



## *Clostridium difficile*– Associated Diarrhea (CDAD) surveillance results: 2012–2013

### Healthcare-Associated Infections Provincial Surveillance Program

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From April 1, 2012, to March 31, 2013, 95 health-care facilities participated in the surveillance of *Clostridium difficile*–associated diarrhea (CDAD), for a combined total of 5,233,966 inpatient days (Table 1). The participating facilities reported 3,797 cases of healthcare-associated (HA) CDAD. The total incidence rate of HA-CDAD was 7.3 cases per 10,000 patient days. This incidence rate was stable compared to the rate of 2011–2012. The 10-day case fatality was 8.7% (n = 304) while the 30-day one was 16.1% (n = 560). In total, 32 (0.9%) colectomies were reported.

**TABLE 1** Participation of Healthcare Facilities in the Surveillance of CDAD, Québec, 2008–2009 to 2012–2013\*

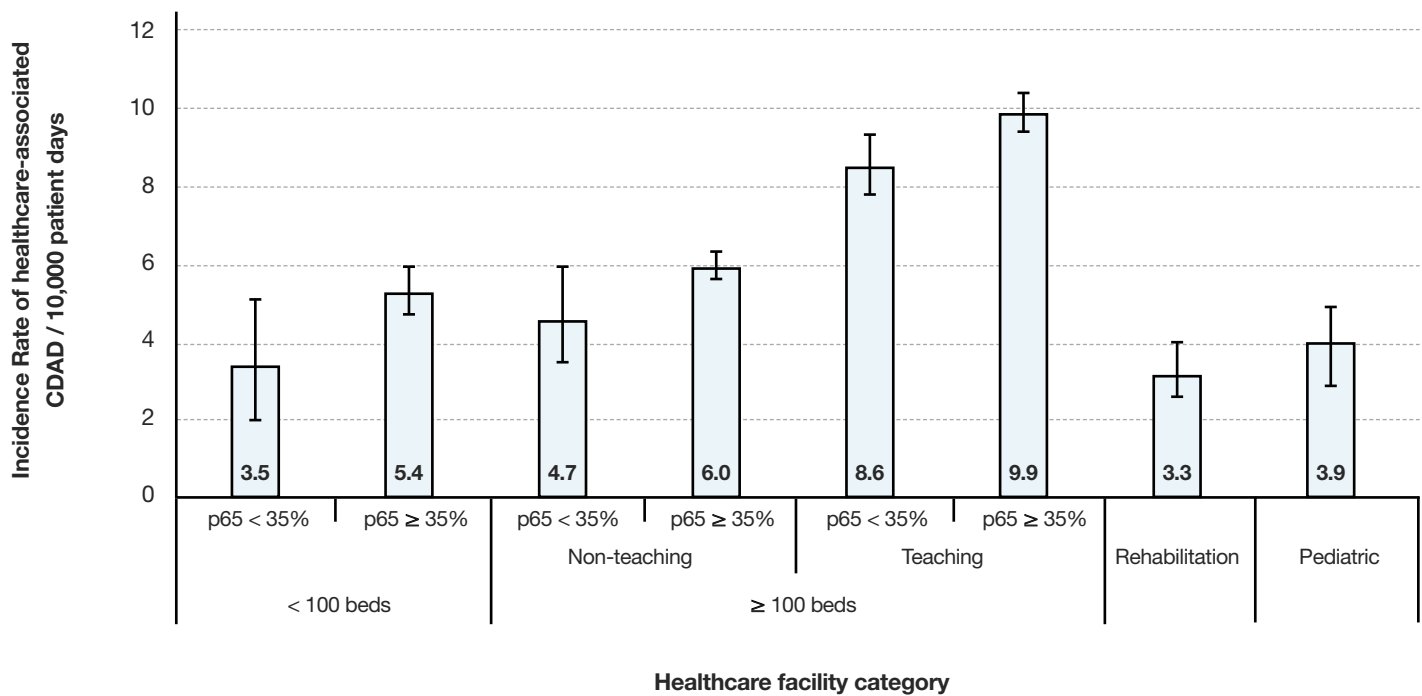
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Participating facilities (N)	95	95	95	95	95
Admissions (N)	615,847	608,380	617,103	630,156	640,609
Inpatient days (N)	5,117,789	5,106,622	5,160,240	5,176,519	5,233,966
healthcare-associated CDAD cases (cat. 1) (N)	3,299	3,266	3,635	3,778	3,797

\* These results are based on a surveillance year (April 1–March 31) that corresponds to the fiscal year for Québec healthcare facilities which is different from the surveillance results published by the Institut national de santé publique du Québec (INSPQ) in previous years.

### Incidence Rates

In 2012–2013, the incidence rate for HA-CDAD was 7.3 cases per 10,000 patient days (Table 2). Incidence rates remain significantly higher in teaching facilities, irrespective of the proportion of admitted patients aged 65 years or older (Figure 1 and Table 2).

**FIGURE 1** Healthcare-Associated CDAD Incidence Rate, by Healthcare Facility Category, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



p65: Proportion of admitted patients aged 65 years or older.  
95% CI: 95% confidence interval

In 2012–2013, the healthcare facility categories (Table 2) associated with a CDAD incidence rate higher than that of the reference facilities (facilities < 100 beds and p65 < 35%) were:

- Facilities < 100 beds and p65 ≥ 35% (univariate rate ratio = 1.5);
- Non-teaching facilities ≥ 100 beds and p65 ≥ 35% (univariate rate ratio = 1.7);
- Teaching facilities ≥ 100 beds and p65 < 35% (univariate rate ratio = 2.5);
- Teaching facilities ≥ 100 beds and p65 ≥ 35% (univariate rate ratio = 2.9).

**TABLE 2** Percentile, Incidence Rate and Univariate Rate Ratio of Healthcare-Associated CDAD by Healthcare Facility Category, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

Healthcare Facility Category	Distribution Indicator						Incidence Rate [95% CI]	Univariate Rate Ratio [95% CI]
	Min.	25%	50%	75%	90%	Max.		
Facilities < 100 beds and p65 < 35% (N = 4)	0	1.5	3.3	4.2	4.7	4.7	3.5 [2.3–4.9]	(Ref.)
Facilities < 100 beds and p65 ≥ 35% (N = 29)	0	1.9	4.2	7.7	9.9	16.5	5.4 [4.7–6.1]	1.5 [1.0–2.3]
Non-teaching ≥ 100 beds and p65 < 35% (N = 4)	2.0	2.3	4.1	6.8	7.9	7.9	4.7 [3.6–5.9]	1.4 [0.9–2.1]
Non- teaching ≥ 100 beds and p65 ≥ 35% (N = 28)	0.8	3.5	5.5	8.0	10.7	11.5	6.0 [5.7–6.4]	1.7 [1.2–2.5]
Teaching ≥ 100 beds and p65 < 35% (N = 6)	2.5	3.2	8.4	13.9	16.1	16.1	8.6 [7.9–9.3]	2.5 [1.7–3.6]
Teaching ≥ 100 beds and p65 ≥ 35% (N = 16)	3.0	6.8	8.5	11.9	14.9	16.4	9.9 [9.5–10.4]	2.9 [2.0–4.2]
Rehabilitation (N = 6)	0	1.5	3.6	5.9	5.9	5.9	3.3 [2.7–4.0]	1.0 [0.6–1.5]
Pediatric (N = 2)	3.2	3.2	3.7	4.2	4.2	4.2	3.9 [2.8–5.3]	1.1 [0.7–1.8]
<b>Total (N = 95)</b>	<b>0</b>	<b>3.0</b>	<b>5.6</b>	<b>8.4</b>	<b>11.1</b>	<b>16.5</b>	<b>7.3 [7.1–7.5]</b>	

There are two teaching facilities included in the healthcare facilities with fewer than 100 beds category.

The univariate analysis of Table 3 reveals that:

- Facilities with 250 beds or more have a higher annual incidence rate of CDAD than facilities with fewer than 100 beds (univariate rate ratio of 1.8);
- Teaching facilities have a higher incidence rate than non-teaching facilities (univariate rate ratio of 1.7);
- Rehabilitation facilities have a lower incidence rate than non-teaching facilities (univariate rate ratio of 0.6);
- Pediatric facilities have a lower incidence rate than non-teaching facilities (univariate rate ratio of 0.7).

**TABLE 3** Healthcare-Associated CDAD Incidence Rate and Univariate Rate Ratio Stratified by Number of Beds, Proportion of Admitted Patients Aged 65 Years or Older and Type of Healthcare Facility, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

Facility Characteristics	Incidence Rate [I.C. 95%]	Univariate Rate Ratio [I.C. 95%]
<b>Number of Beds*</b>		
< 100 beds (N = 33)	5.1 [4.5-5.7]	(Ref.)
100-249 beds (N = 30)	5.4 [5.1-5.8]	1.1 [0.9-1.2]
≥ 250 beds (N = 26)	9.1 [8.7-9.4]	1.8 [1.6-2.0]
<b>Proportion of Admitted Patients Aged 65 Years or Older**</b>		
p65 < 35% (N = 14)	7.4 [6.8-8.0]	(Ref.)
p65 ≥ 35% (N = 73)	7.6 [7.3-7.9]	1.1 [1.0-1.2]
<b>Type of Healthcare Facility</b>		
Non-teaching (N = 63)	5.7 [5.4-6.0]	(Ref.)
Teaching (N = 24)	9.3 [8.9-9.7]	1.7 [1.6-1.8]
Rehabilitation (N = 6)	3.3 [2.7-4.0]	0.6 [0.5-0.7]
Pediatric (N = 2)	3.9 [2.8-5.3]	0.5 [0.4-0.6]

\* The six rehabilitation facilities are excluded from the analysis.

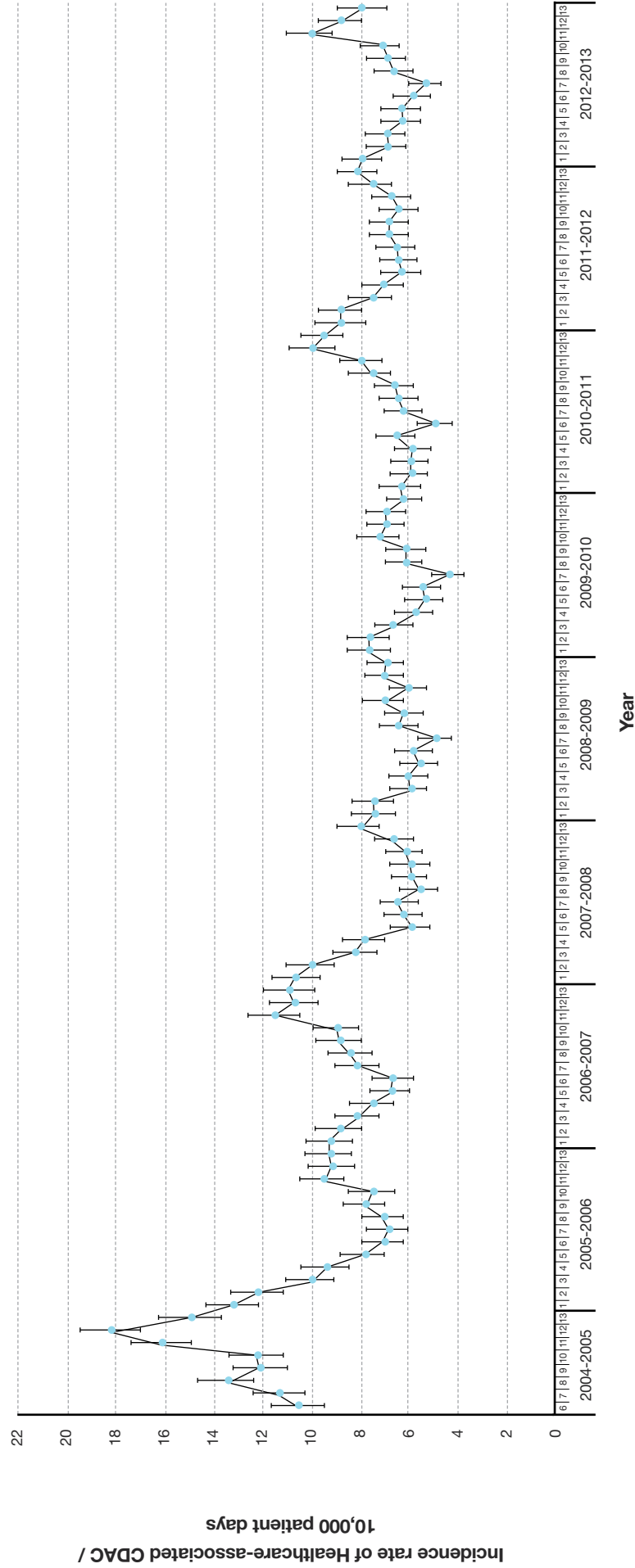
\*\* The six rehabilitation facilities and two pediatric facilities are excluded from the analysis.

## Incidence Rate Trends

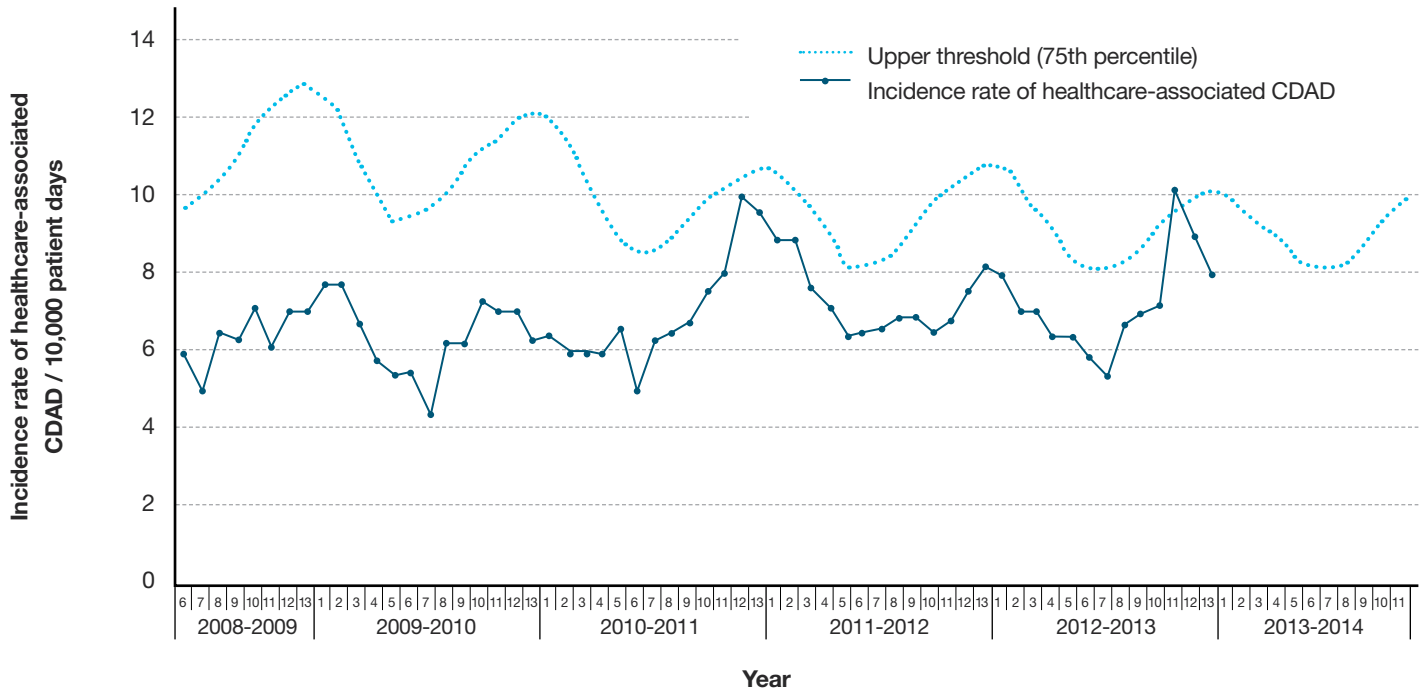
HA-CDAD incidence rates in 2012–2013 were stable compared to 2011–2012 (Table 4), although two significant increases were observed in periods 11 and 12 of 2012–2013 compared with the same periods in 2011–2012 (Figures 2 and 3).

**FIGURE 2**

Healthcare-Associated CDAD Incidence Rate for Participating Healthcare Facilities, Québec, 2004–2005 to 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI]) (N = 88)



**FIGURE 3** Healthcare-Associated CDAD Incidence Rate and 75th percentile Threshold Value for Participating Facilities, Québec, 2008–2009 to 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI]) (N = 95)



HA-CDAD incidence rates continue to be higher in teaching healthcare facilities, irrespective of the proportion of admitted patients aged 65 years or older. Compared with 2011–2012, only non-teaching facilities with 100 or more beds and 35% or more admitted patients aged 65 years or older ( $p_{65} \geq 35\%$ ) demonstrated a significant drop in their CDAD incidence rate (Table 4).

**TABLE 4** Healthcare-Associated CDAD Incidence Rate by Healthcare Facility Category, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Facilities < 100 beds, $p_{65} < 35\%$ (N = 4)	3.4 [2.3–4.8]	1.9 [1.1–3.0]	3.1 [2.0–4.4]	5.3 [3.8–7.0]	3.5 [2.3–4.9]
Facilities < 100 beds, $p_{65} \geq 35\%$ (N = 29)	4.4 [3.8–5.0]	4.2 [3.6–4.8]	6.4 [5.7–7.2]	5.0 [4.4–5.7]	5.4 [4.7–6.1]
Non-teaching $\geq 100$ beds, $p_{65} < 35\%$ (N = 4)	7.2 [5.9–8.7]	7.8 [6.4–9.3]	7.6 [6.2–9.1]	6.0 [4.8–7.4]	4.7 [3.6–5.9]
Non-teaching $\geq 100$ beds, $p_{65} \geq 35\%$ (N = 28)	6.1 [5.7–6.5]	5.7 [5.4–6.1]	6.4 [6.0–6.8]	6.6 [6.2–7.0]	6.0 [5.7–6.4]
Teaching $\geq 100$ beds, $p_{65} < 35\%$ (N = 6)	7.1 [6.4–7.8]	7.0 [6.3–7.7]	7.4 [6.7–8.1]	8.0 [7.3–8.7]	8.6 [7.9–9.4]
Teaching $\geq 100$ beds, $p_{65} \geq 35\%$ (N = 16)	8.1 [7.7–8.5]	8.6 [8.2–9.0]	8.7 [8.3–9.1]	9.6 [9.1–10.1]	9.9 [9.4–10.4]
Rehabilitation facilities (N = 6)	2.1 [1.6–2.7]	2.3 [1.8–2.9]	3.3 [2.7–4.0]	3.0 [2.4–3.7]	3.3 [2.7–4.0]
Pediatric facilities (N = 2)	2.9 [1.9–4.0]	1.7 [1.0–2.6]	3.2 [2.2–4.4]	2.5 [1.6–3.5]	3.9 [2.8–5.2]
<b>Total</b>	<b>6.4 [6.2–6.7]</b>	<b>6.4 [6.2–6.6]</b>	<b>7.0 [6.8–7.3]</b>	<b>7.3 [7.1–7.5]</b>	<b>7.3 [7.0–7.5]</b>

## Description of Cases

In total, 5,448 cases of CDAD were reported of which 4,487 (82.4%) were healthcare-associated (cat. 1, 2a and 2b). There were 3,797 (69.7%) cases which were associated to current or recent hospitalization in the reporting facility (cat. 1) (Table 5).

**TABLE 5** Distribution of CDAD Cases by Presumed Origin of Acquisition, Québec, 2012–2013 (N, %)

Category	Origin of Acquisition	N	%
1	Healthcare-associated with the reporting facility	3,797	69.7
2a	Healthcare-associated with another facility	333	6.1
2b	Healthcare-associated with ambulatory care	357	6.6
3	Community	698	12.8
4	Unknown	263	4.8
	<b>Total</b>	<b>5,448</b>	<b>100.0</b>

Data related to complications were available in 3,476 of the 3,797 cases of HA-CDAD (91.5%). The 10-day case fatality (n = 304: 8.7%) is comparable to the 11- to 30-day case fatality rate (n = 256: 7.4%). In addition to the 560 deaths that occurred within 30 days (16.1%), 32 colectomies (0.9%), 182 readmissions (5.2%) and 95 transfers to an intensive care unit (ICU) (2.7%) were reported (Table 6). As of 2009-2010, the percentage of deaths within 30 days has remained stable, in the range of 15.4% to 17.3%.

**TABLE 6** Number of Deaths, Case Fatality Rate and Complications Related to Healthcare-Associated CDAD, Québec, 2008–2009 to 2012–2013 [N (%)]

	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Number and percentage of CDAD cases with documented complications	2,638 (80.0)	2,978 (91.2)	3,343 (92.0)	3,550 (94.0)	3,476 (91.5)
Number of facilities reporting complications	87	87	89	91	88
<b>Deaths</b>					
Death within 10 days	173 (6.6)	258 (8.7)	318 (9.5)	305 (8.6)	304 (8.7)
Death within 30 days*	327 (12.4)	478 (16.1)	580 (17.3)	545 (15.4)	560 (16.1)
<b>Other complications</b>					
Colectomy	32 (1.2)	50 (1.7)	59 (1.8)	53 (1.5)	32 (0.9)
Readmission	148 (5.6)	130 (4.4)	170 (5.1)	155 (4.4)	182 (5.2)
Transfer to ICU	46 (1.7)	85 (2.9)	94 (2.8)	98 (2.8)	95 (2.7)

\*: The number of deaths within 30 days includes the number of deaths within 10 days.

## Microbiology

Participating facilities submitted stool samples from patients with HA-CDAD to the Laboratoire de santé publique du Québec (LSPQ). During the specified periods in 2012–2013, the LSPQ received and tested 628 samples from 62 facilities (Table 7). *C. difficile* was isolated in 604 of 628 samples. Pulsovar A (NAP1/027) was predominant, with 42.9% of the identified strains (n = 259). Pulsovar A2-5 was more common in 2012–2013, representing 10.1% of the strains analyzed (n = 61) (Table 8). Pulsovar B1, which was very prevalent in 2004–2005, has now virtually disappeared.

**TABLE 7** Participation of Healthcare Facilities in the Laboratory Surveillance of *C. difficile*, Québec, 2007–2008 to 2012–2013 (N)

	2007-2008	2009-2010	2010-2011	2011-2012	2012-2013
Periods	11 in 2007–2008 to 4 in 2008–2009	12 in 2009–2010 to 5 in 2010–2011	12 to 13 in 2010–2011	1 to 13 in 2011–2012	1 to 13 in 2012–2013
Number of designated periods (N)	7	7	2	13	13
Participating facilities (N)	46	65	55	60	62

Note: There was no strain surveillance in 2008–2009.

**TABLE 8** Number and Proportion of Pulsovars in *C. difficile* Strains, Québec, 2007–2008 to 2012–2013 [N, (%)]

	2007-2008	2009-2010	2010-2011	2011-2012	2012-2013
Pulsovar A	205 (53.1)	210 (46.4)	126 (51.8)	273 (50.6)	259 (42.9)
Pulsovar A1	9 (2.3)	2 (0.4)	6 (2.5)	12 (2.2)	12 (2.0)
Pulsovar A2-5	1 (0.3)	55 (12.1)	19 (7.8)	31 (5.7)	61 (10.1)
Pulsovar B1	3 (0.8)	2 (0.4)	0	3 (0.6)	4 (0.7)
Pulsovar C	13 (3.4)	1 (0.2)	6 (2.5)	8 (1.5)	6 (1.0)
Pulsovar C1-1	0	9 (2.0)	10 (4.1)	18 (3.3)	11 (1.8)
Pulsovar R1	6 (1.6)	6 (1.3)	0	2 (0.4)	10 (1.7)
Other pulsovars	149 (38.6)	168 (37.1)	76 (31.3)	193 (35.7)	241 (39.9)
<b>Total</b>	<b>386</b>	<b>453</b>	<b>243</b>	<b>540</b>	<b>604</b>

The number of complications associated with the various pulsovars was calculated, taking into account the total number of samples in which the *C. difficile* strain was isolated (Table 9). The 30-day case fatality for CDAD was higher for pulsovars A and A2 5 (17.2%) than it was for other pulsovars (13.4%).



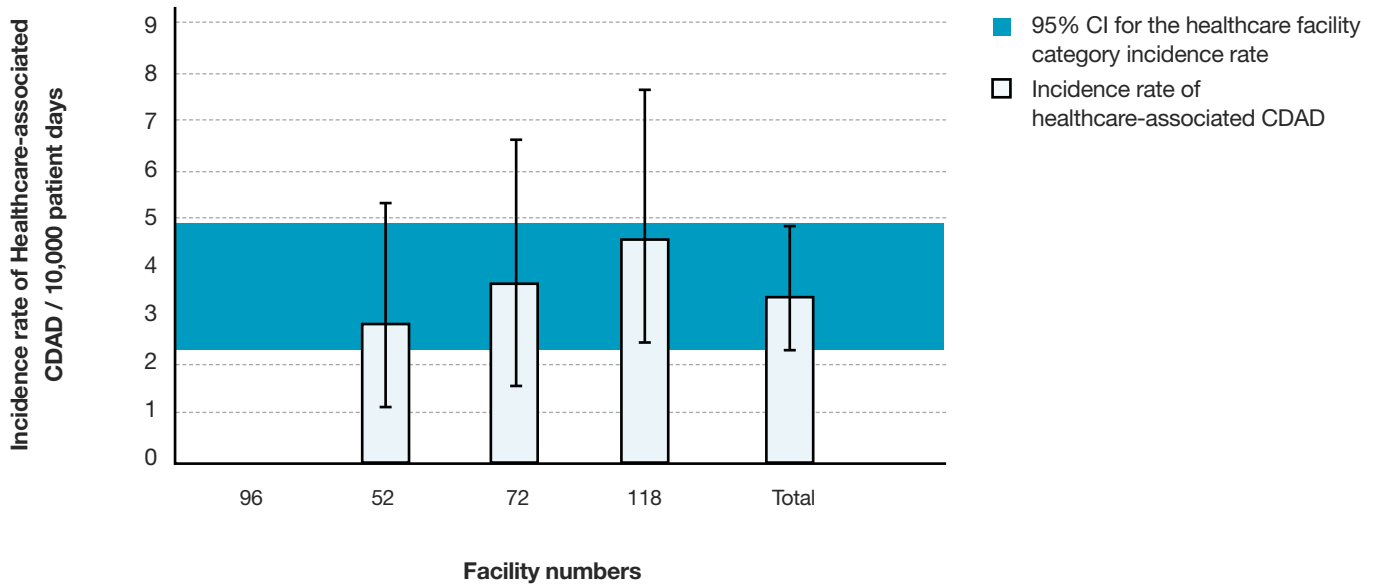
**TABLE 9** Number of Deaths, Case Fatality and Complications by Pulsovar, Québec, 2012–2013 [N, (%)]

	Death in 10 Days	Death in 30 Days	Other Complications	
			Colectomy	Transfer to ICU
Pulsovars A and A2-5 (N = 320)	32 (10.0)	55 (17.2)	4 (1.2)	15 (4.7)
Other pulsovars (N = 284)	24 (8.4)	38 (13.4)	1 (0.4)	7 (2.5)

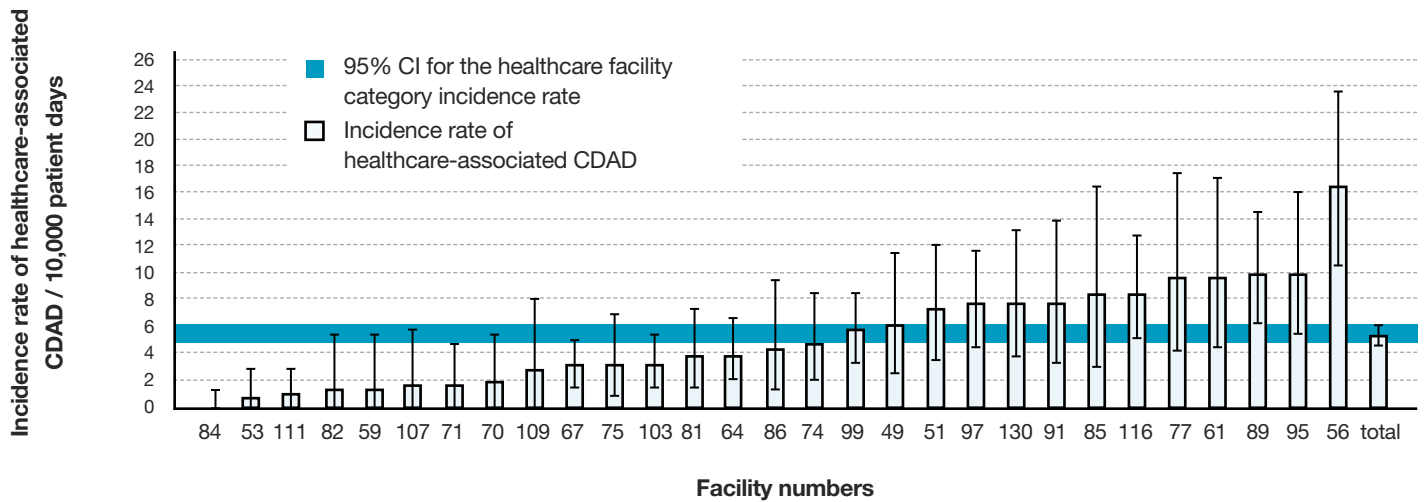
### Data per Healthcare Facility

The HA-CDAD incidence rates by healthcare facility and healthcare facility category are shown in Figures 5 through 12.

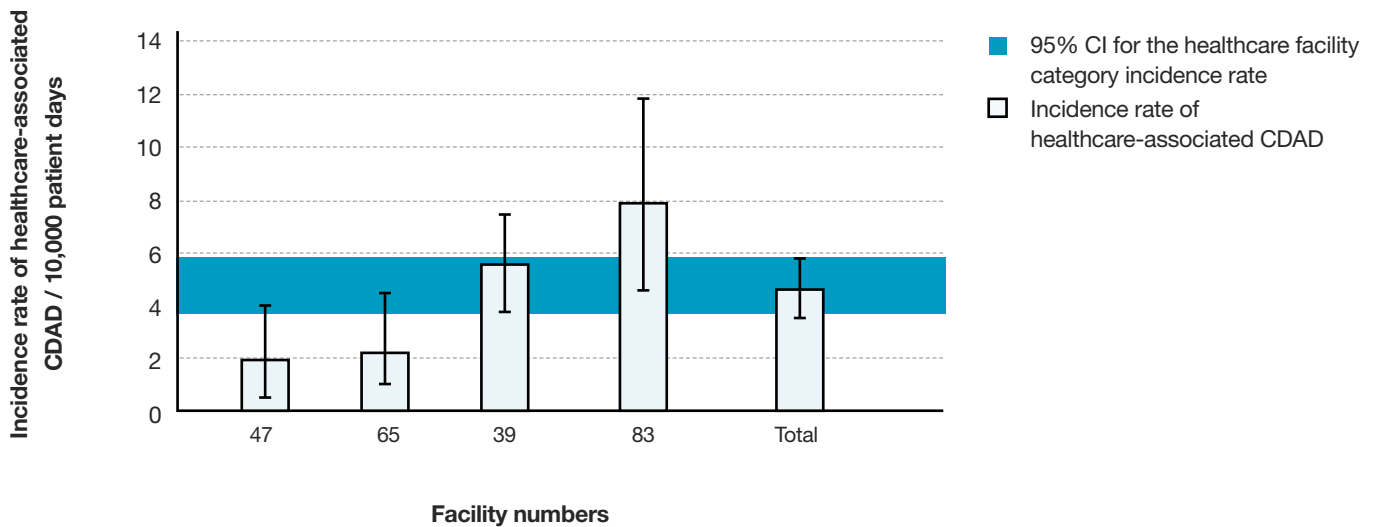
**FIGURE 5** Healthcare-Associated CDAD Incidence Rate, Among Facilities with Fewer than 100 Beds and a Proportion of Admitted Patients Aged 65 Years or Older Below 35%, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



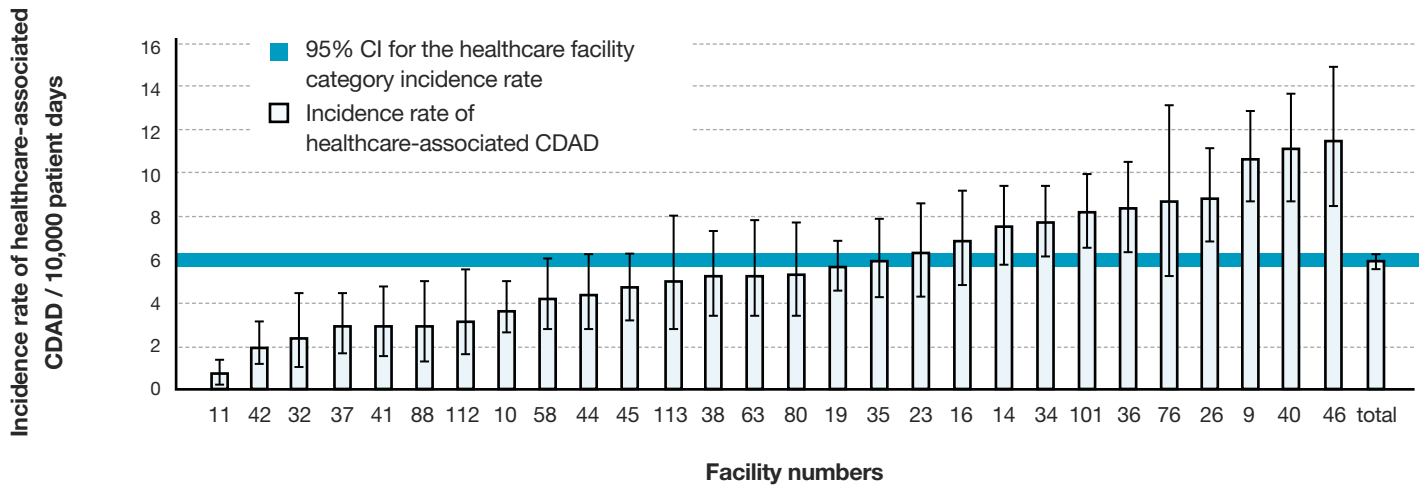
**FIGURE 6** Healthcare-Associated CDAD Incidence Rate Among Facilities with Fewer than 100 Beds and a Proportion of Admitted Patients Aged 65 Years or Older of 35% or More, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



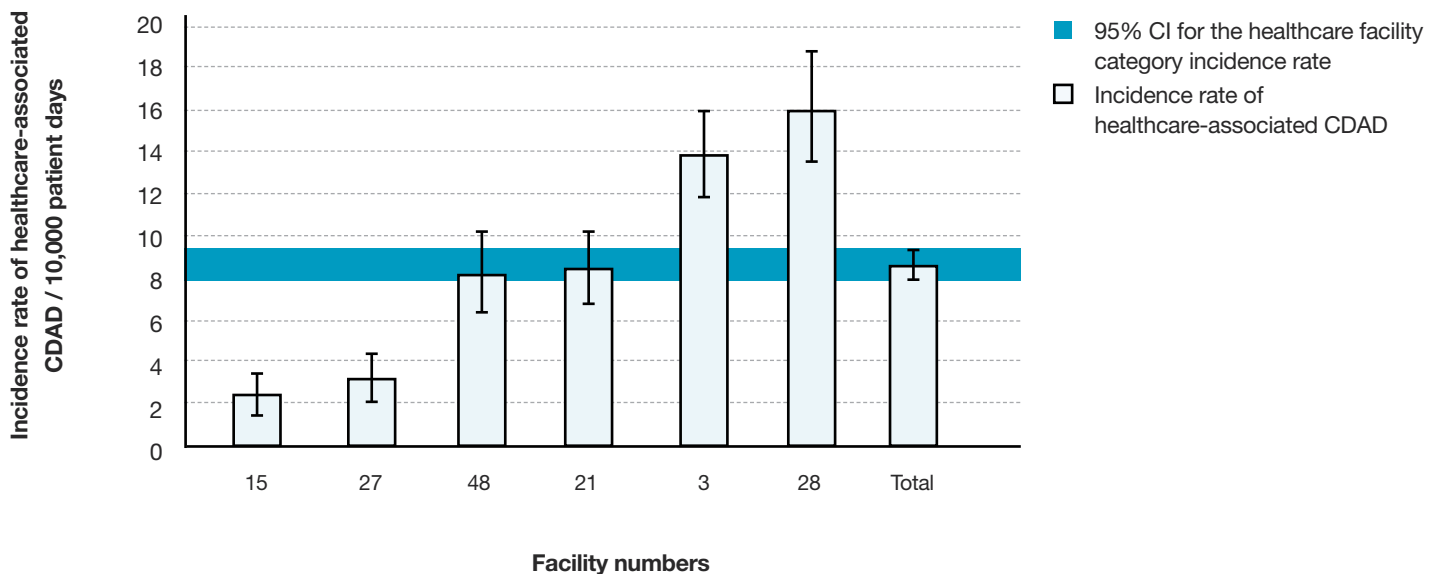
**FIGURE 7** Healthcare-Associated CDAD Incidence Rate Among Non-Teaching Facilities with 100 Beds or More and a Proportion of Admitted Patients Aged 65 Years or Older Below 35%, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



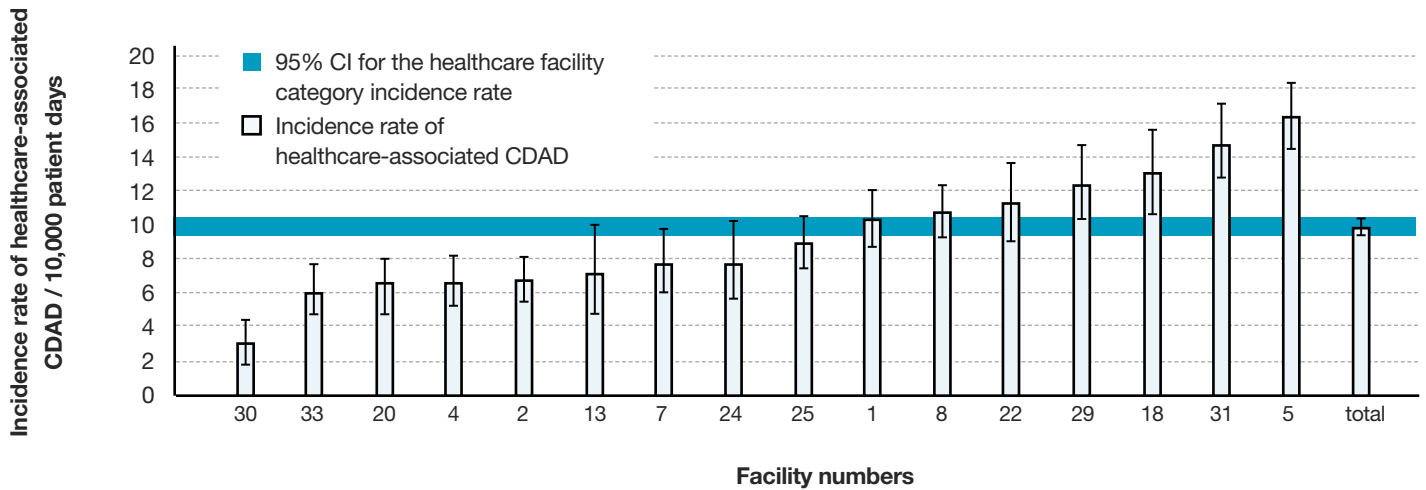
**FIGURE 8** Healthcare-Associated CDAD Incidence Rate Among Non-Teaching Facilities with 100 Beds or More and a Proportion of Admitted Patients Aged 65 Years or Older of 35% or More, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



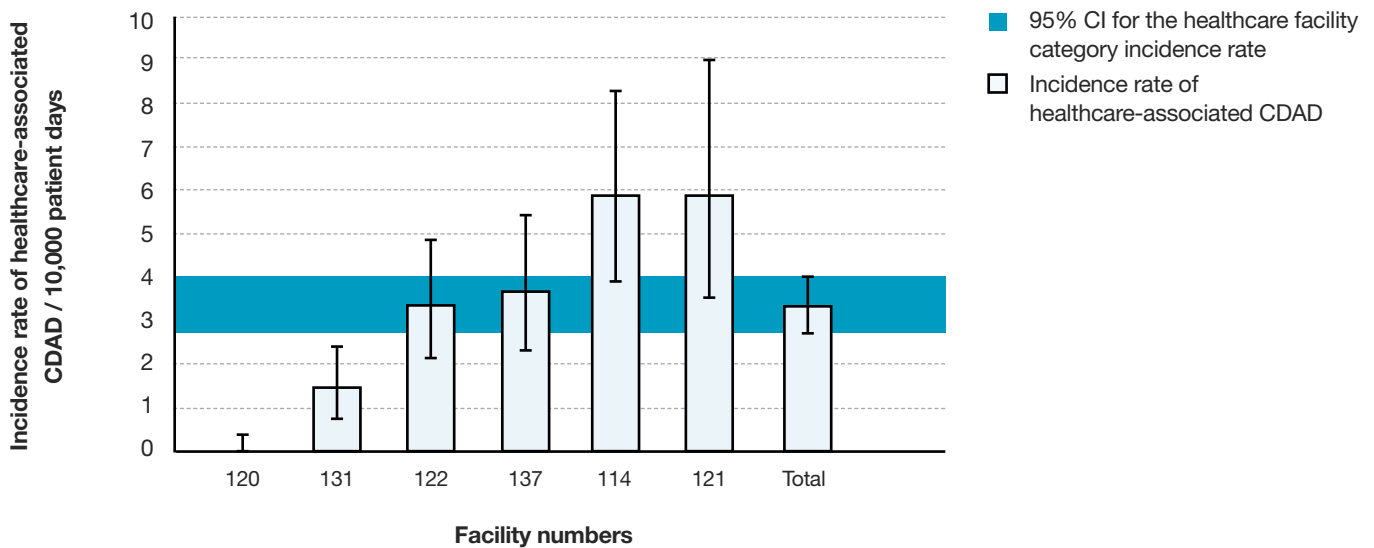
**FIGURE 9** Healthcare-Associated CDAD Incidence Rate Among Teaching Facilities with 100 Beds or More and a Proportion of Admitted Patients Aged 65 Years or Older Below 35%, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



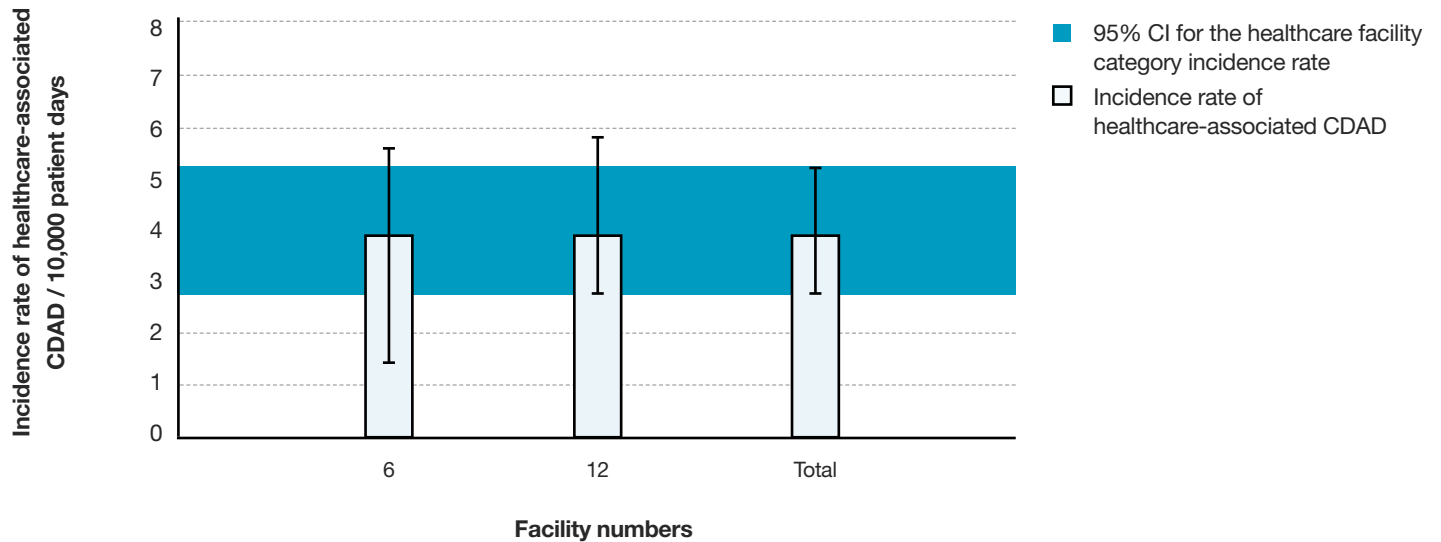
**FIGURE 10** Healthcare-Associated CDAD Incidence Rate Among Teaching Facilities with 100 Beds or More and a Proportion of Admitted Patients Aged 65 Years or Older of 35% or More, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



**FIGURE 11** Healthcare-Associated CDAD Incidence Rate Among Rehabilitation Facilities, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



**FIGURE 12** Healthcare-Associated CDAD Incidence Rate Among Pediatric Facilities, Québec, 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])



The HA-CDAD incidence rate ranged from 0 to 16.5/10,000 patient days in 2012–2013 among the healthcare facilities in Québec. The incidence rates for the past five years of surveillance are indicated in Table 10. Overall, 15 healthcare facilities (15.7%) saw a significant increase in their HA-CDAD incidence rate compared with 2011–2012, whereas 10 facilities (10.5%) experienced a significant decrease.

**TABLE 10** Healthcare-Associated CDAD Incidence Rate per Healthcare Facility, Québec, 2008–2009 to 2012–2013 (Incidence Rate per 10,000 Patient Days [95% CI])

HR	Facility		Incidence rate of healthcare-associated CDAD / 10,000 patient days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
01	16	HÔPITAL RÉGIONAL DE RIMOUSKI	7.6 [5.5-10.0]	10.1 [7.7-12.9]	9.8 [7.4-12.6]	16.0 [12.8-19.6]	7.0 [5.0-9.4]*
	32	CENTRE HOSPITALIER RÉGIONAL DU GRAND-PORTAGE	6.1 [3.8-9.0]	2.1 [0.8-4.0]	4.6 [2.6-7.2]	3.1 [1.5-5.3]	2.6 [1.1-4.7]
	61	CENTRE NOTRE-DAME-DE-FATIMA	2.9 [0.5-7.1]	0	9.7 [4.4-17.1]	8.2 [3.5-14.9]	9.8 [4.4-17.2]
	71	HÔPITAL DE MATANE	2.9 [0.8-6.4]	0.7 [0-2.8]	3.0 [0.8-6.7]	3.7 [1.2-7.7]	1.6 [0.1-4.6]
	77	HÔPITAL D'AMQUI	4.2 [1.1-9.3]	6.0 [2.2-11.8]	16.8 [9.6-26.0]	17.8 [10.2-27.6]	9.7 [4.2-17.6]
	84	HÔPITAL DE NOTRE-DAME-DU-LAC	11.1 [5.3-19.0]	6.4 [2.3-12.5]	0	7.1 [2.6-13.9]	0*
		<b>BAS-SAINT-LAURENT</b>	<b>6.3 [5.0-7.7]</b>	<b>5.8 [4.6-7.2]</b>	<b>7.6 [6.2-9.2]</b>	<b>10.3 [8.6-12.2]</b>	<b>5.3 [4.1-6.7]*</b>

HR	Facility		Incidence rate of healthcare-associated CDAD / 10,000 patient days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
02	20	HÔPITAL DE CHICOUTIMI	3.9 [2.8-5.2]	3.9 [2.7-5.3]	3.2 [2.1-4.5]	3.5 [2.4-4.8]	6.4 [4.8-8.2]*
	67	HÔPITAL ET CENTRE DE RÉADAPTATION DE JONQUIÈRE	0.8 [0.2-2.0]	1.0 [0.3-2.2]	3.9 [2.2-6.1]	3.6 [2.0-5.7]	3.0 [1.5-4.9]
	74	HÔPITAL DE DOLBEAU-MISTASSINI	4.2 [1.8-7.6]	0	3.6 [1.4-6.8]	2.9 [1.0-5.7]	4.7 [2.0-8.5]
	88	HÔPITAL. CLSC ET CENTRE D'HÉBERGEMENT DE ROBERVAL	1.5 [0.5-3.1]	0.9 [0.2-2.2]	2.3 [0.9-4.3]	1.2 [0.3-2.6]	3.0 [1.4-5.1]
	112	HÔPITAL D'ALMA <b>SAGUENAY-LAC-SAINT-JEAN</b>	2.3 [1.0-4.2] <b>2.8 [2.2-3.5]</b>	0.9 [0.2-2.2] <b>2.2 [1.6-2.9]</b>	14.6 [10.7-19.1] <b>5.0 [4.1-6.0]</b>	8.8 [5.8-12.4] <b>3.8 [3.0-4.7]</b>	3.2 [1.5-5.5]* <b>4.6 [3.7-5.6]</b>
03	2	HÔPITAL DE L'ENFANT-JÉSUS	7.3 [5.9-8.8]	8.3 [6.8-9.9]	3.5 [2.6-4.6]	6.9 [5.6-8.4]	6.8 [5.5-8.3]
	7	PAVILLON L'HÔTEL-DIEU DE QUÉBEC	11.0 [8.9-13.3]	10.1 [8.1-12.3]	13.4 [11.1-15.9]	9.9 [7.9-12.1]	7.7 [5.9-9.7]
	24	HÔPITAL DU SAINT-SACREMENT	9.5 [7.0-12.4]	4.2 [2.6-6.2]	4.7 [3.0-6.8]	5.3 [3.6-7.4]	7.9 [5.8-10.4]
	27	PAVILLON CENTRE HOSPITALIER DE L'UNIVERSITÉ LAVAL	8.7 [7.0-10.6]	7.5 [5.9-9.3]	7.1 [5.6-8.8]	5.0 [3.7-6.5]	3.2 [2.2-4.4]
	28	PAVILLON SAINT-FRANÇOIS D'ASSISE	11.3 [9.2-13.6]	12.0 [9.9-14.4]	12.8 [10.6-15.2]	11.3 [9.2-13.6]	16.1 [13.6-18.8]*
	33	INSTITUT UNIVERSITAIRE DE CARDIOLOGIE ET DE PNEUMOLOGIE DE QUÉBEC	6.5 [5.0-8.2]	9.0 [7.2-11.0]	6.2 [4.7-7.9]	8.7 [6.9-10.7]	6.1 [4.7-7.7]*
	59	HÔPITAL DE BAIE-SAINT-PAUL	0	2.4 [0.2-6.9]	1.1 [0-4.3]	5.5 [1.4-12.2]	1.4 [0-5.5]
	86	HÔPITAL DE LA MALBAIE <b>CAPITALE-NATIONALE</b>	2.7 [0.5-6.6] <b>8.6 [7.9-9.4]</b>	12.4 [6.8-19.7] <b>8.8 [8.1-9.6]</b>	21.5 [14.2-30.4] <b>7.9 [7.2-8.6]</b>	14.4 [8.2-22.3] <b>7.9 [7.2-8.6]</b>	4.2 [1.1-9.4]* <b>7.6 [6.9-8.3]</b>
04	23	HÔTEL-DIEU D'ARTHABASKA	5.0 [3.3-7.1]	4.1 [2.5-6.0]	4.1 [2.6-6.0]	6.9 [4.9-9.3]	6.4 [4.5-8.7]
	31	PAVILLON SAINT-JOSEPH	7.8 [6.3-9.5]	7.7 [6.2-9.4]	10.6 [8.8-12.5]	11.9 [10.0-13.9]	14.9 [12.9-17.1]*
	41	HÔPITAL DU CENTRE-DE-LA-MAURICIE	7.9 [5.5-10.7]	6.4 [4.2-9.0]	5.4 [3.5-7.7]	4.0 [2.4-6.0]	3.0 [1.6-4.8]
	44	HÔPITAL SAINTE-CROIX	10.2 [7.9-12.8]	11.5 [8.9-14.4]	11.3 [8.8-14.2]	10.6 [8.1-13.4]	4.4 [2.9-6.3]*
	85	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX DU HAUT-SAINT-AURICE <b>MAURICIE ET CENTRE-DU-QUÉBEC</b>	7.3 [2.6-14.3] <b>7.8 [6.8-8.9]</b>	0 <b>7.4 [6.4-8.4]</b>	6.4 [2.0-13.2] <b>8.6 [7.6-9.7]</b>	4.0 [0.8-9.8] <b>9.2 [8.1-10.3]</b>	8.5 [3.1-16.7] <b>9.2 [8.1-10.3]</b>
05	15	HÔPITAL FLEURIMONT	2.5 [1.7-3.5]	2.7 [1.8-3.7]	3.1 [2.2-4.2]	2.4 [1.6-3.4]	2.5 [1.7-3.5]
	30	HÔTEL-DIEU DE SHERBROOKE	2.9 [1.7-4.4]	3.3 [2.1-4.8]	4.2 [2.8-5.9]	3.7 [2.4-5.3]	3.0 [1.8-4.4]
	49	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX MEMPHRÉMAGOG	4.2 [1.3-8.7]	2.7 [0.5-6.6]	4.3 [1.3-8.9]	4.4 [1.4-9.1]	6.1 [2.4-11.5]
	75	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX DU GRANIT <b>ESTRIE</b>	2.4 [0.2-6.8] <b>2.8 [2.1-3.6]</b>	0 <b>2.8 [2.1-3.6]</b>	4.7 [1.2-10.4] <b>3.6 [2.8-4.5]</b>	0 <b>2.9 [2.2-3.7]</b>	3.1 [0.8-6.9]* <b>2.9 [2.2-3.7]</b>
06	3	HÔPITAL ROYAL VICTORIA	8.5 [7.0-10.2]	8.0 [6.5-9.7]	10.4 [8.6-12.4]	14.6 [12.5-16.9]	13.9 [11.8-16.2]
	4	HÔPITAL NOTRE-DAME DU CHUM	9.0 [7.3-10.8]	5.9 [4.6-7.4]	5.7 [4.4-7.2]	6.4 [5.0-7.9]	6.7 [5.3-8.3]
	5	HÔPITAL GÉNÉRAL JUIF	11.2 [9.6-12.9]	8.3 [7.0-9.8]	12.4 [10.8-14.1]	15.7 [13.9-17.6]	16.4 [14.5-18.4]
	6	HÔPITAL DE MONTRÉAL POUR ENFANTS	4.5 [2.4-7.3]	1.4 [0.4-3.1]	5.1 [2.9-8.0]	3.3 [1.6-5.6]	3.2 [1.4-5.6]
	8	PAV. MAISONNEUVE / PAV. MARCEL-LAMOUREUX	14.4 [12.6-16.3]	15.9 [14.0-17.9]	12.2 [10.6-13.9]	11.3 [9.8-12.9]	10.7 [9.2-12.3]

HR	Facility		Incidence rate of healthcare-associated CDAD / 10,000 patient days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
12		CENTRE HOSPITALIER					
		UNIVERSITAIRE SAINTE-JUSTINE	2.2 [1.3-3.4]	1.8 [1.0-2.9]	2.5 [1.5-3.8]	2.1 [1.2-3.3]	4.2 [2.8-5.8]*
13		INSTITUT DE CARDIOLOGIE					
		DE MONTRÉAL	6.2 [4.0-8.9]	6.1 [3.9-8.7]	6.5 [4.3-9.2]	7.2 [4.9-10.0]	7.2 [4.9-10.0]
21		HÔPITAL SAINT-LUC DU CHUM	7.3 [5.7-9.2]	7.0 [5.4-8.8]	6.5 [5.0-8.2]	9.8 [7.9-11.9]	8.5 [6.8-10.4]
22		HÔTEL-DIEU DU CHUM	8.0 [6.1-10.2]	8.1 [6.2-10.3]	9.5 [7.4-11.8]	15.4 [12.8-18.3]	11.2 [9.0-13.6]*
25		HÔPITAL DU SACRÉ-CŒUR					
		DE MONTRÉAL	6.0 [4.9-7.2]	7.3 [6.0-8.7]	7.2 [5.9-8.6]	8.7 [7.3-10.2]	9.0 [7.6-10.6]
26		HÔPITAL DE VERDUN	7.2 [5.3-9.4]	9.9 [7.7-12.4]	9.0 [7.0-11.3]	8.1 [6.2-10.2]	8.9 [6.9-11.2]
29		HÔPITAL GÉNÉRAL DE MONTRÉAL	7.6 [6.1-9.3]	10.6 [8.8-12.6]	14.4 [12.3-16.7]	14.8 [12.6-17.2]	12.5 [10.4-14.7]
34		HÔPITAL SANTA CABRINI	6.5 [5.0-8.2]	8.6 [6.8-10.6]	5.1 [3.8-6.6]	9.1 [7.3-11.0]	7.7 [6.1-9.5]
36		HÔPITAL GÉNÉRAL DU LAKESHORE	8.4 [6.3-10.8]	8.7 [6.6-11.1]	10.1 [7.8-12.7]	5.8 [4.1-7.8]	8.4 [6.4-10.7]
38		HÔPITAL JEAN-TALON	8.2 [6.3-10.3]	8.5 [6.6-10.7]	8.8 [6.5-11.4]	7.5 [5.4-9.9]	5.3 [3.5-7.4]
48		CENTRE HOSPITALIER DE ST. MARY	4.4 [3.1-6.0]	5.5 [4.0-7.3]	4.8 [3.4-6.4]	4.4 [3.1-6.0]	8.2 [6.3-10.3]*
76		HÔPITAL DE LACHINE	2.8 [1.1-5.2]	2.8 [1.1-5.3]	4.9 [2.4-8.2]	8.4 [5.0-12.7]	8.8 [5.3-13.2]
80		HÔPITAL FLEURY	8.0 [5.4-11.1]	7.2 [4.8-10.1]	4.7 [2.8-7.1]	7.4 [5.1-10.2]	5.5 [3.5-7.9]
83		HÔPITAL DE LASALLE	3.1 [1.4-5.5]	8.5 [5.4-12.3]	7.6 [4.6-11.3]	12.0 [8.0-16.8]	7.9 [4.7-11.9]
114		VILLA MÉDICA	2.2 [1.0-3.8]	2.9 [1.5-4.7]	4.8 [3.0-7.0]	3.1 [1.7-4.9]	5.9 [3.9-8.3]*
116		INSTITUT THORACIQUE DE MONTRÉAL	2.4 [0.9-4.7]	6.0 [3.3-9.6]	5.7 [3.0-9.2]	4.9 [2.4-8.2]	8.5 [5.1-12.8]
118		HÔPITAL NEUROLOGIQUE					
		DE MONTRÉAL	2.5 [0.9-4.9]	0.4 [0-1.6]	1.2 [0.2-3.0]	4.0 [1.9-6.9]	4.7 [2.4-7.7]
120		HÔPITAL RICHARDSON	0.5 [0-1.9]	0.9 [0.1-2.6]	0	0	0
121		HÔPITAL CATHERINE BOOTH					
		DE L'ARMÉE DU SALUT	1.7 [0.5-3.5]	2.6 [1.1-4.7]	12.0 [8.4-16.2]	7.4 [4.6-10.8]	5.9 [3.5-9.0]
122		HÔPITAL MARIE-CLARAC	2.6 [1.5-3.9]	3.4 [2.1-5.0]	2.4 [1.4-3.7]	2.9 [1.8-4.3]	3.4 [2.1-4.9]
137		INSTITUT DE RÉADAPTATION					
		DE MONTRÉAL <sup>b</sup>	-	0.6 [0.1-1.5]	1.3 [0.6-2.3]	2.4 [1.3-3.8]	3.7 [2.3-5.4]
		<b>MONTRÉAL</b>	<b>7.2 [6.8-7.6]</b>	<b>7.4 [7.0-7.8]</b>	<b>7.9 [7.5-8.3]</b>	<b>9.0 [8.6-9.4]</b>	<b>8.9 [8.5-9.3]</b>
07	39	HÔPITAL DE GATINEAU	10.3 [7.9-13.1]	6.8 [4.9-9.0]	6.2 [4.4-8.4]	4.8 [3.2-6.7]	5.6 [3.9-7.6]
	40	HÔPITAL DE HULL	11.3 [8.9-14.0]	10.2 [7.9-12.8]	3.8 [2.5-5.4]	2.1 [1.2-3.3]	11.1 [8.8-13.7]*
	51	HÔPITAL DE MANIWAKI	0	5.3 [2.1-9.9]	17.6 [11.3-25.4]	4.1 [1.5-8.0]	7.4 [3.7-12.4]
	95	CENTRE HOSPITALIER DU PONTIAC	5.8 [2.3-10.9]	3.7 [1.2-7.7]	2.1 [0.4-5.1]	1.5 [0.2-4.2]	10.1 [5.5-16.1]*
	111	HÔPITAL DE PAPINEAU	0.9 [0.1-2.6]	6.9 [3.8-11.0]	4.5 [2.0-7.9]	3.1 [1.1-6.1]	1.0 [0.1-2.9]
		<b>OUTAOUAIS</b>	<b>8.4 [7.1-9.8]</b>	<b>7.8 [6.5-9.2]</b>	<b>5.6 [4.6-6.7]</b>	<b>3.2 [2.4-4.1]</b>	<b>7.7 [6.5-9.0]*</b>
08	47	HÔPITAL DE ROUYN-NORANDA	8.6 [5.4-12.5]	2.1 [0.7-4.4]	6.4 [3.5-10.2]	3.4 [1.5-6.1]	2.0 [0.6-4.1]
	52	CENTRE HOSPITALIER					
		HÔTEL-DIEU D'AMOS	6.6 [3.8-10.1]	3.1 [1.3-5.6]	3.1 [1.3-5.6]	8.8 [5.5-12.9]	2.9 [1.1-5.5]*
	65	HÔPITAL ET CLSC DE VAL-D'OR	3.9 [1.9-6.5]	13.4 [9.6-17.8]	11.0 [7.6-15.1]	5.3 [3.0-8.3]	2.5 [1.0-4.7]
	70	CENTRE DE SOINS DE					
	COURTE DURÉE LA SARRE	24.5 [15.3-35.8]	10.2 [4.6-18.0]	1.0 [0-3.9]	4.7 [1.5-9.7]	1.9 [0.2-5.5]	
82		PAVILLON SAINTE-FAMILLE	0	0	3.2 [0.6-7.9]	0	1.3 [0-5.2]
		<b>ABITIBI-TÉMISCAMINGUE</b>	<b>7.4 [5.8-9.2]</b>	<b>6.4 [4.9-8.1]</b>	<b>6.1 [4.6-7.8]</b>	<b>5.2 [3.9-6.7]</b>	<b>2.3 [1.4-3.4]*</b>

HR	Facility		Incidence rate of healthcare-associated CDAD / 10,000 patient days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
09	64	HÔPITAL LE ROYER	1.8 [0.6-3.7]	3.7 [1.8-6.2]	2.3 [0.9-4.3]	2.8 [1.2-5.1]	4.0 [2.0-6.7]
	72	HÔPITAL ET CENTRE D'HÉBERGEMENT DE SEPT-ÎLES	2.1 [0.7-4.3]	2.7 [1.0-5.3]	5.3 [2.7-8.7]	4.6 [2.2-7.9]	3.7 [1.6-6.7]
		<b>CÔTE-NORD</b>	<b>1.9 [0.9-3.3]</b>	<b>3.3 [1.9-5.0]</b>	<b>3.6 [2.2-5.4]</b>	<b>3.5 [2.1-5.3]</b>	<b>3.8 [2.3-5.7]</b>
10	96	CENTRE DE SANTÉ DE CHIBOUGAMAU	0	0	2.6 [0.2-7.5]	0	0
		<b>NORD-DU-QUÉBEC</b>	<b>0</b>	<b>0</b>	<b>2.6 [0.2-7.5]</b>	<b>0</b>	<b>0</b>
11	53	HÔPITAL DE CHANDLER	4.9 [1.9-9.2]	2.0 [0.4-4.9]	2.5 [0.7-5.5]	2.7 [0.7-6.0]	0.7 [0-2.8]
	91	HÔPITAL HÔTEL-DIEU DE GASPÉ	6.2 [2.8-10.9]	5.1 [1.8-10.0]	11.3 [6.2-18.0]	4.1 [1.3-8.5]	7.7 [3.3-14.0]
	97	HÔPITAL DE MARIA	6.0 [3.0-10.1]	1.0 [0.1-2.9]	2.5 [0.8-5.2]	1.5 [0.3-3.7]	7.6 [4.3-11.8]*
	107	HÔPITAL DE L'ARCHIPEL <sup>a</sup>	4.9 [5.9-28]	4.8 [1.3-10.6]	5.7 [1.8-11.8]	3.8 [0.7-9.3]	1.5 [0-5.8]
	109	HÔPITAL DE SAINTE-ANNE- DES-MONTS	5.5 [1.7-11.4]	3.4 [0.7-8.3]	6.7 [2.4-13.1]	2.4 [0.2-6.9]	2.8 [0.3-8.0]
	<b>GASPÉSIE-ÎLES-DE-LA-MADELEINE</b>	<b>6.4 [4.5-8.6]</b>	<b>2.8 [1.7-4.2]</b>	<b>5.1 [3.5-7.0]</b>	<b>2.7 [1.6-4.1]</b>	<b>4.7 [3.1-6.6]*</b>	
12	18	HÔTEL-DIEU DE LÉVIS	7.4 [5.6-9.5]	10.3 [8.1-12.7]	12.7 [10.3-15.3]	8.7 [6.8-10.9]	13.1 [10.7-15.7]*
	63	HÔPITAL DE SAINT-GEORGES	5.5 [3.5-7.9]	3.1 [1.7-4.9]	5.7 [3.7-8.1]	8.5 [6.1-11.3]	5.4 [3.4-7.8]
	89	HÔPITAL DE MONTMAGNY	2.7 [1.0-5.3]	6.2 [3.3-10.0]	16.2 [11.3-21.9]	7.4 [4.3-11.3]	9.9 [6.1-14.6]
	113	HÔPITAL DE THETFORD MINES	8.7 [5.4-12.8]	6.2 [3.5-9.7]	4.9 [2.6-7.9]	4.9 [2.6-7.9]	5.1 [2.8-8.1]
	<b>CHAUDIÈRE-APPALACHES</b>	<b>6.5 [5.3-7.8]</b>	<b>7.2 [6.0-8.6]</b>	<b>10.1 [8.6-11.7]</b>	<b>7.9 [6.6-9.3]</b>	<b>9.5 [8.1-11.0]</b>	
13	19	HÔPITAL CITÉ DE LA SANTÉ	5.6 [4.5-6.8]	2.8 [2.0-3.7]	5.3 [4.2-6.5]	6.8 [5.6-8.1]	5.7 [4.6-6.9]
	131	HÔPITAL JUIF DE RÉADAPTATION	3.2 [1.7-5.1]	2.7 [1.4-4.5]	2.0 [0.9-3.5]	2.5 [1.2-4.2]	1.5 [0.8-2.5]
	<b>LAVAL</b>	<b>5.1 [4.2-6.1]</b>	<b>2.8 [2.1-3.6]</b>	<b>4.6 [3.7-5.6]</b>	<b>5.9 [4.9-7.0]</b>	<b>4.4 [3.6-5.3]*</b>	
14	11	HÔPITAL PIERRE-LE GARDEUR	2.2 [1.4-3.2]	1.9 [1.1-2.8]	3.4 [2.4-4.6]	1.7 [1.0-2.6]	0.8 [0.3-1.4]
	14	CENTRE HOSPITALIER RÉGIONAL DE LANAUDIÈRE	5.7 [4.2-7.4]	5.2 [3.8-6.8]	13.9 [11.5-16.5]	10.5 [8.5-12.8]	7.6 [5.9-9.5]*
		<b>LANAUDIÈRE</b>	<b>3.8 [3.0-4.7]</b>	<b>3.4 [2.6-4.3]</b>	<b>8.3 [7.0-9.7]</b>	<b>5.8 [4.8-6.9]</b>	<b>4.0 [3.1-5.0]*</b>
15	45	HÔPITAL DE SAINT-EUSTACHE	10.7 [8.3-13.4]	5.8 [4.0-7.9]	6.6 [4.8-8.7]	7.3 [5.5-9.4]	4.8 [3.4-6.4]*
	56	CENTRE DE SANTÉ ET DE SERVICES SOCIAUX D'ARGENTEUIL	10.2 [6.0-15.5]	12.1 [7.4-18.0]	14.3 [8.8-21.1]	13.8 [8.5-20.3]	16.5 [10.6-23.8]
	81	HÔPITAL DE MONT-LAURIER	9.8 [5.8-14.8]	3.1 [1.0-6.4]	8.2 [4.5-13.1]	5.7 [2.7-9.8]	3.9 [1.6-7.3]
	101	HÔPITAL RÉGIONAL DE SAINT-JÉRÔME	7.9 [6.3-9.7]	7.3 [5.7-9.1]	10.5 [8.6-12.6]	12.0 [9.9-14.2]	8.3 [6.6-10.1]*
	103	HÔPITAL LAURENTIEN	2.2 [0.9-4.1]	4.8 [2.6-7.6]	8.1 [5.2-11.7]	4.9 [2.7-7.8]	3.2 [1.5-5.6]
	<b>LAURENTIDES</b>	<b>8.2 [7.1-9.4]</b>	<b>6.6 [5.6-7.7]</b>	<b>9.2 [8.0-10.5]</b>	<b>9.3 [8.1-10.6]</b>	<b>6.7 [5.7-7.8]*</b>	
16	1	HÔPITAL CHARLES-LEMOYNE	5.2 [4.0-6.5]	9.4 [7.8-11.1]	7.3 [5.9-8.8]	7.0 [5.6-8.5]	10.4 [8.7-12.2]*
	9	HÔPITAL DU HAUT-RICHELIEU	3.2 [2.1-4.5]	5.2 [3.8-6.9]	6.5 [4.9-8.4]	6.9 [5.2-8.8]	10.7 [8.7-12.9]*
	10	HÔPITAL PIERRE-BOUCHER	1.2 [0.6-2.0]	1.9 [1.1-2.8]	2.3 [1.5-3.3]	5.3 [4.0-6.8]	3.7 [2.6-5.0]
	35	HÔPITAL HONORÉ-MERCIER	6.2 [4.5-8.2]	5.9 [4.2-7.8]	4.2 [2.8-5.9]	4.5 [3.0-6.3]	6.0 [4.3-8.0]
	37	HÔTEL-DIEU DE SOREL	8.0 [5.7-10.6]	8.3 [6.0-11.0]	6.3 [4.3-8.7]	4.1 [2.5-6.1]	3.0 [1.7-4.7]
	42	HÔPITAL ANNA-LABERGE	6.2 [4.5-8.1]	4.6 [3.2-6.3]	2.8 [1.7-4.2]	2.8 [1.7-4.2]	2.1 [1.2-3.3]



HR	Facility		Incidence rate of healthcare-associated CDAD / 10,000 patient days [95% CI]				
	Number	Name	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
	46	HÔPITAL DE GRANBY	4.1 [2.4-6.2]	3.2 [1.7-5.1]	3.9 [2.3-6.0]	3.7 [2.1-5.7]	11.5 [8.5-15]*
	58	HÔPITAL DU SUROÏT	3.5 [2.1-5.3]	3.1 [1.8-4.7]	4.0 [2.5-5.8]	2.1 [1.1-3.4]	4.3 [2.8-6.1]*
	99	HÔPITAL BROME-MISSISQUOI-PERKINS	3.5 [1.6-6.2]	5.4 [2.9-8.6]	1.5 [0.4-3.3]	6.3 [3.7-9.6]	5.6 [3.2-8.7]
	130	HÔPITAL BARRIE MEMORIAL	9.5 [4.9-15.6]	6.7 [2.9-12.2]	5.5 [2.0-10.8]	8.8 [4.2-15.1]	7.7 [3.7-13.2]
		<b>MONTÉRÉGIE</b>	<b>4.6 [4.1-5.1]</b>	<b>5.5 [4.9-6.1]</b>	<b>4.7 [4.2-5.2]</b>	<b>5.1 [4.6-5.7]</b>	<b>6.7 [6.1-7.3]*</b>
		<b>Total</b>	<b>6.4 [6.2-6.7]</b>	<b>6.4 [6.2-6.6]</b>	<b>7.0 [6.8-7.3]</b>	<b>7.3 [7.1-7.5]</b>	<b>7.3 [7.0-7.5]</b>

\* Significant statistical difference ( $p < 0.05$ ) between incidence rates for Periods 1 through 13, 2011–2012 and 2012–2013.

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

a Facility participating in the surveillance as of Period 6 of 2008–2009.

b Facility participating in the surveillance as of Period 6 of 2009–2010.

HR = Health Region

The distribution of pulsovars A and A2-5 varied from one health region to the next (Table 11). The Montréal area (06) alone accounts for 65.5% of pulsovars A and A2-5 (127 strains) and 21.0% of the 604 analyzed strains.

The Abitibi-Témiscamingue and Nord-du-Québec health regions did not have any A or A2-5 pulsovars.

**TABLE 11** Breakdown of Pulsovars A and A2-5 by Health Region, 2012–2013 (N, %)

Health Region	Total Strains	Pulsovars A and A2-5		Weighted % of Pulsovars A and A2-5*
	N	N	%	%
BAS-SAINT-LAURENT	13	2	15.4	0.3
SAGUENAY-LAC-SAINT-JEAN	26	7	26.9	1.2
CAPITALE-NATIONALE	101	57	56.4	9.4
MAURICIE ET CENTRE-DU-QUÉBEC	34	17	50.0	2.8
ESTRIE	14	1	7.1	0.2
MONTRÉAL	194	127	65.5	21.0
OUTAOUAIS	20	14	70.0	2.3
ABITIBI-TÉMISCAMINGUE	2	1	50.0	0.2
CÔTE-NORD	3	2	66.7	0.3
NORD-DU-QUÉBEC	0	0	-	-
GASPÉSIE-ÎLES-DE-LA-MADELEINE	10	8	80.0	1.3
CHAUDIÈRE-APPALACHES	27	12	44.4	2.0
LAVAL	21	10	47.6	1.7
LANAUDIÈRE	10	4	40.0	0.7
LAURENTIDES	33	16	48.5	2.6
MONTÉRÉGIE	96	42	43.8	7.0
<b>Total</b>	<b>604</b>	<b>320</b>		<b>53.0</b>

\* Weighted percentage of pulsovars A and A2-5 based on the total number of samples analyzed in the province.



## ***Clostridium difficile– Associated Diarrhea (CDAD) surveillance results: 2012–2013***

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