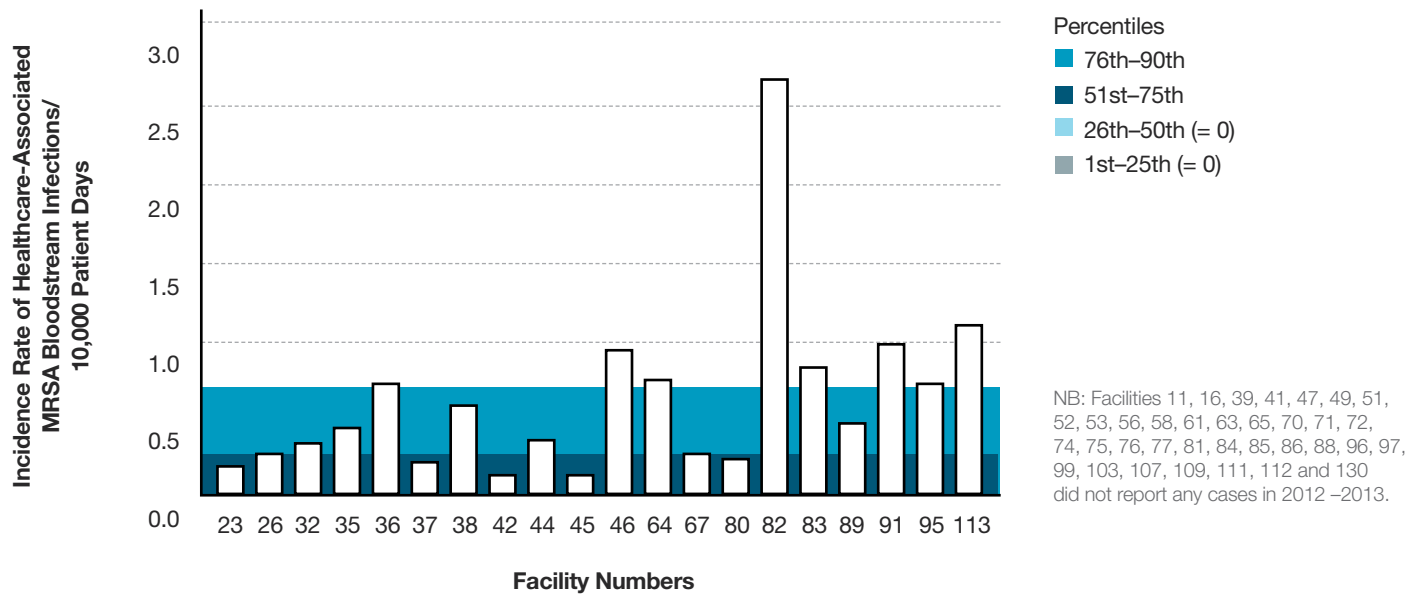


FIGURE 6 Incidence Rate and Percentile Ranking of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) by Facility for Non-Teaching Healthcare Facilities with 250 or More Beds, Québec, 2012–2013

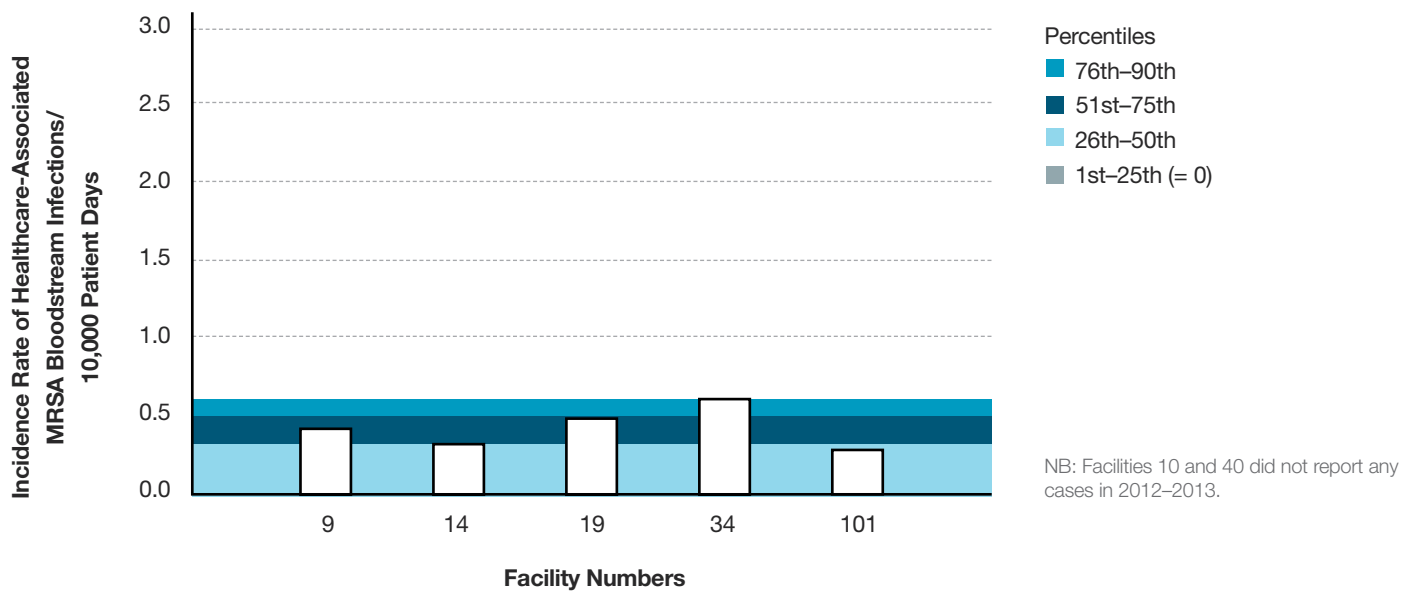


FIGURE 7 Incidence Rate and Percentile Ranking of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) by Facility for Teaching Healthcare Facilities with Fewer than 250 Beds, Québec, 2012–2013

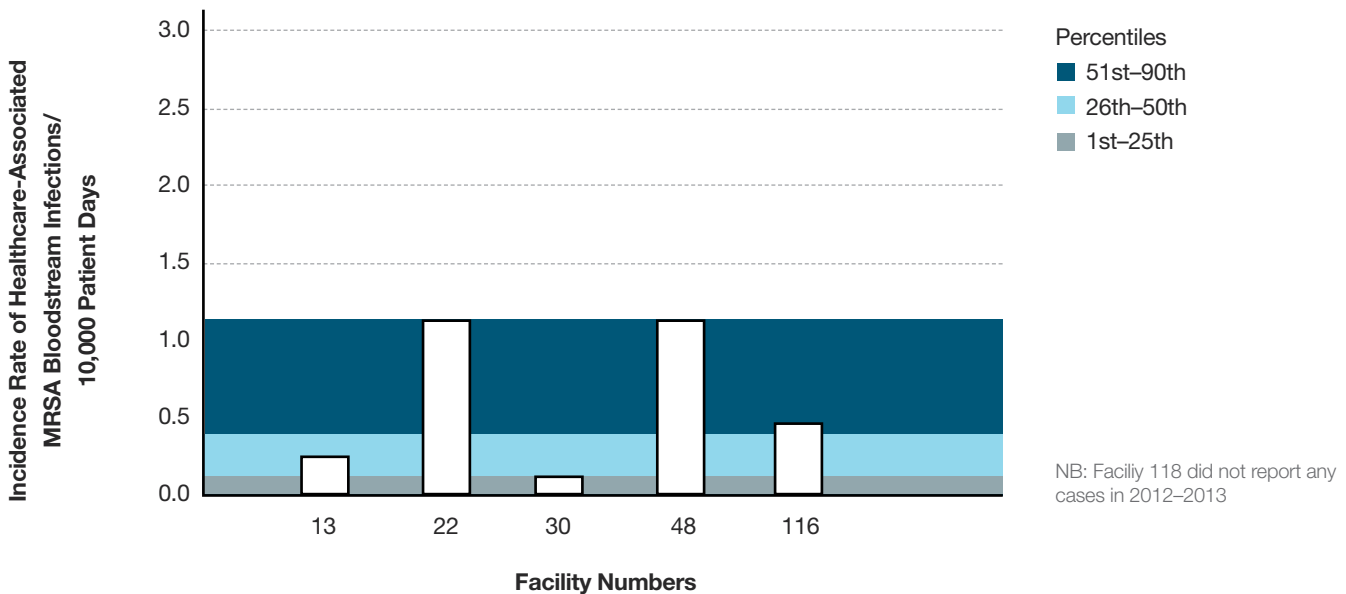
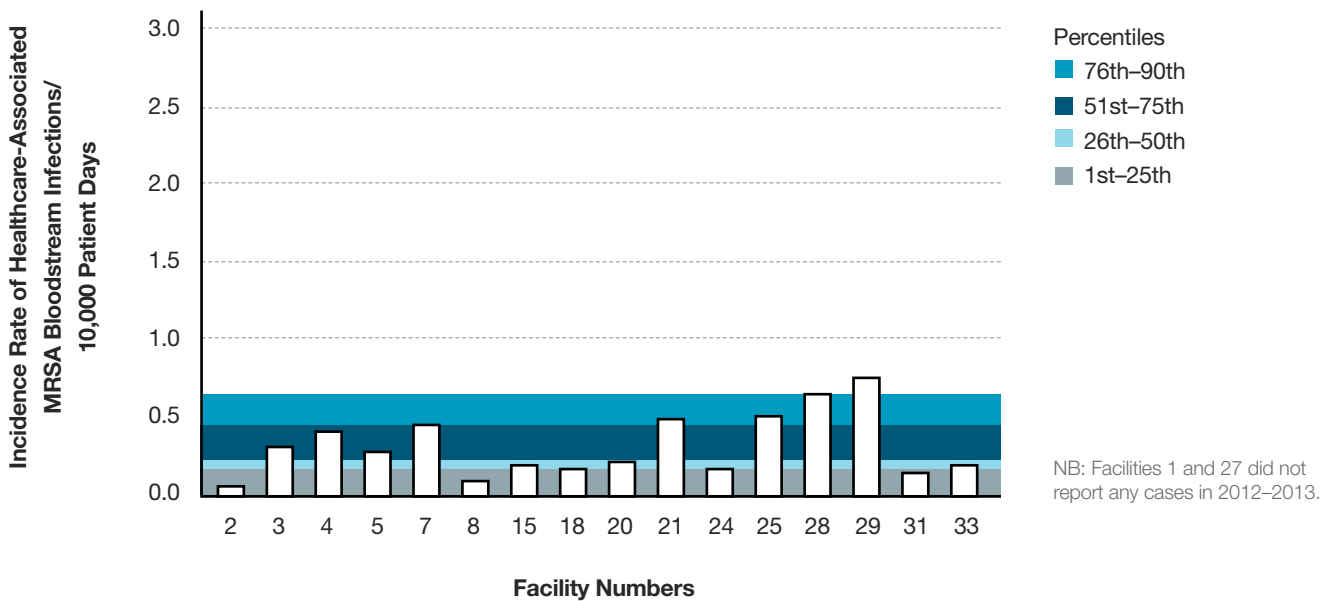


FIGURE 8 Incidence Rate and Percentile Ranking of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) by Facility for Teaching Healthcare Facilities with 250 or More Beds, Québec, 2012–2013



At the local level, in 2012–2013, the incidence rate of HA-MRSA BSIs ranged from 0 to 2.69 per 10,000 patient days. The incidence rate for the past five years of surveillance is shown in Table 6. Significant variations compared with 2011–2012 are also indicated.

Overall, 7 facilities (8.0%) exhibited an increase in the incidence rate of HA-MRSA BSIs per 10,000 patient days compared with the 2011–2012 surveillance year, and 7 facilities (8.0%) exhibited a significant decrease in this incidence rate.

Table 7 presents the number of HA-MRSA BSIs and the proportion of methicillin resistance in HA *S. aureus* BSIs for the past five years.

TABLE 6 Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections (Cat. 1) by Facility, Québec, 2008–2009 to 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

Health Region	Facility		Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections/10,000 Patient Days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
01	16	HÔPITAL RÉGIONAL DE RIMOUSKI	0.17 [0-0.66]	0.17 [0-0.67]	0.18 [0-0.70]	0.19 [0-0.74]	0
	32	CENTRE HOSPITALIER RÉGIONAL DU GRAND-PORTAGE	0	0	0	0.31 [0-1.22]	0.32 [0-1.25]
	61	HÔPITAL NOTRE-DAME-DE-FATIMA	0	0.96 [0-3.76]	1.07 [0-4.20]	1.02 [0-4.01]	0
	71	HÔPITAL DE MATANE	0	0.74 [0-2.91]	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	0.07 [0-0.28]	0.22 [0.04-0.54]	0.15 [0.01-0.43]	0.24 [0.05-0.59]	0.08 [0-0.31]
02	20	HÔPITAL DE CHICOUTIMI	0.48 [0.15-1.00]	0.10 [0-0.4]	0	0	0.22 [0.02-0.63]*
	67	HÔPITAL ET CENTRE DE RÉADAPTATION DE JONQUIÈRE	0	0	0.25 [0-0.97]	0	0.25 [0-0.98]
	74	HÔPITAL DE DOLBEAU-MISTASSINI	0	0	0.51 [0-2.01]	0	0
	88	HÔPITAL. CLSC ET CENTRE D'HÉBERGEMENT DE ROBERVAL	0	0	0	0	0
	112	HÔPITAL D'ALMA	0	0.61 [0.06-1.75]	0.31 [0-1.21]	0	0
		SAGUENAY-LAC-SAINT-JEAN	0.22 [0.07-0.45]	0.14 [0.03-0.34]	0.14 [0.03-0.34]	0	0.14 [0.03-0.34]*
03	2	HÔPITAL DE L'ENFANT-JÉSUS	0.38 [0.12-0.79]	0.29 [0.07-0.65]	0.07 [0-0.28]	0.36 [0.11-0.75]	0.07 [0-0.28]
	7	PAVILLON L'HÔTEL-DIEU DE QUÉBEC	0.23 [0.02-0.66]	0.23 [0.02-0.66]	0.34 [0.06-0.84]	0.12 [0-0.47]	0.47 [0.12-1.04]
	24	HÔPITAL DU SAINT-SACREMENT	0.41 [0.04-1.18]	0	0	0	0.17 [0-0.68]
	27	PAVILLON CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL	0.08 [0-0.32]	0	0	0.17 [0.02-0.48]	0*
	28	PAVILLON SAINT-FRANÇOIS D'ASSISE	0.22 [0.02-0.63]	0.33 [0.06-0.81]	0.33 [0.06-0.81]	0.11 [0-0.43]	0.67 [0.24-1.31]*
	33	INST. UNIV. DE CARDIOL. ET DE PNEUMOL. DE QUÉBEC	0.87 [0.37-1.58]	0.11 [0-0.42]	0.21 [0.02-0.60]	0.31 [0.06-0.76]	0.20 [0.02-0.58]
	86	HÔPITAL DE LA MALBAIE	0	0	0	0	0
	CAPITALE-NATIONALE	0.34 [0.21-0.51]	0.17 [0.08-0.29]	0.15 [0.07-0.26]	0.20 [0.10-0.33]	0.23 [0.12-0.37]	

Health Region	Facility		Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections/10,000 Patient Days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
04	23	HÔTEL-DIEU D'ARTHABASKA	0	0	0	0	0.18 [0-0.71]
	31	PAVILLON SAINT-JOSEPH	0.25 [0.05-0.62]	0.43 [0.14-0.89]	0.25 [0.05-0.61]	0.08 [0-0.32]	0.16 [0.02-0.45]
	41	HÔPITAL DU CENTRE-DE-LA-MAURICIE	0.23 [0-0.89]	0	0	0	0
	44	HÔPITAL SAINTE-CROIX	0.32 [0.03-0.91]	0.17 [0-0.66]	0	0.17 [0-0.66]	0.34 [0.03-0.97]
	85	CSSS DU HAUT-SAINT-AURICE	0	0	0	0	0
		MAURICIE ET CENTRE-DU-QUEBEC	0.21 [0.08-0.41]	0.22 [0.08-0.43]	0.10 [0.02-0.25]	0.07 [0.01-0.20]	0.17 [0.05-0.35]
05	15	HÔPITAL FLEURIMONT	0.24 [0.05-0.59]	0.24 [0.04-0.59]	0.08 [0-0.32]	0.08 [0-0.32]	0.17 [0.02-0.49]
	30	HÔTEL-DIEU DE SHERBROOKE	0	0	0	0.14 [0-0.56]	0.14 [0-0.56]
	49	CSSS MEMPHRÉMAGOG	0	0	0	0	0
	75	CSSS DU GRANIT	0	0	0	0	0
		ESTRIE	0.14 [0.03-0.35]	0.14 [0.03-0.34]	0.05 [0-0.19]	0.10 [0.01-0.28]	0.14 [0.03-0.35]
06	3	HÔPITAL ROYAL VICTORIA	0.36 [0.11-0.74]	0.30 [0.08-0.67]	0.70 [0.32-1.23]	0.23 [0.04-0.56]	0.32 [0.08-0.71]
	4	HÔPITAL NOTRE-DAME DU CHUM	1.58 [0.93-2.40]	0.94 [0.47-1.58]	0.85 [0.40-1.46]	1.01 [0.52-1.66]	0.43 [0.14-0.89]
	5	HÔPITAL GÉNÉRAL JUIF	1.28 [0.80-1.87]	1.10 [0.66-1.65]	0.61 [0.30-1.02]	0.39 [0.15-0.73]	0.29 [0.09-0.60]
	6	HÔPITAL DE MONTRÉAL POUR ENFANTS	0	0	0	0	1.10 [0.29-2.44]*
	8	PAV. MAISONNEUVE / PAV. MARCEL-LAMOUREUX	0.48 [0.20-0.87]	0.53 [0.24-0.93]	0.55 [0.26-0.94]	0.22 [0.06-0.49]	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	0.24 [0-0.94]	0	0.24 [0-0.94]
	21	HÔPITAL SAINT-LUC DU CHUM	0.77 [0.31-1.44]	0.33 [0.06-0.81]	0.83 [0.36-1.5]	0.52 [0.17-1.07]	0.50 [0.16-1.03]
	22	HÔTEL-DIEU DU CHUM	0.82 [0.30-1.60]	1.07 [0.46-1.94]	0.13 [0-0.51]	0.76 [0.27-1.49]	1.12 [0.51-1.97]
	25	HÔPITAL DU SACRÉ-CŒUR DE MONTRÉAL	0.55 [0.25-0.97]	0.62 [0.29-1.06]	1.06 [0.62-1.62]	0.76 [0.39-1.25]	0.52 [0.22-0.94]
	26	HÔPITAL DE VERDUN	0.90 [0.32-1.77]	1.05 [0.42-1.97]	0.54 [0.14-1.20]	0.79 [0.29-1.55]	0.27 [0.03-0.77]
	29	HÔPITAL GÉNÉRAL DE MONTRÉAL	0.53 [0.19-1.04]	0.36 [0.09-0.8]	1.16 [0.61-1.88]	0.73 [0.31-1.32]	0.77 [0.33-1.40]
	34	HÔPITAL SANTA CABRINI	0.31 [0.06-0.76]	0.10 [0-0.40]	0.21 [0.02-0.60]	0.3 [0.06-0.73]	0.66 [0.26-1.24]
	36	HÔPITAL GÉNÉRAL DU LAKESHORE	0.31 [0.03-0.88]	0.59 [0.15-1.31]	0.30 [0.03-0.86]	0.61 [0.16-1.35]	0.72 [0.23-1.49]
	38	HÔPITAL JEAN-TALON	0.38 [0.07-0.94]	0.38 [0.07-0.93]	0.53 [0.10-1.30]	0.18 [0-0.70]	0.57 [0.11-1.39]
	48	CENTRE HOSPITALIER DE ST. MARY	1.12 [0.51-1.97]	0.64 [0.20-1.32]	1.01 [0.43-1.83]	0.25 [0.02-0.72]	1.12 [0.51-1.97]*
	76	HÔPITAL DE LACHINE	0	0.40 [0-1.58]	2.22 [0.70-4.59]	0	0
	80	HÔPITAL FLEURY	0.27 [0-1.05]	0.26 [0-1.02]	0.50 [0.05-1.43]	0.46 [0.04-1.32]	0.23 [0-0.90]
	83	HÔPITAL DE LASALLE	0	0	0.38 [0-1.49]	0.83 [0.08-2.38]	0.83 [0.08-2.38]
	116	INSTITUT THORACIQUE DE MONTRÉAL	0	0.43 [0-1.68]	0.43 [0-1.69]	0.45 [0-1.76]	0.45 [0-1.76]
118	HÔPITAL NEUROLOGIQUE DE MONTRÉAL	0.41 [0-1.61]	0.86 [0.08-2.47]	0.83 [0.08-2.37]	0	0	
	MONTREAL	0.61 [0.50-0.73]	0.54 [0.44-0.66]	0.63 [0.52-0.75]	0.45 [0.36-0.56]	0.47 [0.37-0.58]	

Health Region	Facility		Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections/10,000 Patient Days [95% CI]					
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	
07	39	HÔPITAL DE GATINEAU	0	0	0.17 [0-0.66]	0	0	
	40	HÔPITAL DE HULL	0.15 [0-0.59]	0.44 [0.08-1.08]	0.28 [0.03-0.80]	0	0	
	51	HÔPITAL DE MANIWAKI	0	0	0	0.68 [0-2.67]	0	
	95	HÔPITAL DU PONTIAC	0	0.75 [0-2.94]	0	0	0.72 [0-2.82]	
	111	HÔPITAL DE PAPINEAU	0	0	0	0	0	
			OUTAOUAIS	0.06 [0-0.23]	0.23 [0.06-0.51]	0.17 [0.03-0.41]	0.05 [0-0.20]	0.05 [0-0.21]
08	47	HÔPITAL DE ROUYN-NORANDA	0.75 [0.07-2.15]	0	0.92 [0.09-2.63]	0	0	
	52	CENTRE HOSPITALIER HÔTEL-DIEU D'AMOS	0	0.38 [0-1.49]	0	0.40 [0-1.57]	0	
	65	HÔPITAL ET CLSC DE VAL-D'OR	0	0	0.33 [0-1.30]	0	0	
	70	CENTRE DE SOINS DE COURTE DURÉE LA SARRE	0	0	0	0	0	
	82	PAVILLON SAINTE-FAMILLE	0	0	0	0	2.69 [0.25-7.71]*	
			ABITIBI-TEMISCAMINGUE	0.22 [0.02-0.63]	0.10 [0-0.40]	0.31 [0.06-0.76]	0.10 [0-0.40]	0.21 [0.02-0.60]
09	64	HÔPITAL LE ROYER	0	0	0	0	0.72 [0.07-2.06]*	
	72	HÔPITAL ET CENTRE D'HÉBERGEMENT DE SEPT-ÎLES	0	0.89 [0.08-2.55]	0	0	0	
			0	0.38 [0.04-1.09]	0	0	0.40 [0.04-1.15]*	
10	96	CENTRE DE SANTÉ DE CHIBOUGAMAU	0	0	0	0	0	
		NORD-DU-QUEBEC	0	0	0	0	0	
11	53	HÔPITAL DE CHANDLER	0	0	0	0.67 [0-2.63]	0	
	91	HÔPITAL HÔTEL-DIEU DE GASPÉ	0.69 [0-2.71]	0	0.81 [0-3.17]	0	0.97 [0-3.80]	
	97	HÔPITAL DE MARIA	1.10 [0.10-3.15]	0	0	0	0	
	107	HÔPITAL DE L'ARCHIPEL ^a	-	-	-	0	0	
	109	HÔPITAL DE SAINTE-ANNE-DES-MONTS	0	0	0	0	0	
			GASPESIE-ÎLES-DE-LA-MADELEINE	0.54 [0.10-1.32]	0	0.17 [0-0.67]	0.16 [0-0.62]	0.17 [0-0.66]
12	18	HÔTEL-DIEU DE LÉVIS	0.92 [0.36-1.73]	1.35 [0.64-2.32]	0.39 [0.07-0.95]	0.37 [0.07-0.91]	0.13 [0 pour 0.5]	
	63	HÔPITAL DE SAINT-GEORGES	0.23 [0-0.90]	0.22 [0-0.87]	0	0.21 [0-0.83]	0	
	89	HÔPITAL DE MONTMAGNY	0	0	0	0.87 [0.08-2.49]	0.47 [0-1.85]	
	113	HÔPITAL DE THETFORD MINES	0.41 [0-1.62]	0.42 [0-1.64]	1.12 [0.21-2.75]	0.75 [0.07-2.15]	1.09 [0.20-2.67]	
			CHAUDIÈRE-APPALACHES	0.54 [0.24-0.95]	0.73 [0.38-1.20]	0.35 [0.13-0.69]	0.45 [0.19-0.82]	0.29 [0.09-0.60]
13	19	HÔPITAL CITÉ DE LA SANTÉ	0.52 [0.22-0.94]	0.19 [0.03-0.47]	0.32 [0.10-0.66]	0.06 [0-0.24]	0.52 [0.24-0.92]*	
		LAVAL	0.52 [0.22-0.94]	0.19 [0.03-0.47]	0.32 [0.10-0.66]	0.06 [0-0.24]	0.52 [0.24-0.92]*	
14	11	HÔPITAL PIERRE-LE GARDEUR	0.29 [0.06-0.71]	0	0.10 [0-0.39]	0.20 [0.02-0.58]	0*	
	14	CENTRE HOSPITALIER RÉGIONAL DE LANAUDIÈRE	0.34 [0.06-0.83]	0.70 [0.25-1.37]	0	0.23 [0.02-0.66]	0.34 [0.06-0.84]	
		LANAUDIÈRE	0.31 [0.11-0.61]	0.32 [0.11-0.63]	0.05 [0-0.20]	0.21 [0.05-0.47]	0.16 [0.03-0.39]	

Health Region	Facility		Incidence Rate of Healthcare-Associated MRSA Bloodstream Infections/10,000 Patient Days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
15	45	HÔPITAL DE SAINT-EUSTACHE	0.16 [0-0.63]	0.33 [0.03-0.95]	0.15 [0-0.60]	0	0.12 [0-0.47]
	56	CSSS D'ARGENTEUIL	0	0.60 [0-2.36]	0	1.32 [0.13-3.78]	0*
	81	HÔPITAL DE MONT-LAURIER	0	0	0.59 [0-2.31]	0	0
	101	HÔPITAL RÉGIONAL DE SAINT-JÉRÔME	0.38 [0.10-0.84]	0.20 [0.02-0.57]	0.59 [0.21-1.16]	1.00 [0.48-1.72]	0.29 [0.06-0.71]*
	103	HÔPITAL LAURENTIEN	0	0.69 [0.07-1.97]	0.34 [0-1.33]	0	0
		LAURENTIDES	0.21 [0.07-0.44]	0.32 [0.13-0.60]	0.40 [0.18-0.70]	0.51 [0.26-0.84]	0.16 [0.04-0.36]*
16	1	HÔPITAL CHARLES-LEMOYNE	0.24 [0.05-0.59]	0.54 [0.21-1.01]	0.15 [0.01-0.44]	0.56 [0.22-1.05]	0*
	9	HÔPITAL DU HAUT-RICHELIEU	0.47 [0.12-1.05]	0.49 [0.13-1.09]	0.12 [0-0.48]	0.12 [0-0.47]	0.43 [0.11-0.96]
	10	HÔPITAL PIERRE-BOUCHER	0.30 [0.06-0.74]	0.30 [0.06-0.73]	0.19 [0.02-0.54]	0.20 [0.02-0.57]	0*
	35	HÔPITAL HONORÉ-MERCIER	0.14 [0-0.55]	0	0	0.15 [0-0.59]	0.44 [0.08-1.08]
	37	HÔTEL-DIEU DE SOREL	1.17 [0.42-2.30]	0.20 [0-0.78]	0.20 [0-0.78]	0.39 [0.04-1.12]	0.20 [0-0.78]
	42	HÔPITAL ANNA-LABERGE	0.28 [0.03-0.80]	0.41 [0.08-1.00]	0.42 [0.08-1.03]	0.28 [0.03-0.80]	0.13 [0-0.51]
	46	HÔPITAL DE GRANBY	0.46 [0.04-1.32]	0	0	0.46 [0.04-1.32]	0.94 [0.24-2.09]
	58	HÔPITAL DU SUROÏT	0.19 [0-0.74]	0.35 [0.03-1.00]	0.34 [0.03-0.98]	0.34 [0.03-0.98]	0*
	99	HÔPITAL BROME-MISSISQUOI-PERKINS	0	0.39 [0-1.52]	0	0	0
	130	HÔPITAL BARRIE MEMORIAL ^b	-	0	0.92 [0-3.60]	0	0
	MONTEREGIE	0.35 [0.22-0.51]	0.33 [0.20-0.49]	0.19 [0.10-0.31]	0.30 [0.18-0.45]	0.19 [0.10-0.31]	
	Total	0.40 [0.35-0.46]	0.35 [0.30-0.40]	0.34 [0.29-0.39]	0.29 [0.24-0.34]	0.29 [0.24-0.34]	

NB: When the number of healthcare-associated MRSA bloodstream infections is zero, no percentage is displayed.

a Facility that initiated *S. aureus* bloodstream infection surveillance in 2011-2012 (period 1).

b Facility that initiated *S. aureus* bloodstream infection surveillance in 2009-2010 (period 3).

TABLE 7 Number of Healthcare-Associated MRSA Bloodstream Infections and Proportion of Resistance to Methicillin by Healthcare-Associated *S. aureus* Bloodstream Infections (Cat. 1 + 2b) by Facility, Québec, 2008–2009 to 2012–2013 (Number [%])

Health Region	Facility		Number of Healthcare-Associated MRSA Bloodstream Infections and Proportion of Resistance to Methicillin by Healthcare-Associated <i>S. aureus</i> Bloodstream Infections (N [%])				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
01	16	HÔPITAL RÉGIONAL DE RIMOUSKI	1 (20.0%)	1 (10.0%)	1 (16.7%)	1 (16.7%)	0
	32	CENTRE HOSPITALIER RÉGIONAL DU GRAND-PORTAGE	0	1 (50.0%)	0	1 (16.7%)	1 (50.0%)
	61	HÔPITAL NOTRE-DAME-DE-FATIMA	0	1 (100%)	1 (100%)	1 (100%)	0
	71	HÔPITAL DE MATANE	0	1 (100%)	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	1 (16.7%)	4 (28.6%)	2 (25.0%)	3 (23.1%)
02	20	HÔPITAL DE CHICOUTIMI	6 (33.3%)	1 (9.1%)	1 (10.0%)	1 (25.0%)	2 (11.1%)
	67	HÔPITAL ET CENTRE DE RÉADAPTATION DE JONQUIÈRE	0	0	1 (25.0%)	0	1 (100%)
	74	HÔPITAL DE DOLBEAU-MISTASSINI	0	0	1 (50.0%)	0	0
	88	HÔPITAL. CLSC ET CENTRE D'HÉBERGEMENT DE ROBERVAL	0	0	0	0	0
	112	HÔPITAL D'ALMA	0	2 (100%)	1 (25.0%)	0	0
			SAGUENAY-LAC-SAINT-JEAN	6 (25.0%)	3 (20.0%)	4 (18.2%)	1 (5.9%)
03	2	HÔPITAL DE L'ENFANT-JÉSUS	5 (33.3%)	5 (25.0%)	1 (4.2%)	5 (17.2%)	1 (3.2%)
	7	PAVILLON L'HÔTEL-DIEU DE QUÉBEC	3 (14.3%)	2 (8.0%)	3 (14.3%)	2 (7.4%)	4 (13.8%)
	24	HÔPITAL DU SAINT-SACREMENT	2 (66.7%)	0	0	0	1 (25.0%)
	27	PAVILLON CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL	1 (10.0%)	0	0	2 (22.2%)	0
	28	PAVILLON SAINT-FRANÇOIS D'ASSISE	2 (22.2%)	3 (23.1%)	4 (40.0%)	1 (20.0%)	6 (66.7%)
	33	INST. UNIV. DE CARDIOL. ET DE PNEUMOL. DE QUÉBEC	8 (33.3%)	1 (10.0%)	2 (11.1%)	3 (33.3%)	2 (25.0%)
	86	HÔPITAL DE LA MALBAIE	0	0	0	0	0
			CAPITALE-NATIONALE	21 (25.6%)	11 (13.4%)	10 (11.5%)	13 (16.3%)
04	23	HÔTEL-DIEU D'ARTHABASKA	0	0	0	0	1 (50.0%)
	31	PAVILLON SAINT-JOSEPH	3 (13.0%)	5 (25.0%)	3 (37.5%)	1 (6.3%)	2 (15.4%)
	41	HÔPITAL DU CENTRE-DE-LA-MAURICIE	1 (33.3%)	0	0	0	0
	44	HÔPITAL SAINTE-CROIX	3 (37.5%)	1 (33.3%)	0	1 (16.7%)	2 (40.0%)
	85	CSSS DU HAUT-SAINT-AURICE	0	0	0	0	0
			MAURICIE ET CENTRE-DU-QUÉBEC	7 (17.9%)	6 (24.0%)	3 (14.3%)	2 (6.5%)

Health Region	Facility		Number of Healthcare-Associated MRSA Bloodstream Infections and Proportion of Resistance to Methicillin by Healthcare-Associated <i>S. aureus</i> Bloodstream Infections (N [%])				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
05	15	HÔPITAL FLEURIMONT	3 (12.5%)	3 (15.8%)	1 (4.2%)	1 (7.7%)	2 (10.0%)
	30	HÔTEL-DIEU DE SHERBROOKE	0	0	0	1 (33.3%)	1 (14.3%)
	49	CSSS MEMPHRÉMAGOG	0	0	0	0	0
	75	CSSS DU GRANIT	0	0	0	0	0
		ESTRIE	3 (11.1%)	3 (11.5%)	1 (2.9%)	2 (12.5%)	3 (10.3%)
06	3	HÔPITAL ROYAL VICTORIA	8 (19.0%)	7 (25.0%)	9 (26.5%)	5 (20.0%)	8 (22.2%)
	4	HÔPITAL NOTRE-DAME DU CHUM	18 (29.5%)	12 (32.4%)	11 (31.4%)	14 (35.9%)	6 (25.0%)
	5	HÔPITAL GÉNÉRAL JUIF	28 (46.7%)	19 (47.5%)	13 (32.5%)	8 (30.8%)	5 (17.2%)
	6	HÔPITAL DE MONTRÉAL POUR ENFANTS	0	0	0	1 (10.0%)	4 (36.4%)
	8	PAV. MAISONNEUVE / PAV. MARCEL-LAMOUREUX	11 (25.6%)	10 (28.6%)	10 (21.7%)	8 (21.6%)	2 (5.6%)
	12	CENTRE HOSPITALIER UNIVERSITAIRE SAINTE-JUSTINE	0	0	0	0	0
	13	INSTITUT DE CARDIOLOGIE DE MONTRÉAL	0	0	1 (20.0%)	0	1 (25.0%)
	21	HÔPITAL SAINT-LUC DU CHUM	7 (31.8%)	4 (13.8%)	8 (27.6%)	5 (15.2%)	6 (23.1%)
	22	HÔTEL-DIEU DU CHUM	6 (30.0%)	8 (38.1%)	1 (7.1%)	6 (40.0%)	9 (33.3%)
	25	HÔPITAL DU SACRÉ-CŒUR DE MONTRÉAL	9 (30.0%)	12 (33.3%)	19 (30.6%)	16 (30.8%)	10 (16.7%)
	26	HÔPITAL DE VERDUN	9 (40.9%)	8 (36.4%)	6 (26.1%)	6 (42.9%)	4 (33.3%)
	29	HÔPITAL GÉNÉRAL DE MONTRÉAL	8 (24.2%)	4 (13.3%)	19 (54.3%)	11 (36.7%)	10 (27.8%)
	34	HÔPITAL SANTA CABRINI	3 (33.3%)	1 (16.7%)	2 (20.0%)	3 (17.6%)	8 (47.1%)
	36	HÔPITAL GÉNÉRAL DU LAKESHORE	4 (28.6%)	4 (21.1%)	3 (21.4%)	5 (33.3%)	7 (63.6%)
	38	HÔPITAL JEAN-TALON	3 (30.0%)	3 (50.0%)	3 (50.0%)	1 (9.1%)	3 (50.0%)
	48	CENTRE HOSPITALIER DE ST. MARY	10 (45.5%)	7 (31.8%)	8 (50.0%)	2 (18.2%)	10 (35.7%)
	76	HÔPITAL DE LACHINE	0	1 (100%)	5 (83.3%)	1 (50.0%)	0
	80	HÔPITAL FLEURY	1 (100%)	1 (16.7%)	2 (28.6%)	2 (18.2%)	1 (25.0%)
83	HÔPITAL DE LASALLE	0	0	1 (33.3%)	3 (60.0%)	2 (40.0%)	
116	INSTITUT THORACIQUE DE MONTRÉAL	0	1 (50.0%)	1 (50.0%)	1 (100%)	1 (100%)	
118	HÔPITAL NEUROLOGIQUE DE MONTRÉAL	1 (100%)	2 (66.7%)	2 (66.7%)	0	0	
	MONTRÉAL	126 (30.5%)	104 (28.0%)	124 (30.3%)	98 (26.3%)	97 (24.9%)	
07	39	HÔPITAL DE GATINEAU	0	0	1 (20.0%)	0	0
	40	HÔPITAL DE HULL	1 (10.0%)	3 (25.0%)	2 (28.6%)	0	0
	51	HÔPITAL DE MANIWAKI	0	0	0	1 (33.3%)	0
	95	HÔPITAL DU PONTIAC	0	1 (100%)	0	0	1 (100%)
	111	HÔPITAL DE PAPINEAU	1 (100%)	0	1 (100%)	0	0
	OUTAOUAIS	2 (10.5%)	4 (19.0%)	4 (30.8%)	1 (5.0%)	1 (10.0%)	

Health Region	Facility		Number of Healthcare-Associated MRSA Bloodstream Infections and Proportion of Resistance to Methicillin by Healthcare-Associated <i>S. aureus</i> Bloodstream Infections (N [%])				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
08	47	HÔPITAL DE ROUYN-NORANDA	2 (50.0%)	2 (66.7%)	2 (50.0%)	0	0
	52	CENTRE HOSPITALIER HÔTEL-DIEU D'AMOS	0	1 (50.0%)	0	1 (100%)	0
	65	HÔPITAL ET CLSC DE VAL-D'OR	0	3 (50.0%)	2 (40.0%)	0	1 (11.1%)
	70	CENTRE DE SOINS DE COURTE DURÉE LA SARRE	0	0	0	0	0
	82	PAVILLON SAINTE-FAMILLE	0	0	0	0	2 (66.7%)
			ABITIBI-TÉMISCAMINGUE	2 (15.4%)	6 (50.0%)	4 (33.3%)	1 (12.5%)
09	64	HÔPITAL LE ROYER	0	0	0	0	2 (66.7%)
	72	HÔPITAL ET CENTRE D'HÉBERGEMENT DE SEPT-ÎLES	0	2 (66.7%)	0	0	0
			CÔTE-NORD	0	2 (66.7%)	0	0
10	96	CENTRE DE SANTÉ DE CHIBOUGAMAU	0	0	0	0	0
			NORD-DU-QUÉBEC	0	0	0	0
11	53	HÔPITAL DE CHANDLER	0	0	0	1 (50.0%)	0
	91	HÔPITAL HÔTEL-DIEU DE GASPÉ	1 (100%)	2 (66.7%)	1 (50.0%)	0	1 (50.0%)
	97	HÔPITAL DE MARIA	2 (66.7%)	0	0	0	0
	107	HÔPITAL DE L'ARCHIPEL ^a	-	-	-	0	0
	109	HÔPITAL DE SAINTE-ANNE-DES-MONTS	0	0	0	0	0
		GASPÉSIE-ÎLES-DE-LA-MADELEINE	3 (75.0%)	2 (28.6%)	1 (20.0%)	1 (33.3%)	1 (33.3%)
12	18	HÔTEL-DIEU DE LÉVIS	10 (45.5%)	10 (43.5%)	4 (30.8%)	3 (16.7%)	3 (14.3%)
	63	HÔPITAL DE SAINT-GEORGES	1 (12.5%)	2 (33.3%)	1 (50.0%)	1 (33.3%)	0
	89	HÔPITAL DE MONTMAGNY	0	0	0	2 (66.7%)	1 (33.3%)
	113	HÔPITAL DE THETFORD MINES	1 (25.0%)	1 (100%)	3 (75.0%)	2 (40.0%)	3 (27.3%)
		CHAUDIÈRE-APPALACHES	12 (34.3%)	13 (43.3%)	8 (40.0%)	8 (27.6%)	7 (18.4%)
13	19	HÔPITAL CITÉ DE LA SANTÉ	12 (28.6%)	6 (15.8%)	6 (13.6%)	3 (9.7%)	11 (19.3%)
			LAVAL	12 (28.6%)	6 (15.8%)	6 (13.6%)	3 (9.7%)
14	11	HÔPITAL PIERRE-LE GARDEUR	3 (23.1%)	1 (10.0%)	3 (33.3%)	5 (35.7%)	1 (7.7%)
	14	CENTRE HOSPITALIER RÉGIONAL DE LANAUDIÈRE	3 (14.3%)	7 (33.3%)	0	2 (18.2%)	5 (26.3%)
			LANAUDIÈRE	6 (17.6%)	8 (25.8%)	3 (21.4%)	7 (28.0%)
15	45	HÔPITAL DE SAINT-EUSTACHE	1 (20.0%)	2 (33.3%)	1 (12.5%)	0	1 (16.7%)
	56	CSSS D'ARGENTEUIL	1 (33.3%)	1 (50.0%)	0	2 (33.3%)	0
	81	HÔPITAL DE MONT-LAURIER	0	0	1 (50.0%)	0	0
	101	HÔPITAL RÉGIONAL DE SAINT-JÉRÔME	4 (25.0%)	2 (14.3%)	6 (20.0%)	10 (29.4%)	3 (8.6%)
	103	HÔPITAL LAURENTIEN	0	2 (100%)	1 (33.3%)	0	0
		LAURENTIDES	6 (23.1%)	7 (29.2%)	9 (20.9%)	12 (26.7%)	4 (9.1%)

Health Region	Facility		Number of Healthcare-Associated MRSA Bloodstream Infections and Proportion of Resistance to Methicillin by Healthcare-Associated <i>S. aureus</i> Bloodstream Infections (N [%])				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
16	1	HÔPITAL CHARLES-LEMOYNE	4 (16.7%)	13 (36.1%)	2 (7.1%)	8 (27.6%)	0
	9	HÔPITAL DU HAUT-RICHELIEU	5 (23.8%)	5 (23.8%)	1 (5.9%)	1 (5.9%)	4 (18.2%)
	10	HÔPITAL PIERRE-BOUCHER	3 (20.0%)	4 (44.4%)	3 (27.3%)	3 (25.0%)	0
	35	HÔPITAL HONORÉ-MERCIER	1 (20.0%)	0	0	1 (16.7%)	3 (23.1%)
	37	HÔTEL-DIEU DE SOREL	8 (36.4%)	1 (10.0%)	1 (9.1%)	2 (18.2%)	1 (9.1%)
	42	HÔPITAL ANNA-LABERGE	4 (40.0%)	3 (33.3%)	3 (37.5%)	2 (25.0%)	2 (20.0%)
	46	HÔPITAL DE GRANBY	3 (33.3%)	1 (16.7%)	0	3 (50.0%)	4 (33.3%)
	58	HÔPITAL DU SUROÏT	2 (50.0%)	2 (25.0%)	4 (57.1%)	2 (25.0%)	1 (12.5%)
	99	HÔPITAL BROME-MISSISQUOI-PERKINS	0	1 (16.7%)	0	0	0
	130	HÔPITAL BARRIE MEMORIAL ^b	-	0	1 (20.0%)	0	0
		MONTÉRÉGIE	30 (26.1%)	30 (25.6%)	15 (13.4%)	22 (21.8%)	15 (14.2%)
		Total	237 (26.9%)	209 (25.6%)	193 (22.9%)	174 (21.9%)	173 (20.0%)

NB: When the number of healthcare-associated MRSA bloodstream infections is zero, no percentage is displayed.

a Facility that initiated *S. aureus* bloodstream infection surveillance in 2011–2012 (period 1).

b Facility that initiated *S. aureus* bloodstream infection surveillance in 2009–2010 (period 3).



Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bloodstream Infections Surveillance Results 2012-2013

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Legal deposit – 3rd Quarter 2014
Bibliothèque et Archives nationales du Québec
Library and Archives Canada
ISSN: 2292-258X (French PDF Version)
ISSN: 2368-3120 (PDF)

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The translation of this publication was made possible with funding from the Public Health Agency of Canada.

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de santé publique**

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