



## Vancomycin-Resistant Enterococci (VRE) Infections Surveillance Results 2012–2013

### Healthcare-Associated Infections Provincial Surveillance Program

Volume 1 N° 1 | November 2013

From April 1, 2012, to March 31, 2013, 89 healthcare facilities took part in the surveillance of healthcare-associated vancomycin-resistant enterococci (HA-VRE) infections, for a combined total of 5,017,791 patient days (Table 1). In total, 41 cases of VRE infection were reported among patients who contracted the strain during a current or previous hospital stay in the reporting facility (categories 1a + 1b). The incidence rate of HA-VRE infection (cat. 1a + 1b) was 0.08/10,000 patient days. This incidence rate is similar to the one observed in 2011–2012. The acquisition rate of HA-VRE colonization (cat. 1a + 1b) was 8.26/10,000 patient days.

**TABLE 1** Participation of Healthcare Facilities in the Surveillance of VRE Infections, Québec, 2011–2012 to 2012–2013

	2011-2012 *	2012-2013
Participating facilities (N)	89	89
Admissions (N)	357,497	644,343
Inpatient days (N)	2,807,628	5,017,791
Healthcare-associated VRE infection (cat. 1a + 1b) (N)	30	41**
Healthcare-associated VRE colonization (cat. 1a + 1b) (N)	1,958	4,145

\* The data for 2011–2012 are incomplete, as surveillance was initiated on September 11, 2011.

\*\* This value excludes 66 infections occurring in patients already known as VRE carriers because the origin of acquisition of infection was not requested.

### Incidence Rate

In 2012–2013, the incidence rate of HA-VRE infection (cat. 1a + 1b) was 0.08/10,000 patient days (Table 2). Given that 66 cases of infection were excluded from this calculation because the source of acquisition of the strain was unknown, this rate is an underestimation.

The incidence rate of HA-VRE infection in teaching healthcare facilities is significantly (three times) higher than that in non-teaching facilities (Table 2).

**TABLE 2** Incidence Rate and Percentile Distribution of Healthcare-Associated VRE Infection (Cat. 1a + 1b) 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 (N = 63)	0	0	0	0	0.10	0.29	0.04 [0.02-0.07]
Teaching (N = 26)	0	0	0	0	0.10	1.50	0.12 [0.08-0.17]
<b>Total (N = 89)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.10</b>	<b>1.50</b>	<b>0.08 [0.06-0.11]</b>

[95% CI]: 95% confidence interval.

## Incidence Rate Trends

The incidence rate for HA-VRE infection in 2012–2013 was similar to the one observed in 2011–2012 (Table 3).

**TABLE 3** Change in Incidence Rate of Healthcare-Associated VRE Infection (Cat. 1a + 1b) by Type of Healthcare Facility, Québec, 2011–2012 to 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

	Incidence Rate	
	2011-2012	2012-2013
Non-teaching (N = 63)	0.07 [0.03-0.12]	0.04 [0.02-0.07]
Teaching (N = 26)	0.14 [0.09-0.21]	0.12 [0.08-0.17]
<b>Total (N = 89)</b>	<b>0.11 [0.07-0.15]</b>	<b>0.08 [0.06-0.11]</b>

## Description of Cases

In total, 112 cases of VRE infection were reported: 41 (36.6%) were identified in patients who acquired VRE during a current or recent hospital stay (40 patients and 1 patient, respectively) in the reporting facility (cat. 1a + 1b); 5 were unrelated to a hospital stay in the reporting facility (cat. 2a, 2b, 2c, 3 and 4); and 66 occurred in patients already known to be VRE carriers (Table 4).

**TABLE 4** Cases of VRE Infection by Presumed Source of Acquisition, Québec, 2012–2013 (N,%)

Category	Source of Acquisition	Infection
1a	Healthcare-associated, related to a current hospital stay in the reporting facility	40 (35.7%)
1b	Healthcare-associated, related to a previous hospital stay in the reporting facility	1 (0.9%)
2a, 2b, 2c, 3, 4.	Unrelated to a hospital stay in the reporting facility	5 (4.5%)
Undetermined	Undetermined source, patients already known to be VRE carriers	66 (58.9%)
	<b>Total</b>	<b>112</b>

In 2012–2013, 17 bloodstream infections (BSIs) were reported among the 112 primary infections. Eleven secondary BSIs occurred among the 95 other primary infections (Table 5).

**TABLE 5** Number of Cases of VRE Infection from All Sources by Type of Infection and Number of complications (Secondary BSIs), Québec, 2012–2013 (N = 112)

Type of Infection	N	Secondary BSI
Primary BSI	11	N/A
Primary BSI related to catheter use	6	N/A
Primary BSI related to hemodialysis venous access	0	N/A
Urinary infection	30	2
Skin/soft tissue infection	30	1
Abdominal infection	19	4
Surgical site infection	10	3
Pulmonary infection	4	0
Central nervous system infection	1	0
Bone/joint infection	0	0
Other infection	1	1
<b>Total</b>	<b>112</b>	<b>11</b>

N/A: not applicable

A total of 21 deaths were observed, yielding a case fatality of 18.8% (Table 6).

**TABLE 6** Number of Deaths and 30-Day case fatality Related to VRE Infection, Québec, 2011–2012 to 2012–2013

	2011-2012	2012-2013
VRE infections (all sources)	63	112
Number of deaths	12	21
Case fatality	19.0%	18.8%

## Colonization and Screening Protocol

In 2012–2013, the acquisition rate of HA-VRE colonization (cat. 1a + 1b) was 8.26/10,000 patient days. This figure was almost twice as high in teaching healthcare facilities as it was in non-teaching facilities (Table 7).

**TABLE 7** Change in the Number of Cases and Acquisition Rate of Healthcare-Associated VRE Colonization (Cat. 1a + 1b) by Type of Healthcare Facility, Québec, 2011–2012 to 2012–2013 (Acquisition Rate of Healthcare-Associated VRE Colonization per 10,000 Patient Days)

	2011-2012		2012-2013	
	Number of Cases of Colonization	Acquisition Rate of HA-VRE Colonization	Number of Cases of Colonization	Acquisition Rate of HA-VRE Colonization
Non-teaching (N = 63)	790	5.75	1,395	5.63
Teaching (N = 26)	1,168	8.15	2,750	10.82
<b>Total (N = 89)</b>	<b>1,958</b>	<b>6.97</b>	<b>4,145</b>	<b>8.26</b>

Table 8 shows the number of facilities that identified the type of screening procedures used at admission and during hospitalization. Almost all the teaching facilities (24 out of 26) identified their screening procedures, compared with two-thirds of their non-teaching counterparts (46 and 42 out of 63).

**TABLE 8** Number of Healthcare Facilities that Identified the Type of Screening Procedures Used at Admission and During Hospitalization by Type of Facility, Québec, 2012–2013

	Number of Facilities that Identified the Type of Screening Procedures Used*		
	At Admission	During Hospitalization	Total
Non-teaching	46	42	<b>63</b>
Teaching	24	24	<b>26</b>
<b>Total</b>	<b>70</b>	<b>66</b>	<b>89</b>

\* The number of facilities that reported the type of screening procedures used at admission and during hospitalization is not additive.

Tables 9 and 10 feature the total number of screening tests performed at admission and during hospitalization, as well as the mean number of VRE screening tests per admission.

**TABLE 9** Total Number of Screening Tests Performed at Admission and During Hospitalization by Type of Healthcare Facility, Québec, 2012–2013

	Total Number of Screening Tests			
	At Admission	During Hospitalization	Unspecified	Total
Non-teaching	113,178	83,844	123,166	<b>320,188</b>
Teaching	95,424	203,518	26,326	<b>325,268</b>
<b>Total</b>	<b>208,602</b>	<b>287,362</b>	<b>149,492</b>	<b>645,456</b>

**TABLE 10** Mean Number of VRE Screening Score by Type of Healthcare Facility, Québec, 2012–2013 (Mean VRE Screening Tests per Admission)

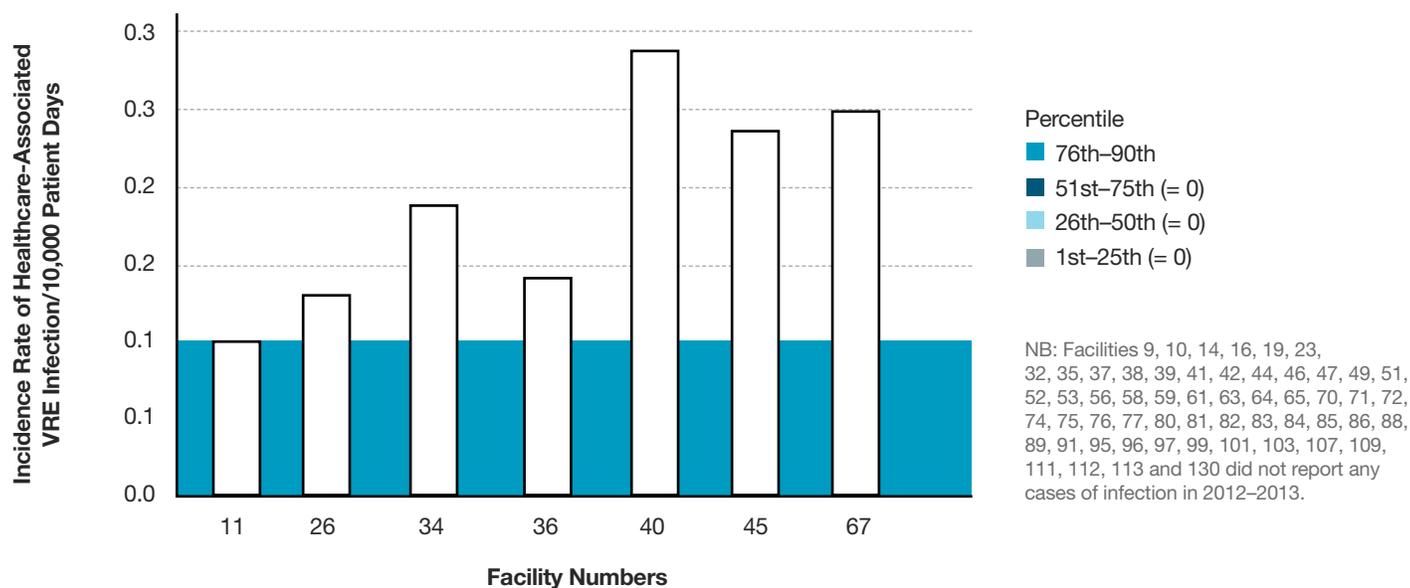
	Mean number of VRE Screening Score*		
	At Admission	During Hospitalization	Total
Non-teaching	0.55	0.44	<b>0.98</b>
Teaching	0.34	0.71	<b>1.02</b>
<b>Total</b>	<b>0.43</b>	<b>0.61</b>	<b>1.00</b>

\* The mean numbers of VRE screening score at admission and during hospitalization are not additive.

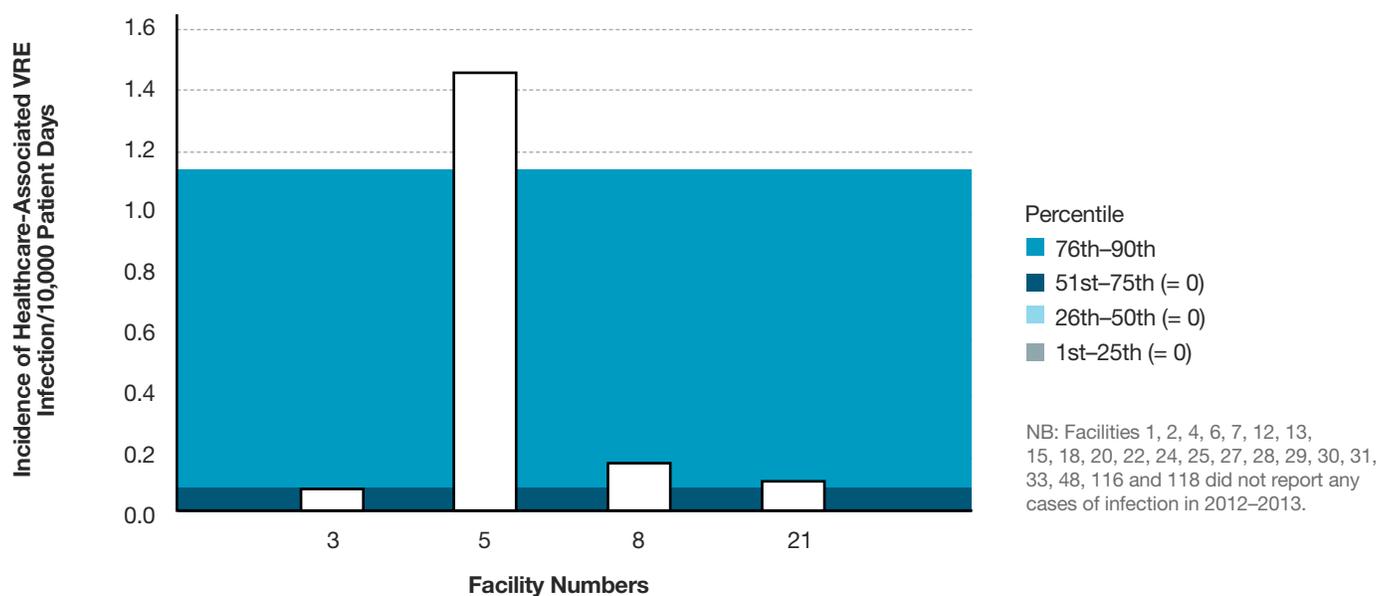
## Data per Facility

The incidence rate of HA-VRE infection and the percentile rankings by type of facility are shown in Figures 1 and 2. Figures 3 and 4 feature the rate of acquisition and percentile ranking of HA-VRE colonization by type of facility.

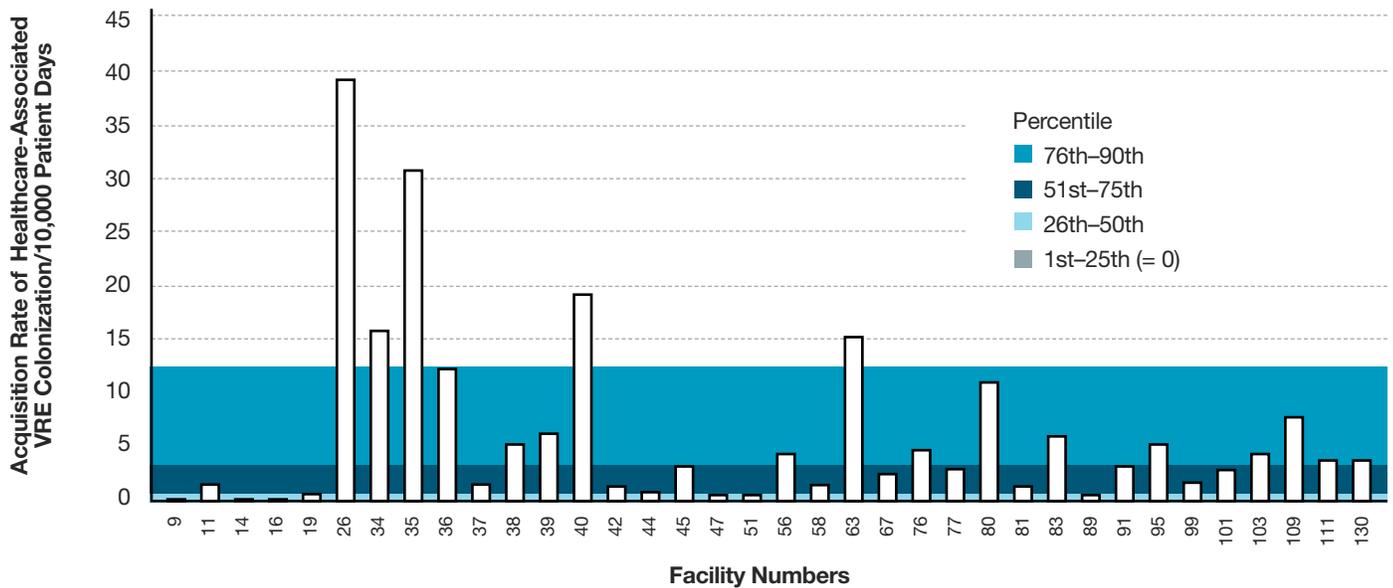
**FIGURE 1** Incidence Rate and Percentile Ranking of Healthcare-Associated VRE Infection (Cat. 1a + 1b) for Non-Teaching Healthcare Facilities, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days)



**FIGURE 2** Incidence Rate and Percentile Ranking of Healthcare-Associated VRE Infection (Cat. 1a + 1b) for Teaching Healthcare Facilities, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days)

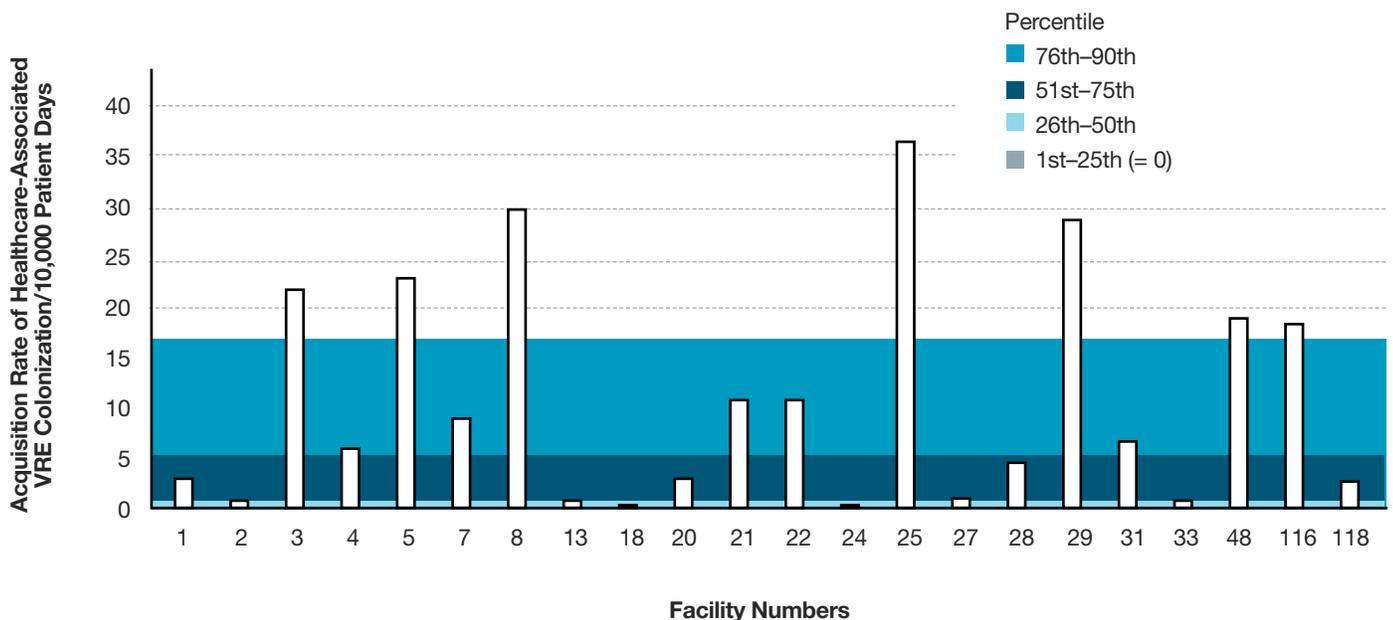


**FIGURE 3** Acquisition Rate of Healthcare-Associated VRE Colonization (Cat. 1a + 1b) in Non-Teaching Healthcare Facilities, Québec, 2012–2013 (Acquisition Rate of Healthcare-Associated VRE Colonization per 10,000 Patient Days)



NB: Facilities 10, 23, 32, 41, 46, 49, 52, 53, 59, 61, 64, 65, 70, 71, 72, 74, 75, 82, 84, 85, 86, 88, 96, 97, 107, 112 and 113 did not report any cases of colonization in 2012–2013.

**FIGURE 4** Acquisition Rate of Healthcare-Associated VRE Colonization (Cat. 1a + 1b) in Teaching Healthcare Facilities, Québec, 2012–2013 (Acquisition Rate of Healthcare-Associated VRE Colonization per 10,000 Patient Days)



NB: Facilities 6, 12, 15 and 30 did not report any cases of colonization in 2012–2013.

At the local level, in 2012–2013, the incidence rate of HA-VRE infection ranged from 0 to 1.50 per 10,000 patient days, whereas the acquisition rate of HA-VRE colonization ranged from 0 to 41.83 per 10,000 patient days. A total of 31 facilities (34.8%) did not report any HA infection or colonization in 2012–2013. A detailed summary of the surveillance data for HA-VRE infections by healthcare facility can be found in Table 11.

**TABLE 11** Incidence Rate of Healthcare-Associated VRE Infection (Cat. 1a + 1b), Acquisition Rate of Healthcare-Associated VRE Colonization and Mean VRE Screening Tests by Admission and by Facility, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI]; Acquisition Rate of Colonization per 10,000 Patient Days)

Health Region	Facility		Incidence Rate of HA-VRE Infection (Cat. 1a + 1b) [95% CI]	Acquisition Rate of HA-VRE Colonization (Cat. 1a + 1b)	Mean VRE Screening Tests per Admission*
	Number	Name			
1	16	HÔPITAL RÉGIONAL DE RIMOUSKI	0	0.18	1.15
	32	CENTRE HOSPITALIER RÉGIONAL DU GRAND-PORTAGE	0	0	0.57
	61	HÔPITAL NOTRE-DAME-DE-FATIMA	0	0	0.27
	71	HÔPITAL DE MATANE	0	0	0.50
	77	HÔPITAL D'AMQUI	0	3.62	3.37
	84	HÔPITAL DE NOTRE-DAME-DU-LAC	0	0	0.83
			<b>BAS-SAINT-LAURENT</b>	<b>0</b>	<b>0.32</b>
2	20	HÔPITAL DE CHICOUTIMI	0	3.06	0.61
	67	HÔPITAL ET CENTRE DE RÉADAPTATION DE JONQUIÈRE	0.25 [0; 0.99]	3.03	0.92
	74	HÔPITAL DE DOLBEAU-MISTASSINI	0	0	0.84
	88	HÔPITAL. CLSC ET CENTRE D'HÉBERGEMENT DE ROBERVAL	0	0	0.90
	112	HÔPITAL D'ALMA	0	0	0.46
			<b>SAGUENAY-LAC-SAINT-JEAN</b>	<b>0.05 [0; 0.18]</b>	<b>1.88</b>
3	2	HÔPITAL DE L'ENFANT-JÉSUS	0	0.87	1.07
	7	PAVILLON L'HÔTEL-DIEU DE QUÉBEC	0	8.69	1.06
	24	HÔPITAL DU SAINT-SACREMENT	0	0.52	1.34
	27	PAVILLON CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL	0	1.07	1.00
	28	PAVILLON SAINT-FRANÇOIS D'ASSISE	0	4.55	1.45
	33	INST. UNIV. DE CARDIOL. ET DE PNEUMOL. DE QUÉBEC	0	0.30	1.39
	59	HÔPITAL DE BAIE-SAINT-PAUL	0	0	1.05
	86	HÔPITAL DE LA MALBAIE	0	0	1.25
			<b>CAPITALE-NATIONALE</b>	<b>0</b>	<b>2.41</b>
4	23	HÔTEL-DIEU D'ARTHABASKA	0	0	0.59
	31	PAVILLON SAINT-JOSEPH	0	6.71	1.22
	41	HÔPITAL DU CENTRE-DE-LA-MAURICIE	0	0	1.03
	44	HÔPITAL SAINTE-CROIX	0	1.19	1.02
	85	CSSS DU HAUT-SAINT-AURICE	0	0	0.64
			<b>MAURICIE ET CENTRE-DU-QUÉBEC</b>	<b>0</b>	<b>3.14</b>

Health Region	Facility		Incidence Rate of HA-VRE Infection (Cat. 1a + 1b) [95% CI]	Acquisition Rate of HA-VRE Colonization (Cat. 1a + 1b)	Mean VRE Screening Tests per Admission*
	Number	Name			
05	15	HÔPITAL FLEURIMONT	0	0	0.18
	30	HÔTEL-DIEU DE SHERBROOKE	0	0	0.28
	49	CSSS DE MEMPHRÉMAGOG	0	0	0.71
	75	CSSS DU GRANIT	0	0	0.04
		<b>ESTRIE</b>	<b>0</b>	<b>0</b>	<b>0.22</b>
06	3	HÔPITAL ROYAL VICTORIA	0.08 [0; 0.31]	21.12	0.85
	4	HÔPITAL NOTRE-DAME DU CHUM	0	5.73	1.82
	5	HÔPITAL GÉNÉRAL JUIF	1.50 [0.98; 2.13]	22.19	0.28
	6	HÔPITAL DE MONTRÉAL POUR ENFANTS	0	0	0.05
	8	PAV. MAISONNEUVE / PAV. MARCEL-LAMOUREUX	0.16 [0.03; 0.40]	28.69	1.05
	12	CENTRE HOSPITALIER UNIVERSITAIRE SAINTE-JUSTINE	0	0	0.09
	13	INSTITUT DE CARDIOLOGIE DE MONTRÉAL	0	0.96	1.48
	21	HÔPITAL SAINT-LUC DU CHUM	0.10 [0; 0.39]	10.35	1.25
	22	HÔTEL-DIEU DU CHUM	0	10.49	2.85
	25	HÔPITAL DU SACRÉ-CŒUR DE MONTRÉAL	0	35.14	1.66
	26	HÔPITAL DE VERDUN	0.13 [0; 0.52]	41.83	1.45
	29	HÔPITAL GÉNÉRAL DE MONTRÉAL	0	27.76	1.64
	34	HÔPITAL SANTA CABRINI	0.19 [0.02; 0.54]	17.01	1.86
	36	HÔPITAL GÉNÉRAL DU LAKESHORE	0.14 [0; 0.57]	13.12	1.62
	38	HÔPITAL JEAN-TALON	0	5.85	1.76
	48	CENTRE HOSPITALIER DE ST. MARY	0	18.22	1.16
	76	HÔPITAL DE LACHINE	0	5.09	3.21
	80	HÔPITAL FLEURY	0	11.82	1.96
83	HÔPITAL DE LASALLE	0	6.66	0.33	
116	INSTITUT THORACIQUE DE MONTRÉAL	0	17.89	1.97	
118	HÔPITAL NEUROLOGIQUE DE MONTRÉAL	0	2.72	1.79	
	<b>MONTRÉAL</b>	<b>0.20 [0.14; 0.28]</b>	<b>18.19</b>	<b>1.18</b>	
07	39	HÔPITAL DE GATINEAU	0	6.79	0.77
	40	HÔPITAL DE HULL	0.29 [0.03; 0.83]	20.7	0.92
	51	HÔPITAL DE MANIWAKI	0	0.67	1.27
	95	HÔPITAL DU PONTIAC	0	5.75	1.55
	111	HÔPITAL DE PAPINEAU	0	4.13	1.71
	<b>OUTAOUAIS</b>	<b>0.11 [0.01; 0.31]</b>	<b>11.2</b>	<b>0.99</b>	
08	47	HÔPITAL DE ROUYN-NORANDA	0	0.79	0.04
	52	CENTRE HOSPITALIER HÔTEL-DIEU D'AMOS	0	0	0.03
	65	HÔPITAL ET CLSC DE VAL-D'OR	0	0	0.04
	70	CENTRE DE SOINS DE COURTE DURÉE LA SARRE	0	0	0.06
	82	PAVILLON SAINTE-FAMILLE	0	0	0.09
	<b>ABITIBI-TÉMISCAMINGUE</b>	<b>0</b>	<b>0.21</b>	<b>0.04</b>	

Health Region	Facility		Incidence Rate of HA-VRE Infection (Cat. 1a + 1b) [95% CI]	Acquisition Rate of HA-VRE Colonization (Cat. 1a + 1b)	Mean VRE Screening Tests per Admission*
	Number	Name			
09	64	HÔPITAL LE ROYER	0	0	0.07
	72	HÔPITAL ET CENTRE D'HÉBERGEMENT DE SEPT-ÎLES	0	0	0.04
		<b>CÔTE-NORD</b>	<b>0</b>	<b>0</b>	<b>0.05</b>
10	96	CENTRE DE SANTÉ DE CHIBOUGAMAU	0	0	0.57
		<b>NORD-DU-QUÉBEC</b>	<b>0</b>	<b>0</b>	<b>0.57</b>
11	53	HÔPITAL DE CHANDLER	0	0	0.99
	91	HÔPITAL HÔTEL-DIEU DE GASPÉ	0	3.87	0.56
	97	HÔPITAL DE MARIA	0	0	0.30
	107	HÔPITAL DE L'ARCHIPEL	0	0	0.14
	109	HÔPITAL DE SAINTE-ANNE-DES-MONTS	0	8.38	1.15
		<b>GASPÉSIE-ÎLES-DE-LA-MADELEINE</b>	<b>0</b>	<b>1.69</b>	<b>0.58</b>
12	18	HÔTEL-DIEU DE LÉVIS	0	0.13	0.58
	63	HÔPITAL DE SAINT-GEORGES	0	16.41	1.89
	89	HÔPITAL DE MONTMAGNY	0	0.47	1.11
	113	HÔPITAL DE THETFORD MINES	0	0	0.88
	<b>CHAUDIÈRE-APPALACHES</b>	<b>0</b>	<b>4.22</b>	<b>1.04</b>	
13	19	HÔPITAL CITÉ DE LA SANTÉ	0	0.81	0.57
		<b>LAVAL</b>	<b>0</b>	<b>0.81</b>	<b>0.57</b>
14	11	HÔPITAL PIERRE-LE GARDEUR	0.10 [0; 0.39]	1.80	1.01
	14	CENTRE HOSPITALIER RÉGIONAL DE LANAUDIÈRE	0	0.23	1.14
		<b>LANAUDIÈRE</b>	<b>0.05 [0; 0.21]</b>	<b>1.07</b>	<b>1.07</b>
15	45	HÔPITAL DE SAINT-EUSTACHE	0.24 [0.02; 0.68]	3.68	1.18
	56	CSSS D'ARGENTEUIL	0	4.82	3.13
	81	HÔPITAL DE MONT-LAURIER	0	1.66	1.26
	101	HÔPITAL RÉGIONAL DE SAINT-JÉRÔME	0	3.33	1.84
	103	HÔPITAL LAURENTIEN	0	4.93	1.02
	<b>LAURENTIDES</b>	<b>0.08 [0.01; 0.23]</b>	<b>3.60</b>	<b>1.47</b>	
16	1	HÔPITAL CHARLES-LEMOYNE	0	2.88	1.62
	9	HÔPITAL DU HAUT-RICHELIEU	0	0.33	0.90
	10	HÔPITAL PIERRE-BOUCHER	0	0	0.17
	35	HÔPITAL HONORÉ-MERCIER	0	32.85	1.88
	37	HÔTEL-DIEU DE SOREL	0	1.77	0.80
	42	HÔPITAL ANNA-LABERGE	0	1.72	1.10
	46	HÔPITAL DE GRANBY	0	0	0.38
	58	HÔPITAL DU SUROÏT	0	1.83	1.14
	99	HÔPITAL BROME-MISSISQUOI-PERKINS	0	2.09	0.85
	130	HÔPITAL BARRIE MEMORIAL	0	0.77	1.52
	<b>MONTÉRÉGIE</b>	<b>0</b>	<b>4.55</b>	<b>0.98</b>	
	<b>Total</b>	<b>0.08 [0.06; 0.11]</b>	<b>8.26</b>	<b>1.00</b>	





## Vancomycin-Resistant Enterococci (VRE) Infections Surveillance Results 2012–2013

### **AUTHOR**

**Comité de surveillance provinciale des infections nosocomiales (SPIN)**

### **EDITORIAL COMMITTEE**

**Christophe Garenc**, Direction des risques biologiques et de la santé au travail, Institut national de santé publique du Québec

**Isabelle Rocher**, Direction des risques biologiques et de la santé au travail, Institut national de santé publique du Québec

**Mélissa Trudeau**, Direction des risques biologiques et de la santé au travail, Institut national de santé publique du Québec

**Patrice Vigeant**, Centre de santé et de services sociaux du Suroît

An electronic format (PDF) of this document can be downloaded from the Institut national de santé publique du Québec Web site at <http://www.inspq.qc.ca>.

Reproductions for the purpose of private study or research are authorized under section 29 of the Copyright Act. Any other use requires authorization from the Government of Québec, which holds exclusive intellectual property rights over this document. Authorization may be obtained by submitting a request to the central clearing house, Service de la gestion des droits d'auteur des Publications du Québec; the form can be obtained from the following Web site: <http://www.droitauteur.gouv.qc.ca/autorisation.php>, or by sending an email to [droit.auteur@cspq.gouv.qc.ca](mailto:droit.auteur@cspq.gouv.qc.ca).

Data in this document can be cited on condition that the source is credited.

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

©Government of Québec (2014)

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

**Institut national  
de santé publique**

**Québec** 