Finding the Gaps: Healthcare Associated Infection Surveillance in British Columbia
Bruce Gamage, BC Centre for Disease Control
A Webber Training Teleclass

Finding the Gaps:
Healthcare-Associated Infection Surveillance in British Columbia

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2

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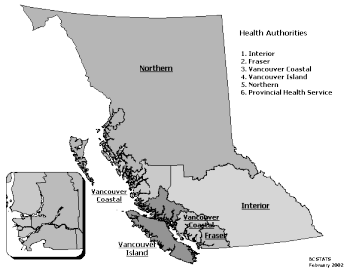
3



4

Outline

- What is PICNet?
- Purpose of IPAC surveillance survey
- Methods
- Results
- Discussion
- PICNet's CDI surveillance program
- Next Steps for HAI surveillance

5

What is PICNet?

- The Provincial Infection Control Network - BC
  - Formed by the Ministry of Health in 2005
  - Provides advice and strategic intervention on relevant policy, procedure and issues relating to infection prevention and control (IPAC) across the continuum of healthcare
  - Collaboration of all Healthcare Professionals with an interest in IPAC
  - Focus on Surveillance, Guidelines and Education

6

Purpose of IPAC Surveillance Survey

- Review the scope and nature of surveillance activities for HAI in BC hospitals.
- Identify:
  - Required resources
  - Barriers and impediments
  - Opportunities for standardizing case definitions and methodology
  - Lay key foundations for the development of HAI surveillance programs at local and provincial levels.

7

Methods

- An IPAC surveillance questionnaire was developed by members of the PICNet Needs Assessment Working Group
- Validated by senior ICPs representing publicly funded healthcare facilities in the six regional Health Authorities.
- Sampled 63% (51/81) acute care facilities in BC (93% of acute care beds)
- A copy of the survey is available at www.picnetbc.com

8

Questionnaire

- Organism Specific Surveillance:
  - MRSA
  - VRE
  - CDI
- Disease Specific Surveillance
  - UTI
  - BSI
  - VAP
  - HAP
  - SSI
- General Surveillance Activities

9

Data

- Case definitions used
- Methodology
- Patient populations surveyed
- Admission screening parameters
- Laboratory methods used
- Data capture methods
- Denominators

10

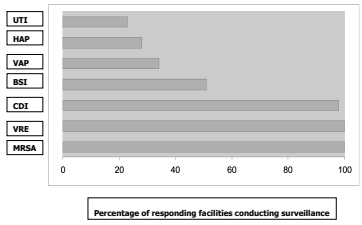
Results

- 92% response rate (47/51 facilities)
- Seven questionnaires combined ACF and associated LTF facilities
- Six of respondents were teaching hospitals

11

HAI Surveillance

FIGURE 1
SURVEILLANCE OF HEALTHCARE-ASSOCIATED INFECTION IN RESPONDING BC ACUTE CARE FACILITIES



12

Organism Specific Surveillance

Table 1. Organism Specific Surveillance Programs in Responding BC Acute Care Facilities (N=38)*

	MRSA	VRE	CDAD
Surveillance on all units	36 (97)	34 (94)	38 (100)
Surveillance data **Laboratory only** **Clinical only** **Both**	 16 (42) 3 (8) 19 (50)	 21 (43) 2 (8) 18 (49)	 17 (44) 5 (13) 17 (44)
Patients populations surveyed **Inpatient** **Inpatient/ Outpatient**	 8 (22) 28 (76)	 8 (22) 28 (78)	 14 (36) 25 (64)
Rates reported to Medical Advisory Committees (MAC)***	32 (86)	32 (89)	36 (97)
Admission screening	37 (97)	36 (97)	9 (23)
Contact screening	38 (100)	38(100)	NA**
Organisms saved **Organisms typed**	23 (64) 20 (57)	21 (60) 16 (47)	2 (6) 5 (15)

*Information from 9 of the responding facilities included missing values. These responses were excluded for the purposes of analysis.
**Not applicable. Asymptomatic contacts of CDAD patients are not eligible for laboratory testing.
*** Medical Advisory Committee (MAC), the committee comprised of the Chief of Staff for each medical service in a facility.

13

Organism Specific Surveillance (MRSA & VRE)

- 80% of facilities reported MRSA surveillance >5 years
- Only 68% of facilities had been performing VRE surveillance > 5yrs & 42 % CDI
- Only 50% of facilities included both laboratory and clinical information in their surveillance
- 53% of facilities did not collect denominator data to calculate rates
- Variation was found in definitions used for Healthcare associated vs. Community associated

14

Organism Specific Surveillance (CDI)

- Only 23% of facilities reported admission screening for CDI
- Variation in case definition for CDI was noted
- Definition of relapse varied from 6 weeks to 3 months from previous CDI episode

15

Other HAI (UTI, BSI, VAP)

- UTI
  - Only 28% of facilities performed UTI surveillance
  - Only 46% collected denominator data (only 1 used device days).
- BSI
  - Only 51% of facilities followed catheter related BSI
  - Only 21% used device days as denominator to calculate rates.
- VAP
  - Only 23 % of facilities follow ventilator associated pneumonias
  - Only 36% used device days as denominator to calculate rates.

16

Surgical Site Infection Surveillance

Table 2: Surgical Site Infection Surveillance Programs in Responding BC Acute Care Hospitals

Surgery	Number (%) of acute care facilities conducting surgery (N=47)	Number (%) of acute care facilities conducting (SSI) surveillance*
Orthopaedic	36 (77)	21/36 (58)
Breast	36 (77)	16/36 (44)
Neurosurgical	8 (17)	5/8 (62)
Cardiovascular	7 (15)	5/7 (71)
Obstetrics	41 (87)	25/41 (61)
Renal	15 (36)	10/15 (67)
Gastrointestinal	45 (96)	16/45 (36)

*of those facilities conducting surgery

17

Characteristics of SSI Programs

Table 3: Characteristics of SSI Surveillance Programs in BC Acute Care Hospitals

Procedure (N= respondents reporting conducting surveillance on specific surgeries)*	Retrospective surveillance	Inpatient surveillance only	Inpatient/ outpatient surveillance	ASA risk score recorded	Wound class recorded	Number of procedures used as denominator	Post-discharge surveillance	Results reported to MAC**
Orthopaedic N=8	5 (62)	4 (50)	4 (50)	6 (86)	8 (100)	7 (87)	4 (50)	7 (87)
Breast N=8	4 (50)	2 (25)	6 (75)	6 (86)	8 (100)	8 (100)	3 (37)	8 (100)
Neurosurgery N=2	0 (0)	2 (100)	0 (0)	2 (100)	2 (100)	1 (50)	0 (0)	1 (50)
Cardiovascular N= 4	1 (50)	1 (50)	1 (50)	1 (50)	4 (100)	4 (100)	1 (50)	4 (100)
Obstetrics N=18	4 (22)	7 (39)	11 (61)	17 (94)	18 (100)	18 (100)	10 (56)	18 (100)
Renal N=6	4 (67)	1 (17)	5 (83)	4 (67)	6 (100)	6 (100)	2 (33)	6 (100)
Gastrointestinal N=11	5 (45)	4 (36)	7 (64)	8 (73)	11 (100)	11 (100)	5 (45)	10 (91)

*The values: N (%) are based on the facilities that provided details of their SSI surveillance program; missing data from facilities not providing program details were excluded from the percent calculations.
**Medical Advisory Committee (MAC), the committee comprised of the Chief of Staff for each medical service in a facility.

18

General Surveillance Activities

- 94% of facilities indicated that ICPs were responsible for data collection and data entry
- Most entered data manually – few used electronic data-capture forms
- Only 47% of respondents reported access to a hospital epidemiologist (Master/PhD epidemiologist)

19

Discussion - Limitations

- A convenience sample was used – only facilities with access to an ICP were included
- Cannot compare to facilities without an ICP
- Likely overestimates the amount and quality of surveillance being done.

20

Discussion – (Organism Specific Surveillance)

- Substantial variation in case definitions regarding healthcare associated and community associated
- Over half of facilities presented raw data for MRSA, VRE and CDI – making trending difficult
- 40% did not save isolates or perform molecular typing making epidemiologic investigations difficult
- Facilities that perform CDI screening use a GI symptom algorithm – designed to detect possible cases of infectious diarrhea so contact precautions can be put in place ASAP.

21

Discussion – Disease Specific Surveillance

- SSI surveillance did not necessarily correlate with procedures associated with higher morbidity and mortality from post-op infections
- Many facilities did not use ASA scores to stratify procedures by risk – may indicate lack of knowledge regarding methodology
- Considerable variation in procedure coding, denominator, inclusion of oupatients, methodology – these need to be addressed before consistent surveillance can be achieved province-wide.

22

Discussion – General Surveillance Activities

- IPAC programs were strikingly underserved in access to epidemiological services
  - Two rural health authorities have no access!
- Results show a large opportunity for provincial standardization of case definitions and surveillance methodology – allowing trending and benchmarking of rates on a provincial and national level.

23

Next Steps for PICNet

- Prioritize surveillance activities on a province- wide basis
- PICNet is currently implementing a secure web-based system that will allow acute care facilities in each health authority to transfer anonymized data from existing databases into a provincial repository
  - Challenge is getting all participants to agree to and adopt consistent case definitions and minimal dataset
  - Freedom of information and privacy laws require that case information must be collected anonymously

24

PICNet Next Steps – CDI Surveillance

- Following completion of the survey – our first priority was province-wide surveillance of CDI in acute care hospitals
- Will follow with subsequent modules for MRSA/VRE, CA-BSI, SSI, VAP and UTI
- We expect each new module to take about 12 months to implement

25

CDI Minimum Data Set

***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 CDAD diagnosis: (dd/mmm/yyyy) _____

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

Complications and Outcomes

CDAD-associated complications within 30 days of diagnosis

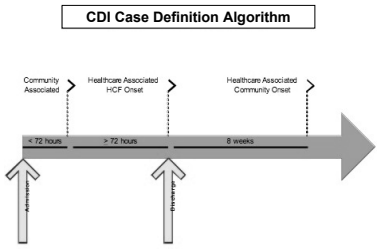
ICU admission	Yes ☐	No ☐	Unknown ☐
Toxic megacolon	Yes ☐	No ☐	Unknown ☐
Total or partial colectomy	Yes ☐	No ☐	Unknown ☐

Outcome at 30 days from CDAD 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
☐ CDAD a contributing factor in death
☐ Death unrelated to CDAD
☐ Unable to judge

Case Definition



27

PICNet - Next Steps

- Implementing MRSA/VRE module should be more easily accomplished as most facilities have been conducting this surveillance for more than five year and are using case definitions consistent with PHAC
- Most facilities save isolates, combined with excellent working relationship between laboratories will make molecular investigations possible – recently performed a point prevalence study of CDI
- Hope to continue this collaboration in the future

28

Summary

- Our assessment identified many gaps in HAI surveillance in BC acute care hospitals
  - Identified need to standardize case definitions, minimal data sets, methodology, denominators
  - Lack of resources – especially hospital epidemiologist
- PICNet is working with the health authorities in BC towards the goal of standardized, province-wide surveillance for HAI.

29

Questions?

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30


THE NEXT FEW TELECLASSES
12 May. 09
FREE TELECLASS
Ethical Decisions in Pandemic Planning
(Live Broadcast from CHICA-Canada Conference)
Speaker: Dr. Rick Singleton, Memorial University of St. John's
19 May. 09
(British Teleclass) Human Papillomavirus (HPV) and Vaccination
Speaker: Dr. Tito Lopes, British Gynaecological Society
21 May. 09
The Pregnant Health-Care Worker and Infection Risk
Speaker: Prof. Sotiris Tsiodras, University of Athens Medical School
29 May. 09
Surgical Site Infections – A 2009 Update
Speaker: Loretta Litz Fauerbach, Shands Hospital, University of Florida
04 Jun. 09
Portal of Entry: The Missing Link?
Speaker: Jim Gauthier, Providence Continuing Care, Kingston
24 Jun. 09
(South Pacific Teleclass) Tea Tree Oil and Staphylococcal Sepsis
Speaker: Prof. Tom Riley, University of Western Australia
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