PICNet PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA

Clostridium difficile Infection (CDI) Surveillance Report

Fiscal Year 2008/09
April 1st, 2008 – March 31st, 2009

Prepared by: Provincial Infection Control Network
March 2010

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Preamble

The Provincial Infection Control Network of BC (PICNet) is a provincially supported professional collaborative encompassing regional and provincial health organizations, with national links. Funded in 2005 by the BC Ministry of Health Services, the network guides and advises on health care associated infection (HAI) prevention practices in BC. Under the aegis of PHSA, PICNet works with a multidisciplinary Advisory Committee comprised of representatives from each Health Authority (HA) and various professional organizations and disciplines, with support and guidance from the Ministry of Health.

Since 2006 PICNet has been working to develop a provincial *Clostridium difficile* infection (CDI) surveillance protocol and standardized data set. The implementation of a provincial surveillance system for CDI allows for the development of appropriate benchmarks, as required, to assist facilities in applying interventions to improve infection prevention & control practice and, ultimately, patient safety.

This CDI Surveillance System (CDISS) allows acute care facilities in all HAs (including affiliated institutions) to voluntarily upload *C. difficile* data, devoid of personal identifiers, to a PICNet data repository through a Provincial Health Services Authority secure web portal. The CDISS can then be used to track the rates and trends in BC acute care facilities over time, to highlight the risk factors, and estimated morbidity and all cause mortality. Information regarding the presence of more virulent strains of *C. difficile* within British Columbia is also available.

Introduction of the PICNet Clostridium difficile Infection Surveillance System (CDISS)

The PICNet CDI Surveillance Working Group, working with many partners, developed a sustainable surveillance system to determine the rates and trends of *Clostridium difficile* Infection (CDI) in acute care facilities in British Columbia (BC).

The objectives of the CDISS are to:

- determine the incidence of healthcare associated CDI;
- determine key demographics and risk factors for CDI;
- determine the rates of serious illness or death in CDI cases;
- determine the proportion of CDI cases due to relapse;
- follow the trends in rates of CDI over time.

Population under Surveillance:

The population under surveillance is inpatients in acute care facilities in BC. Acute care facilities are health care facilities in which patients are treated for brief but severe episodes of illness, for the sequelae of an accident or other trauma, or during recovery from surgery. This includes patients admitted to the emergency department awaiting placement (e.g. patients admitted to a service who are waiting for a bed), patients in alternative level of care beds and patients in labour and delivery beds.

Excluded are outpatient visits to acute care facilities, patients in extended care beds housed in acute care facilities, patients in psychiatric beds, and short-term emergency room admissions. Infants under one year of age are also excluded from this surveillance.

The PICNet CDISS enables direct transfer of the defined minimal data set[1] from the Health Authorities' (HAs) surveillance databases to a PICNet data repository. Users from the HAs transfer the data to the PICNet data repository through a secure, password protected, web-based portal. Data fields within each of the HAs have been mapped to the PICNet data repository to allow this transfer without the need to re-enter data.

Users in the HAs are able to access their own data within the PICNet data repository, but not that of other users. This allows the users to assure the quality of the transferred data and make any corrections as necessary. The PICNet Surveillance Systems Coordinator has access to data from all users for the purpose of data cleaning, analysis and the generation of reports.

Data Sources

This report incorporates data submitted from the following participating parties:

- Fraser Health Authority (FHA)
- Interior Health Authority (IHA)
- Northern Health Authority (NHA)
- Provincial Health Services Authority (PHSA)
- Vancouver Coastal Health Authority (VCHA)
- Vancouver Island Health Authority (VIHA)
- Providence Health Care (PHC) and three affiliate hospitals - Bella Coola General Hospital, R.W. Large Memorial Hospital and Wrinch Memorial Hospital.

Data collected from the participating parties are based on the minimal data set that is required for the surveillance system to meet the described objectives, as defined by the PICNet CDI Working Group.

Data are collected quarterly, based on the fiscal year. Analysis in this report is based on data collected from April 1, 2008 to March 31, 2009. Updates and modifications submitted post the data submission due dates are not reflected in this report.

[1] Refers to data elements listed on the PICNet CDI Surveillance Form. See Appendix II – PICNet CDI Surveillance Form, Case Definition and Data Dictionary for PICNet case definition.

Data Limitations

Case Definitions: Prior to April 1, 2009, some participating parties employed case definitions that were different from the PICNet definitions[2]. PICNet is working towards further complete standardization of case definitions.

Data Availability: Prior to April 1, 2009, some participating parties did not collect all the data elements required to perform the analysis in this report; therefore, some rates calculated in this report are based on data only from HAs that submitted complete data.

Denominator Data: Acute care inpatient days are used as the denominator to calculate the provincial CDI rates in this report. Participating parties collect denominator data from HA based information systems and submit it to PICNet on a quarterly basis. Due to the limitations in HA based information systems, some participating parties applied slightly different inclusion and exclusion criteria to calculate their denominators.

Laboratory Methodologies: Methods of detection include Enzyme-linked Immunosorbent Assay (EIA), Toxin Assays, Polymerase Chain Reaction (PCR), etc (British Columbia Association of Medical Microbiologists, 2006). There are a variety of laboratory methods used in BC to confirm CDI cases. As identification methods vary from site to site, the sensitivity of detection of cases varies from site to site.

Molecular and Phenotypic Profile of BC C. difficile Strains

Over a one month period in March 2008, BC Centre for Disease Control Public Health Microbiology and Reference Laboratories (PHSA Laboratories), the National Microbiology Laboratory and the BC Association of Medical Microbiologists collaborated on a one month point prevalence study – *Province-wide Perspective of Clostridium difficile Infection in British Columbia.*

The objective of this study was to produce a baseline of the molecular and phenotypic profile of strains from participating centres aimed at complementing infection control surveillance programs for *C. difficile* infection in BC hospitals.

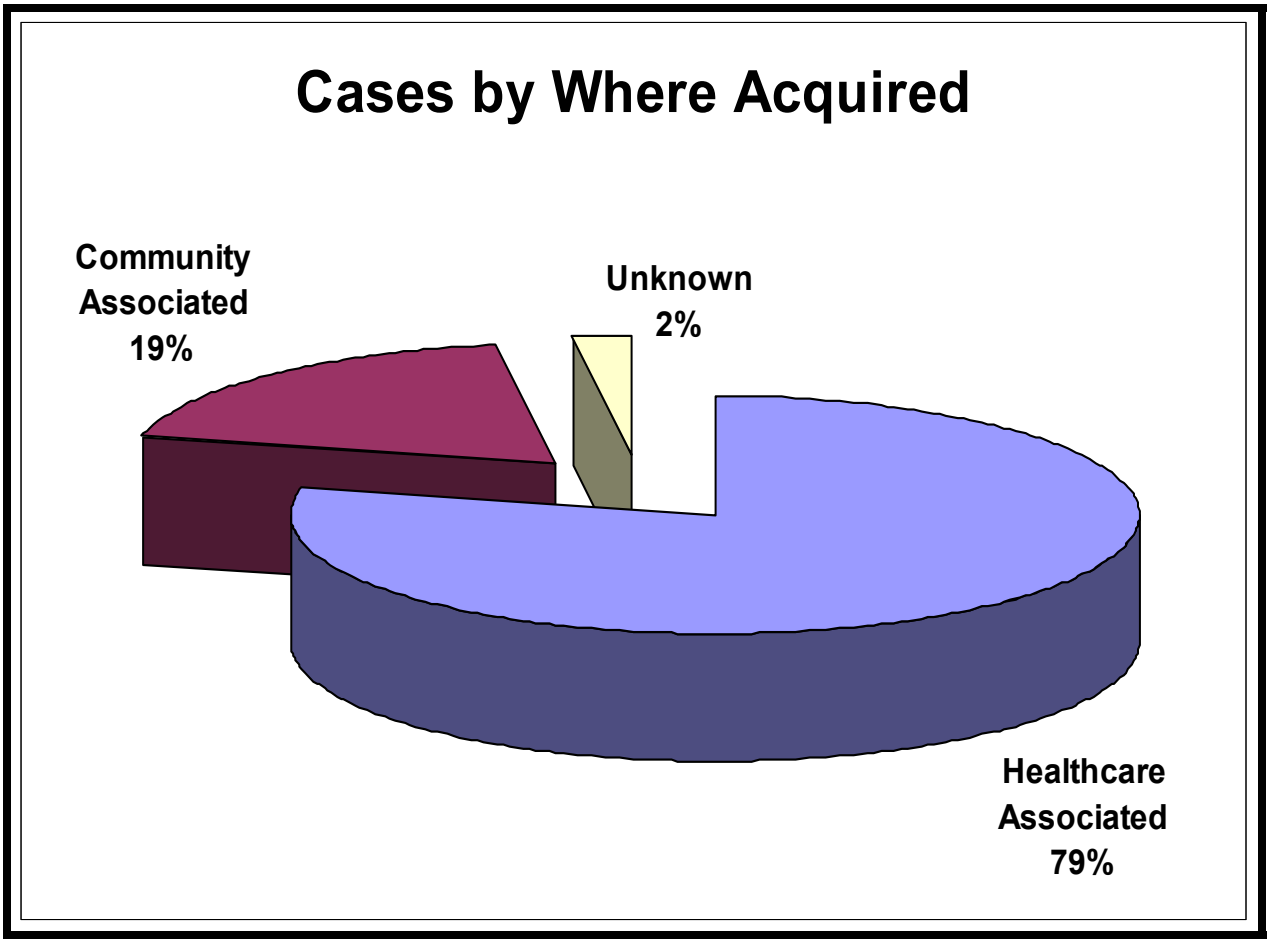
Details of this study including methods applied, study results and conclusions are included as **Appendix I – A One Month Point Prevalence Study.**

[2] See Appendix II – PICNet CDI Surveillance Form, Case Definition and Data Dictionary for PICNet case definition.

Cases of CDI in BC Acute Care Facilities in 2008/09

From April 1, 2008 to March 31, 2009, there were a total of 3,558[3,4] reported cases of CDI among patients admitted to acute care facilities across BC. Of the total, 79% were reported as healthcare associated[5], 19% were community associated[6] and 2% were of unknown origin. This distribution is graphically represented in Figure 1.

Figure 1. Cases of CDI in BC Acute Care Facilities by Where Infection Acquired



[3] The total includes both new infections and relapses.

[4] IHA did not submit data for relapses prior to April 1, 2009; therefore, only new infections are included for 2008/09.

NHA did not separate cases associated with outpatients from those associated with inpatients prior to April 1, 2009; therefore, the cases submitted from NHA may include cases associated with outpatients.

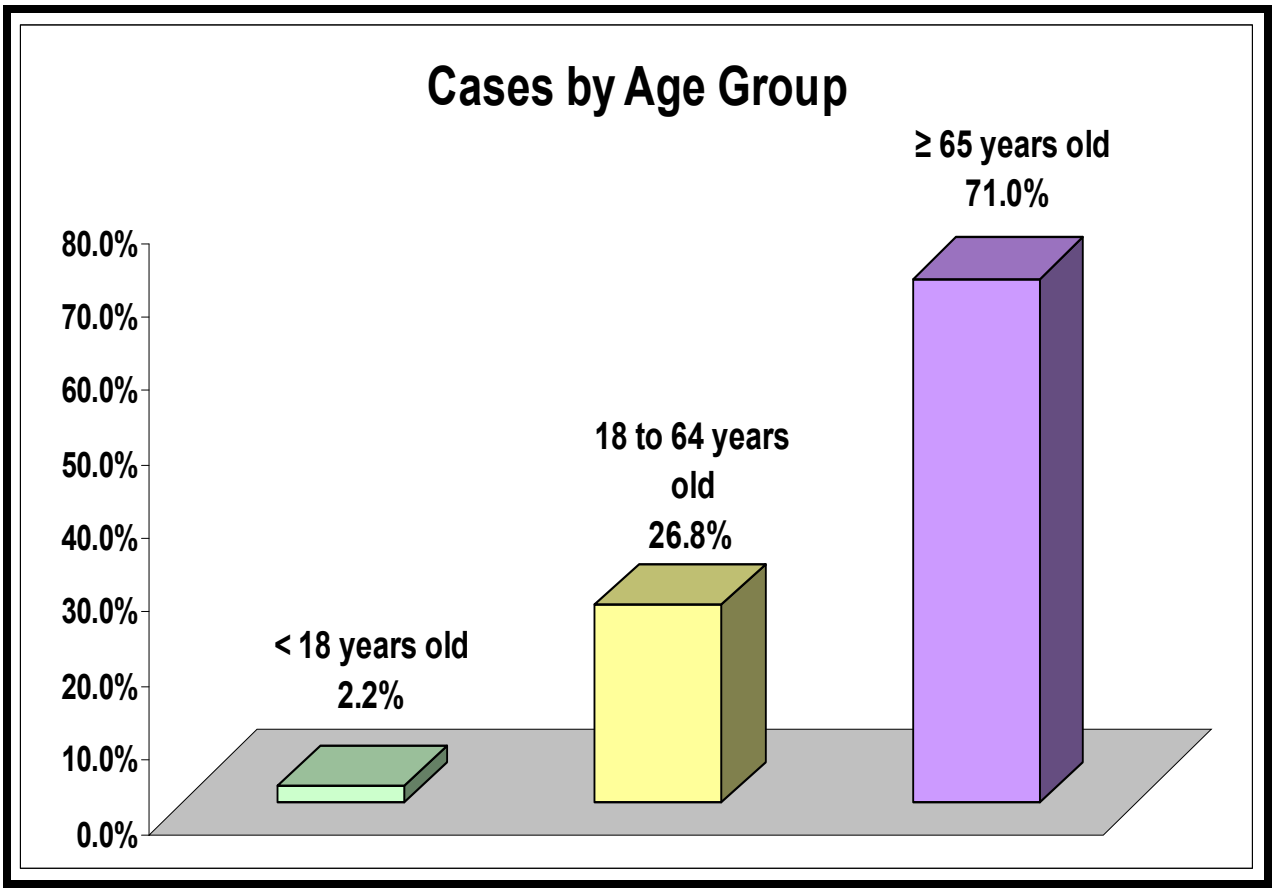
[5] See Appendix II – PICNet CDI Surveillance Form, Case Definition and Data Dictionary

[6] See Appendix II – PICNet CDI Surveillance Form, Case Definition and Data Dictionary

Cases by Gender and Age Group

A total of 46.1% were male and 53.9% were female. The distribution of cases by age group was 2.2% for pediatrics (patients less than 18 years of age), 26.8% for patients between 18 and 64 years of age and 71.0% for patients equal to or greater than 65 years of age. This distribution is presented in Figure 2.

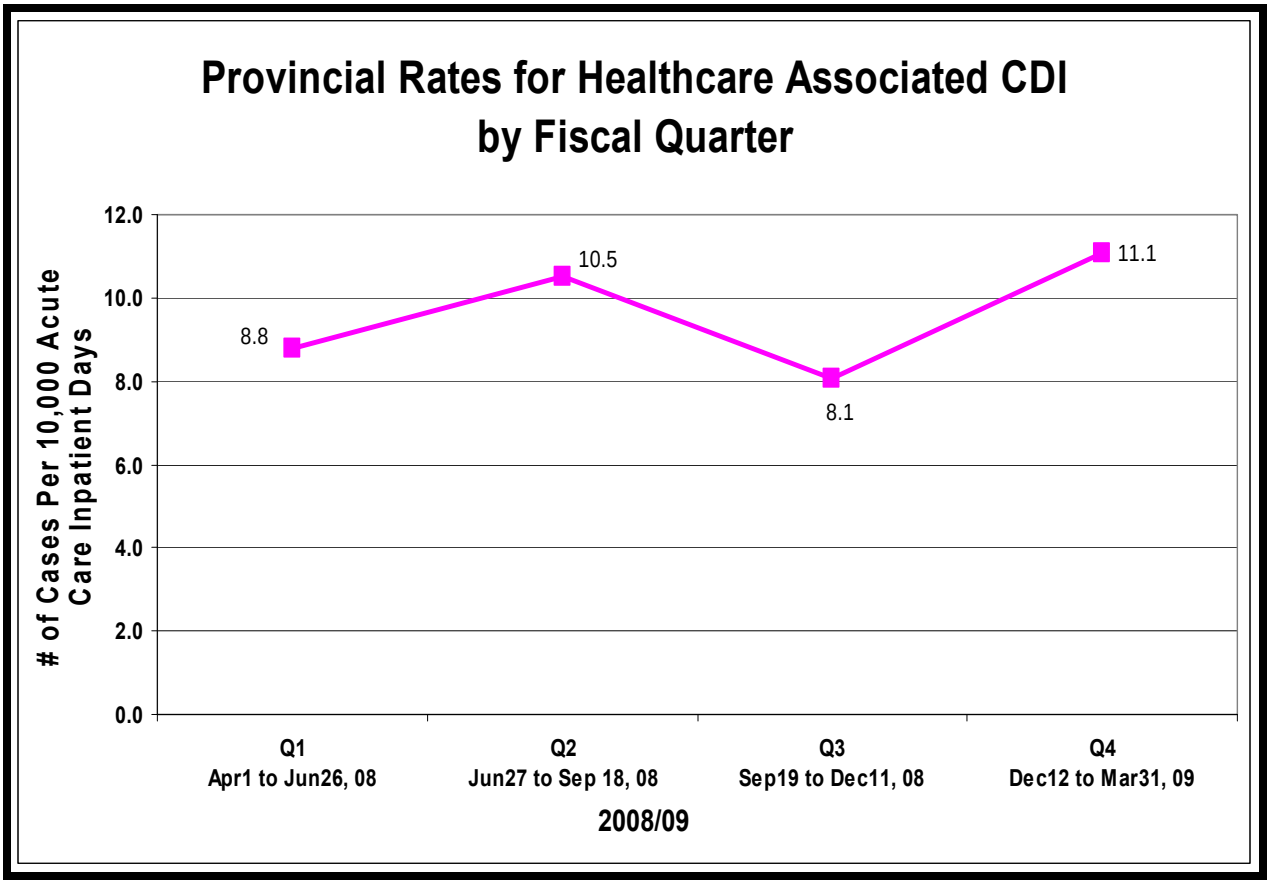
Figure 2. Cases of CDI in BC Acute Care Facilities by Age Group



Provincial Rates for Healthcare Associated (HCA) CDI in BC Acute Care Facilities, 2008/09[7,8,9]

The provincial rates for Healthcare Associated CDI in BC acute care facilities by fiscal quarter are presented in Figure 3.

Figure 3. Provincial Rates for Healthcare Associated CDI in BC Acute Care Hospitals by Fiscal Quarter.



The overall provincial rate for HCA CDI for 2008/09 was 9.7 cases per 10,000 acute care inpatient days (95% Confidence Interval (CI) = 9.3 – 10.1). When examined by fiscal quarter, the rate ranges from a low of 8.1 (95% CI = 7.3 – 8.8) in Q3 to a high of 11.1 (95% CI = 10.3 – 11.8) in Q4. From Q3 to Q4, an increase in the rate for HCA CDI was observed in four (out of six) HAs.

[7] The provincial rates for HCA CDI measure the number of Healthcare Associated new infections per 10,000 acute care inpatient days; Healthcare Associated relapses, Community Associated CDI and CDI of unknown origin are excluded from the calculation.

[8] The rates are calculated as: (the number of reported HCA CDI new infections / the number of acute care inpatient days) * 10,000

[9] VIHA included Rehabilitation beds in their 2008/09 denominator.

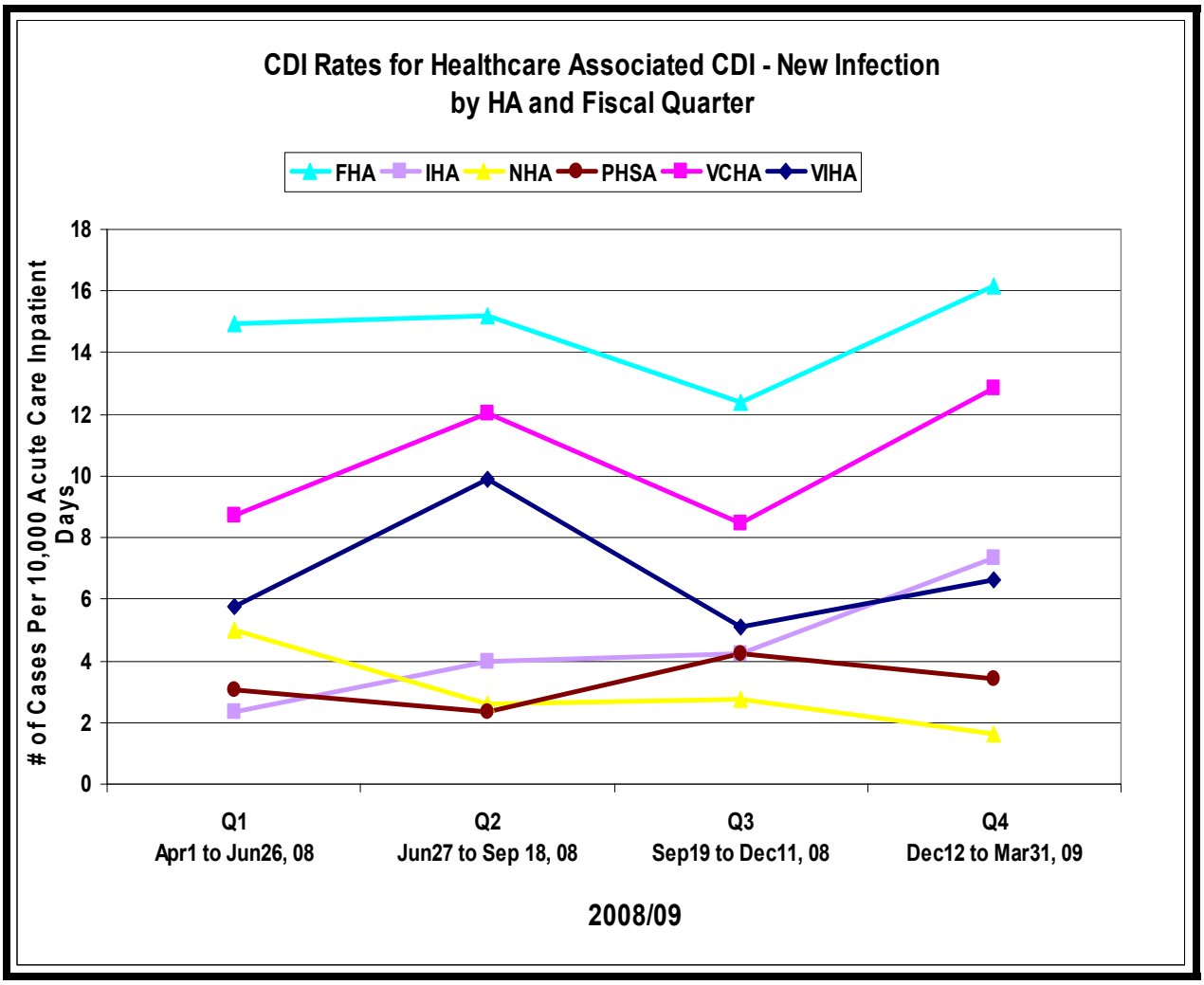
FHA included patients less than one year of age in their 2008/09 denominator.

Inclusion of these beds in these Health Authorities is due to the inability to separate them from their total denominator.

Healthcare Associated (HCA) CDI Rates by HA, 2008/09[10]

HCA CDI rates by HA and fiscal quarter are presented in Figure 4.

Figure 4. HCA CDI rates by HA and Fiscal Quarter.



According to the above figure, similar trends were observed for VCHA, VIHA and FHA – from Q1 to Q2, 2008/09, there was an increase in HCA CDI rates; the rates dropped in Q3 and increased again in the last fiscal quarter of 2008/09.

[10] PHC, R.W. Large Memorial Hospital and Bella Coola General Hospital are affiliates of VCHA. They were included in the HCA CDI rates for VCHA.

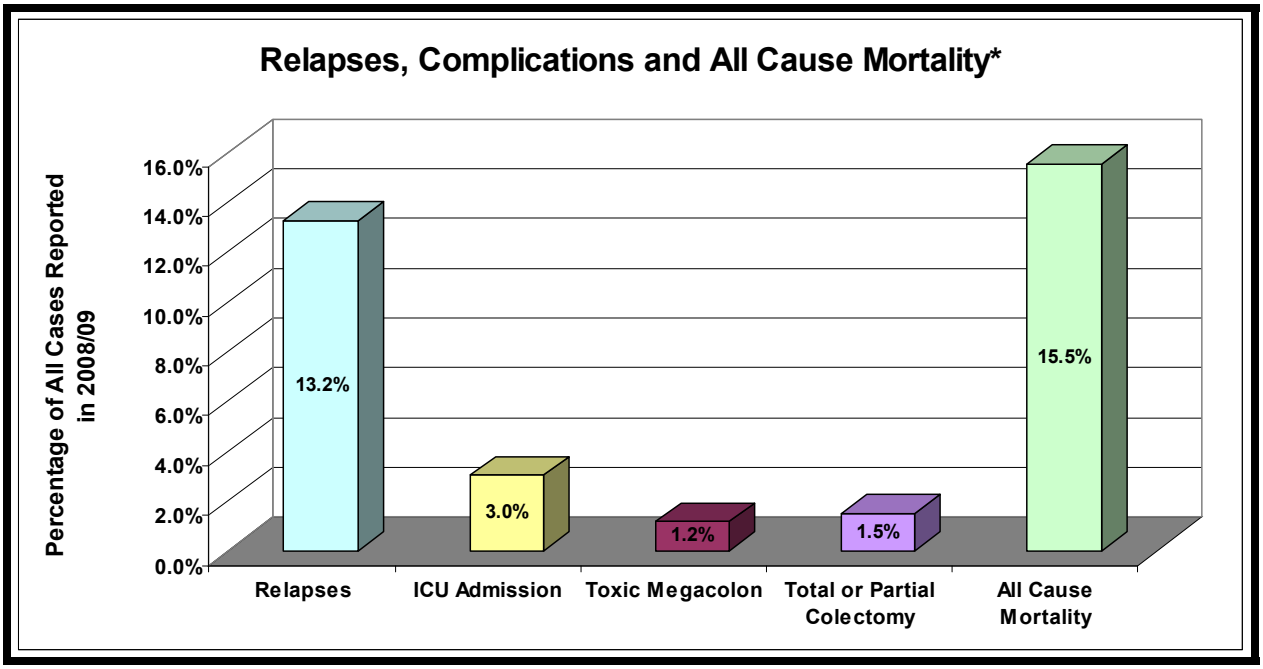
Wrinch Memorial Hospital is an affiliate hospital of NHA. It was included in the HCA CDI rates for NHA.

Relapses[11], Complications[12] and 30-day Outcomes[13]

Cases of CDI were followed at 30 days post identification to determine complications and outcomes. If a patient was discharged prior to 30 days, there was no follow up after discharge. Of the total cases reported in 2008/09, 4.3% experienced one or more complications. In 2008/09, relapses accounted for 13.2%[14] cases and all cause mortality[15] was 15.5%. All cause mortality was 14.2% for patients aged 65 years and older compared to 1.3% for patients below 65 years old.

The percentage of relapses, complications and all cause mortality in 2008/09 is presented in Figure 4.

Figure 5. Percentage of relapses, complications and all cause mortality in 2008/09.



* Relapses, complications and all cause mortality are mutually exclusive.

[11] The definition of relapse of CDI can be found in Appendix II – PICNet CDI Surveillance Form, Case Definition and Data Dictionary for PICNet case definition.

[12] Information on complications prior to April 1, 2009 was submitted by VCHA, VIHA and PHC; therefore, the complication rates were based on data from those three participating parties.

[13] Information on 30-day outcomes prior to April 1, 2009 was submitted by VCHA, VIHA, PHC and FHA; therefore, the all cause mortality was based on data from those four participating parties.

[14] IHA did not submit data on relapses prior to April 1, 2009and therefore was not included in the calculation of relapse rate.

[15] All Cause Mortality: Death from all causes in patients who are found to be CDI positive.

Identification Methods

3,557 (out of 3,558) cases in acute care facilities had a positive laboratory specimen; 1 case was identified by surgical diagnosis (e.g. colectomy).

Antibiotics[16]

75.1% of cases had received antibiotics in the six weeks prior to diagnosis.

Conclusion

This report provides important baseline data on the incidence of healthcare associated CDI, key demographics and risk factors for CDI, the rates of serious illness or death in CDI cases, the percentage of CDI cases due to relapse and the trends in rates of CDI in acute care facilities in BC over one year.

The provincial rate for HCA CDI in this report (9.7 cases per 10,000 patient days) was determined by data submitted from most of the acute care hospitals in BC.

As a provincial program, PICNet does not provide interpretation of the rates for the HA. Each HA is comprised of unique facilities, which provide services to different areas of BC. Each HA also has inimitable challenges and different at-risk populations which may contribute to their CDI rates being high or low – these analyses are beyond the scope of the reports. HAs are best situated to respond to the HA or site specific data or rates.

Future Directions

- All participating parties will upload the complete minimal data set to the PICNet data repository;
- PICNet will continue to work towards standardization of case definitions;
- The molecular study will be repeated.

[16] PHSA did not submit data on Antibiotics prior to April 1, 2009 and therefore, was not included in the calculation of Antibiotics rate.

References

British Columbia Association of Medical Microbiologists (2006, March 1). *Laboratory Diagnosis of Clostridium difficile Associated Disease*. Retrieved, June 28, 2008 from http://www.cmpt.ca/pdf_cdifficile/BCAMM%20C%20difficile%20laboratory%20diagnosis%202006C01%20v1%201%20.0.pdf

Appendix I – A One Month Prevalence Study

Province-wide Perspective of *Clostridium difficile* Infection in British Columbia: A One Month Point Prevalence Study.

L. Janz[1], P. Umlant[1], T. Rahim[1], S. Champagne[4], M. R. Mulvey[3], D. Boyd[3], L. Hoang[1]

[1] British Columbia Centre for Disease Control, Vancouver, British Columbia; [3]National Microbiology Laboratory, Winnipeg, Manitoba; [4] B.C. Association of Medical Microbiologists.

Objective:

The *tcdC* gene of *C. difficile* negatively regulates the production of toxins A and B. Mutations within this gene may result in loss of the negative regulatory role, potentially leading to hyperproduction of toxins and increased virulence. This hypervirulent strain caused an epidemic of *C. difficile*-associated disease in Quebec in 2002 and has been seen in increasing numbers in the western provinces, including BC. The objective of this study was to produce a baseline of the molecular and phenotypic profile of strains from participating centres to complement future infection control surveillance programs for *C. difficile* infection in BC.

Methods:

Over a one month period in March 2008, all stool specimens positive for *C. difficile* testing were cultured at participating laboratories or forwarded to the reference laboratory (BCCDC) for culture. Methods were standardized across participating laboratories. *C. difficile* was identified by colony morphology, Gram-stain, aerotolerance and *C. difficile* latex agglutination kit. The presence of the *tcdC* gene deletion was determined for each isolate using fragment analysis polymerase chain reaction (PCR). A fingerprint pattern was generated using pulsed-field gel electrophoresis (PFGE) and assigned PFGE pattern numbers and nucleic acid purification (NAP) type using the Canadian *C. difficile* database.

Results:

	Numbers/Percentage (if applicable)
Total numbers of culture positive samples received	368
• Mean age	69.5
• Percent male and female	44% M / 56% F
• Sample types - stool(s)	147
• Sample types - isolate(s)	221
Number/percentage of isolates with NAP1 PFGE designation	156 / 42.4%
Number/percentage of isolates with any mutation(s) detected in the *tcd*C (toxin negative regulator gene)	189 / 51.4%
Number of isolates with no mutations detected (wild type) in the *tcd*C gene	179 / 48.6%
• Number/percentage of isolates with mutation at (-18)(-1) in *tcd*C gene, associated with NAP1 PFGE pattern (denominator: all isolates with mutation(s) detected)	145 / 76.7%
• Number/percentage of isolates with mutations other than at (-18)(-1) in *tcd*C region detected (denominator: all isolates with mutation(s) detected)	29/15.3%

Antibiotic Susceptibility Results*

	Mean MIC (μg/ml)	+/- SD (μg/ml)	MIC Range (μg/ml)
Metronidazole	0.25	0.39	0.016-4.0
Clindamycin	40.12	85.75	0.250-256.0
Ciprofloxacin	31.91	1.18	16.0-32.0
Vancomycin	0.55	0.27	0.125-2.0

*Please note that the minimum inhibitory concentration (MIC) breakpoints for the antibiotics tested are as follows:

	MIC μg/ml		
	Susceptible	Intermediate	Resistant
Metronidazole	≤8	16	≥32
Clindamycin	≤2	4	≥8
Ciprofloxacin	≤1	2	≥4
Vancomycin	≤2	4 to 8	≥16

Conclusion:

The prevalence of the NAP1 strain of *C. difficile* in the province of BC was 42.4% for March 2008. Of the *C. difficile* isolates recovered, the majority contained mutation at (-18)(-1), with 15.3% exhibiting mutations at other sites within PaLoc. This study provides a baseline for infection control and public health functions in BC.

Appendix II – PICNet CDI Surveillance Form, Case Definition and Data Dictionary

1. *Clostridium difficile* Infection (CDI) Surveillance Form

Patient Data

Facility code: _____ Patient code: _____

Year of birth: (YYYY) _____ Sex: ☐ Male ☐ Female ☐ Unknown

Healthcare Encounter History / Clinical and Laboratory Information

Discharged from any healthcare facility
☐ < 4 weeks ☐ > 8 - 12 weeks
☐ 4 – 8 weeks ☐ > 12 weeks
☐ No previous discharge ☐ Unknown

Case Definition:
☐ Healthcare associated; healthcare facility onset
☐ Healthcare associated; community onset
☐ Healthcare associated
☐ Community associated
☐ Unknown

If Healthcare Associated:
☐ New infection in your acute care facility
☐ New infection from another healthcare facility
☐ Relapse from your acute care facility
☐ Relapse from another healthcare facility

If Community Associated: ☐ New infection ☐ Relapse ☐ Unknown

How diagnosed (check all that apply):
☐ laboratory confirmed (+ toxin or culture)
☐ surgical diagnosis (e.g., colectomy)
☐ histology/pathology (e.g., biopsy)

Date of specimen collection: (dd/mmm/yyyy) _____

If no lab test, date of CDI diagnosis: (dd/mmm/yyyy) _____

Antibiotics (in previous 6 wks): ☐ Yes ☐ No ☐ Unknown

Complications and Outcomes

CDI-associated complications within 30 days of diagnosis

ICU admission Yes ☐ No ☐ Unknown ☐

Toxic megacolon Yes ☐ No ☐ Unknown ☐
Total or partial colectomy Yes ☐ No ☐ Unknown ☐
Outcome at 30 days from CDI diagnosis: Alive ☐ Death ☐

If Alive: (record earliest outcome)

☐ In hospital (same admission)
☐ Discharged
☐ Transferred to another facility

If Death: (based on physician judgment)

☐ Death attributed to *C. difficile* infection
☐ CDI a contributing factor in death
☐ Death unrelated to CDI
☐ Unable to judge

2. Case Definition

A diagnosis of CDI applies to a person with:

- Acute onset of diarrhea (≥ 3 loose stools within a 24 hr period) without another etiology (loose stool is defined as that which takes the shape of the container that holds it).

And one or more of the following

- Laboratory confirmation (positive toxin or culture with evidence of toxin production)
  or
- Diagnosis of typical pseudo-membranes on sigmoidoscopy or colonoscopy or histological/pathological diagnosis of CDI
  or
- Diagnosis of toxic megacolon.

Note: It is assumed that any stool sent to the laboratory for C. *difficile* testing is from a patient that has had a least 3 episodes of loose stools in a 24 hour period. It is accepted that the surveillance protocol may overestimate the number of cases as some patients may have had only one or two loose stools prior to a specimen being collected.

Healthcare Facility: Any acute care, long-term care, long-term acute care, or other facility in which skilled nursing care is provided and patients are admitted at least overnight (McDonald et al ICHE 28 (2): 140-145, 2007).

Healthcare Associated; Healthcare Facility Onset: A CDI case (as defined above) with symptom onset at least 72 hours or more after admission.

Healthcare Associated; Community Onset: A CDI case (as defined above) with symptom onset in the community or 72 hours or less after admission to a healthcare facility, provided that symptom onset was less than 8 weeks after the last discharge from a healthcare facility.

Community Associated: A CDI case (as defined above) with symptom onset in the community or 72 hours or less after admission to a healthcare facility, provided that symptom onset was more than 8 weeks after the last discharge from a healthcare facility.

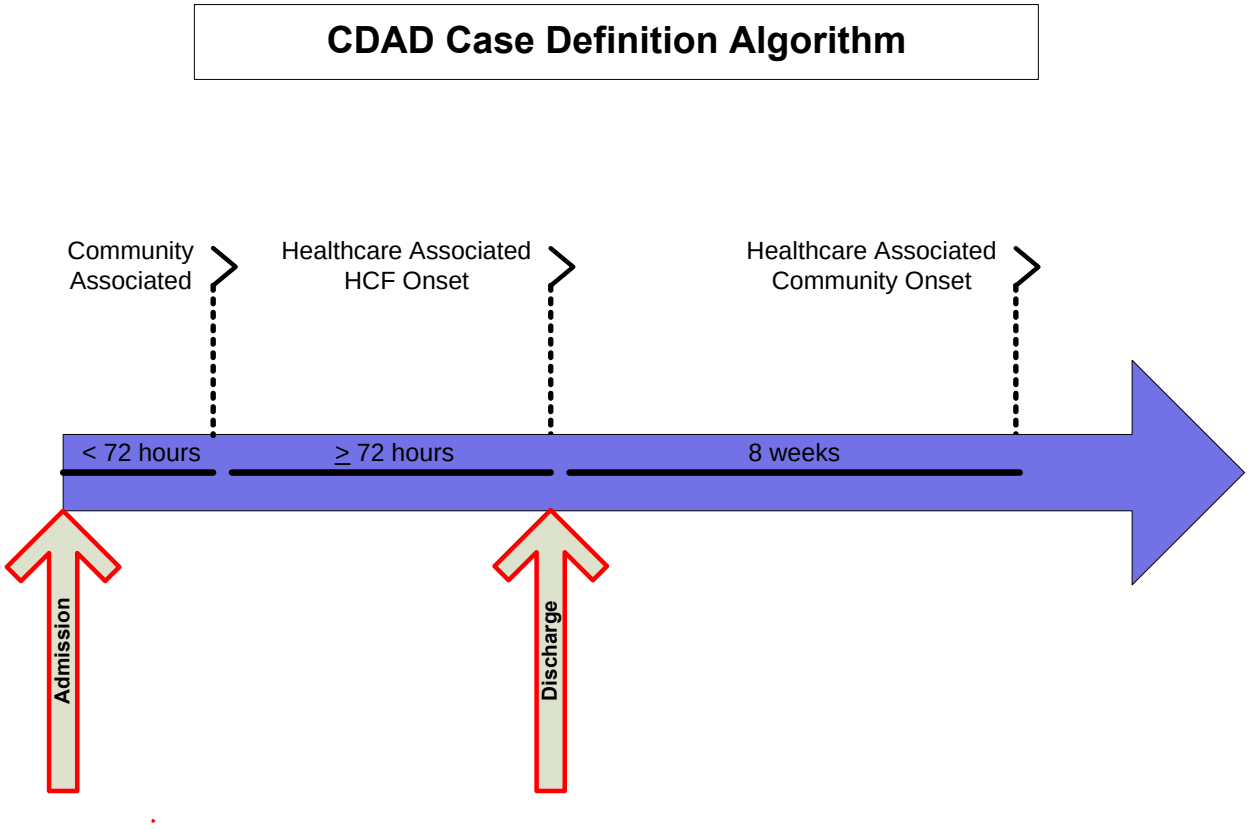
Unknown: A CDI case (as defined above) where there is insufficient information on healthcare admission and/or discharge to classify as a healthcare or community associated case.

Relapse of CDI: A CDI case (as defined above) with recurrence of diarrhea within 2 to 8 weeks of a previous *C. difficile* episode (as determined by the date of a previous lab test, chart note or diagnosis by endoscopy or pathological specimen) provided that CDI symptoms from the earlier episode resolved with or without treatment.

A relapse is to be attributed to the source of the original infection (i.e., healthcare associated or community).

Note: A case with recurrence of diarrhea less than two weeks from the previous episode is considered to be a continuation of the previous episode and not a relapse.

Your Acute Care Facility: Refers to the acute care facility reporting the case.



3. Data Dictionary

Patient Data

Variable	Definition
Facility Code	The code assigned to the facility by the British Columbia Ministry of Health
Patient Code	An alphanumeric or numeric code assigned by the facility to anonymously link the

	patient to facility data. The patient code should not exceed 8 characters.
Year of birth	The year of birth of the patient expressed as the full year (YYYY)
Sex	The sex of the patient; select "Male" or "Female". If no information is available to determine sex, select "Unknown"

Lab and Clinical Data

Variable	Definition
Discharged from any healthcare facility	Has the patient ever been discharged from a healthcare facility (see definition below)? If yes, select the appropriate time frame between the last discharge date and the current diagnosis. Please note the following specification: **< 4 weeks:** less than 4 weeks from the previous discharge date; **4-8 weeks:** greater than or equal to 4 weeks, and less than or equal to 8 weeks; **>8-12 weeks:** greater than 8 weeks, and less than or equal to 12 weeks; **>12 weeks:** greater than 12 weeks. If the patient has never been discharged from a healthcare facility (i.e., this is the patient's first admission to a healthcare facility), select "No previous discharge". If no information is available to determine the patient's healthcare facility discharge history, select "Unknown".
Case Definition	**Healthcare Associated; Healthcare Facility Onset:** A CDI case with symptom onset at least 72 hrs or more after admission. **Healthcare Associated; Community Onset:** A CDI case with symptom onset in the community or 72 hours or less after admission to a healthcare facility, provided that symptom onset was less than 8 weeks after the last discharge from a healthcare facility. **Community Associated:** A CDI case (as per definition) with symptom onset in the community or 72 hours or less after admission to a healthcare facility, provided that symptom onset was more than 8 weeks after the last discharge from a healthcare facility. **Unknown:** A CDI case (as per definition) where there is insufficient information on healthcare admission and/or discharge to classify as a healthcare or community associated case.
New Infection	A CDI case without a previous history of CDI **OR** A CDI case that has NOT had an episode of CDI in the previous 8 weeks.
Relapse	A CDI case with recurrence of diarrhea within 2 to 8 weeks of a previous *C. difficile* infection (as determined by the date of a previous lab test, chart note or diagnosis by endoscopy or pathological specimen).
Healthcare Facility	Any acute care, long-term care, long-term acute care, or other facility in which skilled nursing care is provided and patients are admitted at least overnight (McDonald et al ICHE 28 (2): 140-145, 2007).
Your Acute Care Facility	Your acute care facility refers to the acute care facility reporting the case.

Another Healthcare Facility	Another healthcare facility refers to any other healthcare facility (see definition for healthcare facility), excluding the acute care facility reporting the case.
How Diagnosed	A case may be diagnosed through (1) laboratory testing (positive toxin and/or culture); (2) a surgical procedure (e.g., colectomy); or (3) histology or pathology (e.g., biopsy). Select all that apply.
Date of Specimen Collection	For laboratory confirmed cases (i.e., positive toxin and/or culture) record the date the specimen was collected. The date should be recorded as Day (e.g., 28), Month (e.g., Jan) and Year (e.g., 2008).
If no lab test, date of CDI diagnosis	For cases identified by surgical diagnosis (e.g., colectomy) or histology/pathology (e.g., biopsy) enter the date the positive diagnosis was made. The date should be recorded as Day (e.g., 28), Month (e.g., Jan) and Year (e.g., 2008).
Antibiotics in previous 6 wks	Did the patient take antibiotics in the 6 weeks prior to the current episode? Select "Yes" or "No". If no information is available to determine antibiotic history, select "Unknown"

Complications and Outcomes

Variable	Definition
Complications within 30 days	Did the patient experience any of the following complications within 30 days of their diagnosis/culture date? For each of the complications select "Yes" or "No". If no information is available, select "Unknown" **ICU admission:** Admission to the Intensive Care Unit. **Toxic megacolon:** Physician diagnosis of toxic megacolon (i.e., abnormal dilation of the large intestine documented radiologically). **Total or partial colectomy:** Documented evidence of surgical removal of part or the entire colon.
Outcome at 30 days	What is the patient's outcome at 30 days post diagnosis/culture date? Select "Alive" or "Death"
Death	If the patient's status at 30 days post diagnosis/culture date is "death", was the death related to CDI? Select one of the three following options. Cases of death should be reviewed by a physician to determine whether they were attributable to, related or unrelated to CDI. **Death attributed to CDI:** Physician determination that the cause of death is attributable to CDI. **CDI a contributing factor in death:** Physician determination that CDI contributed to the patient's death. **Death unrelated to CDI:** Physician determination that the patient's death was unrelated to CDI.
Alive	If the patient's status at 30 days post diagnosis/culture date is "alive", where are they? Select the option that occurred the earliest.

	In hospital (same admission): The patient is still in hospital and has not been discharged during the 30 day follow up period. **Discharged:** The patient was discharged home. **Transferred to another facility:** The patient was transferred to another healthcare facility (see definition for healthcare facility).