



**Table S1.1: Cases and incidence rates of healthcare-associated and community-associated *Clostridioides difficile* infection by region and hospital type, Canada, 2015–2018**

Cases and incidence rates	Year			
	2015	2016	2017	2018
<b>HA-CDI</b>				
<b>National</b>				
Number of HA-CDI	3,136	3,048	2,968	2,809
Rate per 1,000 patient admissions	3.48	3.3	3.17	2.97
Rate per 10,000 patient days	4.63	4.39	4.19	3.94
Number of reporting hospitals	66	67	68	68
<b>West</b>				
Number of HA-CDI	1,362	1,291	1,259	1,133
Rate per 1,000 patient admissions	3.38	3.12	3.04	2.73
Rate per 10,000 patient days	4.55	4.17	4.07	3.76
<b>Central</b>				
Number of HA-CDI	1,513	1,465	1,407	1,351
Rate per 1,000 patient admissions	3.73	3.56	3.33	3.14
Rate per 10,000 patient days	5.16	4.94	4.51	4.19
<b>East</b>				
Number of HA-CDI	261	292	302	325
Rate per 1,000 patient admissions	2.78	2.95	3.02	3.18
Rate per 10,000 patient days	3.1	3.33	3.47	3.67
<b>Hospital Type</b>				
<b>Adult</b>				
Number of HA-CDI	2,064	1,973	1,905	1,854
Rate per 1,000 patient admissions	4.18	3.96	3.78	3.71
Rate per 10,000 patient days	5.07	4.81	4.48	4.35
<b>Mixed</b>				
Number of HA-CDI	968	988	978	866
Rate per 1,000 patient admissions	2.76	2.69	2.62	2.24
Rate per 10,000 patient days	3.98	3.84	3.79	3.32
<b>Pediatric</b>				
Number of HA-CDI	104	87	85	89
Rate per 1,000 patient admissions	1.81	1.49	1.41	1.51
Rate per 10,000 patient days	3.96	3.33	3.43	3.48

Cases and incidence rates	Year			
	2015	2016	2017	2018
<b>CA-CDI</b>				
<b>National</b>				
Number of CA-CDI	1,034	960	1,044	1,034
Rate per 1,000 patient admissions	1.50	1.34	1.37	1.34
Rate per 10,000 patient days	2.03	1.80	1.82	1.78
Number of reporting hospitals	53	55	57	57
<b>West</b>				
Number of CA-CDI	253	243	287	263
Rate per 1,000 patient admissions	1.1	1.03	1.19	1.08
Rate per 10,000 patient days	1.55	1.44	1.65	1.55
<b>Central</b>				
Number of CA-CDI	675	613	634	672
Rate per 1,000 patient admissions	1.86	1.59	1.50	1.56
Rate per 10,000 patient days	2.57	2.22	2.03	2.09
<b>East</b>				
Number of CA-CDI	106	104	123	99
Rate per 1,000 patient admissions	1.13	1.06	1.24	0.99
Rate per 10,000 patient days	1.26	1.18	1.42	1.12
<b>Hospital Type</b>				
<b>Adults</b>				
Number of CA-CDI	744	663	696	691
Rate per 1,000 patient admissions	1.95	1.73	1.78	1.78
Rate per 10,000 patient days	2.38	2.12	2.11	2.08
<b>Mixed</b>				
Number of CA-CDI	263	272	327	330
Rate per 1,000 patient admissions	1.03	0.95	1.02	0.98
Rate per 10,000 patient days	1.49	1.37	1.47	1.45
<b>Pediatric</b>				
Number of CA-CDI	27	25	21	13
Rate per 1,000 patient admissions	0.54	0.50	0.40	0.25
Rate per 10,000 patient days	1.23	1.15	1.00	0.60

Abbreviations: CA-CDI, community-associated *C. difficile* infection; *C. difficile*, *Clostridioides difficile*; HA-CDI, hospital-associated *C. difficile* infection

Table S1.2: Antimicrobial resistance of healthcare- and community-associated *Clostridioides difficile* infection isolates<sup>a,b</sup>, Canada, 2015–2018

Antibiotics	Year							
	2015		2016		2017		2018	
	n	%	n	%	n	%	n	%
<b>HA-CDI</b>								
Clindamycin	135	25.0	109	22.1	115	21.9	225	47.4
Moxifloxacin	152	28.1	85	17.2	98	18.6	59	12.4
Rifampin	11	2.0	8	1.6	13	2.5	8	1.7
Total number of isolates tested <sup>c</sup>	540	N/A	494	N/A	526	N/A	475	N/A
<b>CA-CDI</b>								
Clindamycin	59	28.8	36	22.1	34	22.7	82	52.6
Moxifloxacin	33	16.1	18	11.0	16	10.7	11	7.1
Rifampin	3	1.5	1	0.6	1	0.7	2	1.3
Total number of isolates tested <sup>c</sup>	205	N/A	163	N/A	150	N/A	156	N/A

Abbreviations: CA-CDI, community-associated *C. difficile* infection; *C. difficile*, *Clostridioides difficile*; HA-CDI, hospital-associated *C. difficile* infection; N/A, not applicable

<sup>a</sup> All *C. difficile* strains from 2015 to 2018 submitted to National Microbiology Laboratory were susceptible to tigecycline and vancomycin

<sup>b</sup> CDI isolates are collected for resistance testing during the two-month period (March and April of each year) for adults (age 18 years and older) and year-round for children (age one year to younger than 18 years old) from admitted patients only

<sup>c</sup> Total number reflects the number of isolates tested for each of the antibiotics listed above

Table S1.3: Number and proportion of common ribotypes of HA-CDI and CA-CDI cases<sup>a</sup>, Canada, 2015–2018

Ribotype	Year							
	2015		2016		2017		2018	
	n	%	n	%	n	%	n	%
<b>HA-CDI</b>								
RT027	108	20.0	57	11.5	81	15.4	40	8.4
RT106	46	8.5	73	14.8	59	11.2	60	12.6
RT014	46	8.5	38	7.7	40	7.6	44	9.3
RT020	34	6.3	41	8.3	34	6.5	36	7.6
RT002	36	6.7	21	4.3	23	4.4	29	6.1
RT056	15	2.8	26	5.3	25	4.8	19	4.0
RT076	21	3.9	12	2.4	21	4.0	12	2.5
RT015	10	1.9	17	3.4	12	2.3	18	3.8
RT057	14	2.6	13	2.6	14	2.7	13	2.7
RT012	10	1.9	9	1.8	5	1.0	18	3.8
RT072	15	2.8	13	2.6	9	1.7	2	0.4
RT078/126	11	2.0	10	2.0	17	3.2	10	2.1
RT629	6	1.1	7	1.4	5	1.0	13	2.7
RT103	5	0.9	12	2.4	6	1.1	10	2.1
RT054	10	1.9	4	0.8	6	1.1	8	1.7
<b>CA-CDI</b>								
RT106	16	7.8	18	11.0	22	14.7	25	16.0
RT020	22	10.7	18	11.0	13	8.7	12	7.7
RT014	9	4.4	16	9.8	17	11.3	15	9.6
RT027	25	12.2	12	7.4	9	6.0	5	3.2
RT056	10	4.9	9	5.5	3	2.0	14	9.0
RT002	12	5.9	8	4.9	6	4.0	5	3.2
RT015	8	3.9	5	3.1	6	4.0	6	3.9
RT012	6	2.9	4	2.5	7	4.7	6	3.9
RT019	3	1.5	5	3.1	4	2.7	7	4.5
RT328	7	3.4	1	0.6	3	2.0	3	1.9
RT072	2	1.0	8	4.9	2	1.3	1	0.6
RT153	2	1.0	4	2.5	4	2.7	2	1.3
RT629	5	2.4	0	0.0	1	0.7	4	2.6
RT078/126	6	2.9	3	1.8	3	2.0	1	0.6
RT103	2	1.0	1	0.6	4	2.7	2	1.3

Abbreviations: CA-CDI, community-associated *C. difficile* infection; *C. difficile*, *Clostridioides difficile*; HA-CDI, hospital-associated *C. difficile* infection

<sup>a</sup> CDI isolates are collected for typing during the two-month period (March and April of each year) for adults (age 18 years and older) and year-round for children (age one year to younger than 18 years old from admitted patients only)

**Table S2.1: Cases and incidence rates of healthcare-associated and community-associated methicillin-resistant *Staphylococcus aureus* bloodstream infections by region and hospital type, 2014–2018**

Case and incidence rates	Year				
	2014	2015	2016	2017	2018
<b>HA-MRSA BSI</b>					
<b>National</b>					
Number of HA-MRSA BSI	276	274	305	317	369
Rate per 1,000 patient admissions	0.29	0.28	0.31	0.32	0.37
Rate per 10,000 patient days	0.40	0.39	0.43	0.44	0.51
Number of reporting hospitals	64	63	64	65	62
<b>West</b>					
Number of HA-MRSA BSI	88	105	134	136	181
Rate per 1,000 patient admissions	0.22	0.24	0.30	0.30	0.41
Rate per 10,000 patient days	0.31	0.33	0.41	0.43	0.57
<b>Central</b>					
Number of HA-MRSA BSI	154	133	136	150	151
Rate per 1,000 patient admissions	0.36	0.31	0.31	0.33	0.34
Rate per 10,000 patient days	0.51	0.45	0.45	0.47	0.47
<b>East</b>					
Number of HA-MRSA BSI	32	36	35	31	37
Rate per 1,000 patient admissions	0.32	0.37	0.34	0.30	0.36
Rate per 10,000 patient days	0.35	0.41	0.38	0.34	0.40
<b>Hospital Type</b>					
<b>Adults</b>					
Number of HA-MRSA BSI	146	127	131	168	196
Rate per 1,000 patient admissions	0.31	0.26	0.26	0.34	0.40
Rate per 10,000 patient days	0.38	0.32	0.33	0.42	0.49
<b>Mixed</b>					
Number of HA-MRSA BSI	122	142	147	147	199
Rate per 1,000 patient admissions	0.31	0.36	0.36	0.35	0.46
Rate per 10,000 patient days	0.47	0.54	0.53	0.51	0.68
<b>Pediatric</b>					
Number of HA-MRSA BSI	11	17	18	21	16
Rate per 1,000 patient admissions	0.14	0.22	0.22	0.26	0.20
Rate per 10,000 patient days	0.29	0.44	0.44	0.53	0.39

  

Case and incidence rates	Year				
	2014	2015	2016	2017	2018
<b>CA-MRSA BSI</b>					
<b>National</b>					
Number of CA-MRSA BSI	140	183	260	253	359
Rate per 1,000 patient admissions	0.15	0.19	0.26	0.25	0.36
Rate per 10,000 patient days	0.20	0.26	0.36	0.36	0.50
Number of reporting hospitals	62	63	64	65	62
<b>West</b>					
Number of CA-MRSA BSI	72	102	135	137	203
Rate per 1,000 patient admissions	0.18	0.23	0.30	0.31	0.45
Rate per 10,000 patient days	0.25	0.32	0.42	0.43	0.64
<b>Central</b>					
Number of CA-MRSA BSI	53	68	116	100	147
Rate per 1,000 patient admissions	0.12	0.16	0.26	0.22	0.33
Rate per 10,000 patient days	0.18	0.23	0.39	0.32	0.48
<b>East</b>					
Number of CA-MRSA BSI	9	13	9	16	9
Rate per 1,000 patient admissions	0.09	0.13	0.09	0.15	0.09
Rate per 10,000 patient days	0.10	0.15	0.10	0.18	0.10
<b>Hospital type</b>					
<b>Adults</b>					
Number of CA-MRSA BSI	71	106	142	115	184
Rate per 1,000 patient admissions	0.15	0.21	0.28	0.23	0.38
Rate per 10,000 patient days	0.19	0.27	0.36	0.29	0.46
<b>Mixed</b>					
Number of CA-MRSA BSI	102	96	141	151	193
Rate per 1,000 patient admissions	0.26	0.24	0.34	0.36	0.45
Rate per 10,000 patient days	0.39	0.37	0.51	0.52	0.66
<b>Pediatric</b>					
Number of CA-MRSA BSI	13	16	15	12	20
Rate per 1,000 patient admissions	0.26	0.39	0.37	0.48	0.34
Rate per 10,000 patient days	0.17	0.21	0.19	0.15	0.25

Abbreviations: CA-MRSA BSI, community-associated methicillin-resistant *S. aureus* bloodstream infection; HA-MRSA BSI, healthcare-associated methicillin-resistant *S. aureus* bloodstream infection; *S. aureus*, *Staphylococcus aureus*



**Table S2.2: Number and proportion of select methicillin-resistant *Staphylococcus aureus* strain types identified<sup>a</sup>**

Strain Type	Year									
	2014		2015		2016		2017		2018	
	n	%	n	%	n	%	n	%	n	%
CMRSA 2	177	49.2	150	38.3	189	33.6	173	30.7	196	27.9
CMRSA 7	18	5.0	28	7.1	39	6.9	48	8.5	57	8.1
CMRSA 10	129	35.8	163	41.6	258	45.9	253	44.9	327	46.6
Other strain types <sup>b</sup>	32	8.9	38	9.7	54	9.6	61	10.8	92	13.1
Unassigned	4	1.1	13	3.3	22	3.9	29	5.1	30	4.3
Total number of isolates tested	360	N/A	392	N/A	562	N/A	564	N/A	702	N/A

Abbreviation: N/A, not applicable

<sup>a</sup> MRSA non-blood isolates (urine, respiratory, wound, surgical site) are collected from January to March of every year and blood isolates are collected year round

<sup>b</sup> Other strain types from 2014 to 2018 include CMRSA 1, CMRSA 3/6, CMRSA 4, CMRSA 5, CMRSA 8, ST72, ST88, ST97, ST398, ST772, USA 700, USA 1000, USA 1100 and European

**Table S3.1: Number of vancomycin-resistant Enterococci bloodstream infections incidence rates by region and hospital type, 2014–2018**

Case and incidence rates	Year				
	2014	2015	2016	2017	2018
<b>National</b>					
Number of VRE BSI	91	89	121	155	243
Rate per 1,000 patient admissions	0.10	0.10	0.13	0.16	0.24
Rate per 10,000 patient days	0.14	0.14	0.18	0.23	0.34
Number of reporting hospitals	60	57	59	59	62
<b>West</b>					
Number of VRE BSI	36	35	45	48	100
Rate per 1,000 patient admissions	0.10	0.10	0.12	0.13	0.24
Rate per 10,000 patient days	0.14	0.14	0.17	0.19	0.33
<b>Central</b>					
Number of VRE BSI	55	53	75	106	142
Rate per 1,000 patient admissions	0.12	0.12	0.16	0.22	0.29
Rate per 10,000 patient days	0.17	0.17	0.23	0.32	0.42
<b>East</b>					
Number of VRE BSI	0	1	1	1	1
Rate per 1,000 patient admissions	0.00	0.01	0.01	0.01	0.01
Rate per 10,000 patient days	0.00	0.01	0.01	0.01	0.01
<b>Hospital Type</b>					
<b>Adult</b>					
Number of VRE BSI	76	62	88	117	201
Rate per 1,000 patient admissions	0.15	0.13	0.17	0.23	0.38
Rate per 10,000 patient days	0.19	0.16	0.22	0.29	0.47
<b>Mixed</b>					
Number of VRE BSI	14	26	32	37	38
Rate per 1,000 patient admissions	0.04	0.07	0.09	0.10	0.10
Rate per 10,000 patient days	0.06	0.11	0.13	0.16	0.15
<b>Pediatric</b>					
Number of VRE BSI	1	1	1	1	4
Rate per 1,000 patient admissions	0.01	0.01	0.01	0.01	0.05
Rate per 10,000 patient days	0.03	0.03	0.02	0.03	0.10

Abbreviation: VRE BSI, vancomycin-resistant Enterococci bloodstream infections

**Table S3.2: Number of healthcare-associated vancomycin-resistant Enterococci bloodstream infections<sup>a</sup> and incidence rates, 2014–2018**

Case and incidence rates	Year				
	2014	2015	2016	2017	2018
<b>National</b>					
Number of HA-VRE BSI	84	86	113	147	219
Rate per 1,000 patient admissions	0.09	0.09	0.12	0.16	0.22
Rate per 10,000 patient days	0.12	0.13	0.17	0.22	0.30
Number of reporting hospitals	60	57	59	59	62
<b>West</b>					
Number of HA-VRE BSI	33	35	42	46	91
Rate per 1,000 patient admissions	0.10	0.10	0.11	0.13	0.22
Rate per 10,000 patient days	0.13	0.14	0.16	0.18	0.30
<b>Central</b>					
Number of HA-VRE BSI	51	50	70	100	128
Rate per 1,000 patient admissions	0.11	0.11	0.15	0.21	0.27
Rate per 10,000 patient days	0.16	0.16	0.22	0.30	0.38
<b>East</b>					
Number of HA-VRE BSI	0	1	1	1	1
Rate per 1,000 patient admissions	0.00	0.01	0.01	0.01	0.01
Rate per 10,000 patient days	0.00	0.01	0.01	0.01	0.01

Abbreviation: HA-VRE BSI, healthcare-associated vancomycin-resistant Enterococci bloodstream infections

<sup>a</sup> Includes all cases identified and have been acquired within Canadian Nosocomial Infection Surveillance Program (CNISP) hospitals and/or from any other healthcare exposure (non-CNISP hospitals, clinics, long-term care facility, etc.) as per the case definition in Appendix A**Table S3.3: Number and proportion of vancomycin-resistant Enterococci bloodstream infections isolate types identified, 2014–2018**

Isolate type	Year									
	2014		2015		2016		2017		2018	
	n	%	n	%	n	%	n	%	n	%
VanA, <i>Enterococcus faecium</i>	70	100.0	75	100.0	88	96.7	111	95.7	179	97.3
VanB, <i>Enterococcus faecium</i>	0	0.0	0	0.0	3	3.3	5	4.3	1	0.5
Van A and vanB, <i>Enterococcus faecium</i>	0	0.0	0	0.0	0	0.0	0	0.0	1	0.5
VanA, <i>Enterococcus faecalis</i>	0	0.0	0	0.0	0	0.0	0	0.0	3	1.6
Total number of isolates tested	70	100.0	75	100.0	75	100.0	116	100.0	184	100.0



**Table S3.4: Distribution of vancomycin-resistant Enterococci bloodstream (*Enterococcus faecium*) sequence type, 2014–2018**

Sequence type	Year									
	2014		2015		2016		2017		2018	
	n	%	n	%	n	%	n	%	n	%
ST117	16	22.9	13	17.3	25	27.5	17	14.7	24	13.3
ST18	20	0.29	11	0.15	14	0.15	7	0.06	3	0.02
ST412	7	0.10	12	0.16	12	0.13	8	0.07	8	0.04
ST203	5	0.07	6	0.08	5	0.05	8	0.07	1	0.01
ST734	2	0.03	13	0.17	4	0.04	15	0.13	21	0.12
ST1478	0	0.00	3	0.04	8	0.09	32	0.28	70	0.39
Other <sup>a</sup>	20	0.29	17	0.23	23	0.25	29	0.25	5	0.30
Total number of isolates tested <sup>b</sup>	70	100	75	100	91	100	116	100	132	100

Abbreviation: N/A, not applicable

<sup>a</sup> Includes ST16, ST17, ST56, ST78, ST80, ST154, ST192, ST233, ST252, ST262, ST280, ST282, ST375, ST414, ST494, ST584, ST612, ST662, ST663, ST664, ST665, ST721, ST736, ST750, ST761, ST772, ST787, ST802, ST835, ST836, ST912, ST982, ST983, ST984, ST992, ST1032, ST1112, ST1113, ST1265, ST1421, ST1424, ST1497, ST1587, ST1612

**Table S4.1: Number of carbapenemase-producing Enterobacteriaceae infections and incidence rates by region, Canada, 2014–2018**

Case and incidence rates	Year				
	2014	2015	2016	2017	2018
<b>National</b>					
Number of CPE infections	22	19	20	19	30
Rate per 1,000 patient admissions	0.03	0.02	0.02	0.02	0.03
Rate per 10,000 patient days	0.04	0.03	0.03	0.03	0.04
Number of reporting hospitals	57	58	57	58	59
<b>West</b>					
Number of CPE infections	10	11	6	13	17
Rate per 1,000 patient admissions	0.03	0.03	0.01	0.03	0.04
Rate per 10,000 patient days	0.04	0.04	0.02	0.05	0.06
<b>Central</b>					
Number of CPE infections	12	6	14	5	13
Rate per 1,000 patient admissions	0.03	0.01	0.03	0.01	0.03
Rate per 10,000 patient days	0.04	0.02	0.04	0.02	0.04
<b>East</b>					
Number of CPE infections	0	2	0	1	0
Rate per 1,000 patient admissions	0.00	0.03	0.00	0.02	0.00
Rate per 10,000 patient days	0.00	0.03	0.00	0.02	0.00

Abbreviation: CPE, carbapenemase-producing Enterobacteriaceae



**Table S4.2: Number of carbapenemase-producing Enterobacteriaceae colonizations and incidence rates by region, Canada, 2014–2018**

Case and incidence rates	Year				
	2014	2015	2016	2017	2018
<b>National</b>					
Number of CPE colonizations	23	36	76	108	130
Rate per 1,000 patient admissions	0.03	0.04	0.08	0.12	0.14
Rate per 10,000 patient days	0.04	0.05	0.12	0.16	0.19
Number of reporting hospitals	57	58	57	58	59
<b>West</b>					
Number of CPE colonizations	2	9	15	23	23
Rate per 1,000 patient admissions	0.01	0.02	0.04	0.06	0.06
Rate per 10,000 patient days	0.01	0.03	0.05	0.08	0.08
<b>Central</b>					
Number of CPE colonizations	21	27	61	85	107
Rate per 1,000 patient admissions	0.05	0.06	0.14	0.18	0.23
Rate per 10,000 patient days	0.07	0.09	0.20	0.26	0.32
<b>East</b>					
Number of CPE colonizations	0	0	0	0	0
Rate per 1,000 patient admissions	0.00	0.00	0.00	0.00	0.00
Rate per 10,000 patient days	0.00	0.00	0.00	0.00	0.00

Abbreviation: CPE, carbapenemase-producing Enterobacteriaceae

**Table S5: Number and proportion of main carbapenemase-producing pathogens identified<sup>a</sup>**

Pathogen	Year									
	2014		2015		2016		2017		2018	
	n	%	n	%	n	%	n	%	n	%
<i>Klebsiella pneumoniae</i>	28	37.3	32	35.6	56	30.1	51	25.4	66	28.3
<i>Escherichia coli</i>	11	14.7	22	24.4	42	22.6	60	29.9	54	23.2
<i>Enterobacter cloacae</i> complex <sup>b</sup>	13	17.3	10	11.1	34	18.3	24	11.9	44	18.9
<i>Acinetobacter baumannii</i>	8	10.7	9	10.0	24	12.9	14	7.0	6	2.6
<i>Serratia marcescens</i>	6	8.0	3	3.3	7	3.8	3	1.5	7	3.0
Others <sup>c</sup>	9	12.0	14	15.6	23	12.4	49	24.4	56	24.0
Total number of isolates tested <sup>d</sup>	75	100	90	100	186	100	201	100	233	100

<sup>a</sup> Includes data for all isolates submitted

<sup>b</sup> *Enterobacter cloacae* complex includes *Enterobacter cloacae* and other *Enterobacter* spp but excluding *E. aerogenes*

<sup>c</sup> Includes: *Acinetobacter* spp., *Citrobacter* spp., *Klebsiella oxytoca*, *Kluyvera cryocrescens*, *Morganella morganii*, *Providencia rettgeri*, *Raoultella* spp