

Surveillance of Infectious Diseases at the BC Public Health Microbiology & Reference Laboratory

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BCPHMRL

Supporting Programs

Biosafety, Biosecurity,
Biohazard Containment

Central Processing &
Receiving

Information Management

Molecular Microbiology &
Genomics

Quality Assurance &
Improvement

Surveillance/Outbreaks

Technical Support

Laboratory Programs

Environmental Microbiology

High Volume Serology

Mycobacteriology/TB

Parasitology

Public Health
Bacteriology/Mycology

Virology

Zoonotic Diseases & Emerging
Pathogens

Services

Consultations

Containment Level 3

Diagnostic

Outbreak Investigations

Preparedness/Response

Reference Services

Research

Surveillance

Training

Surveillance Systems

International:

- Influenza
- PulseNet USA
- CLRN/LRN

National:

- CPHLN
- CLRN
- C-Enternet
- CIPARs
- FIORP
- FluWatch
- MARS
- PulseNet Canada

Local/Event-based:

- Enterobacteriaceae surveillance (CRE)
- 2010 Olympics/Paralympics
 - enteric surveillance with BCAMM
 - influenza, food, water, BT/unusual agent surveillance
- Susceptibility testing
 - MTB complex, *Neisseria gonorrhoeae*, *Neisseria meningitidis*
- Influenza typing
- PFGE
- Gastrointestinal Outbreaks
- Respiratory Outbreaks

Sources of Data at BCPHMRL

- Legacy system: pre-2006
- Lab Information System (Sunquest)
 - Version 6.1: 2006- 2012 (Sept 14); 6.4 current
- PHRDW (Public Health Reporting Data Warehouse)
 - Laboratory and iPHIS data
 - Currently 2 active 'marts' (influenza/enteric)
- Internal spreadsheets
 - Non-reported data
- SunSet
 - Database of Sunquest data

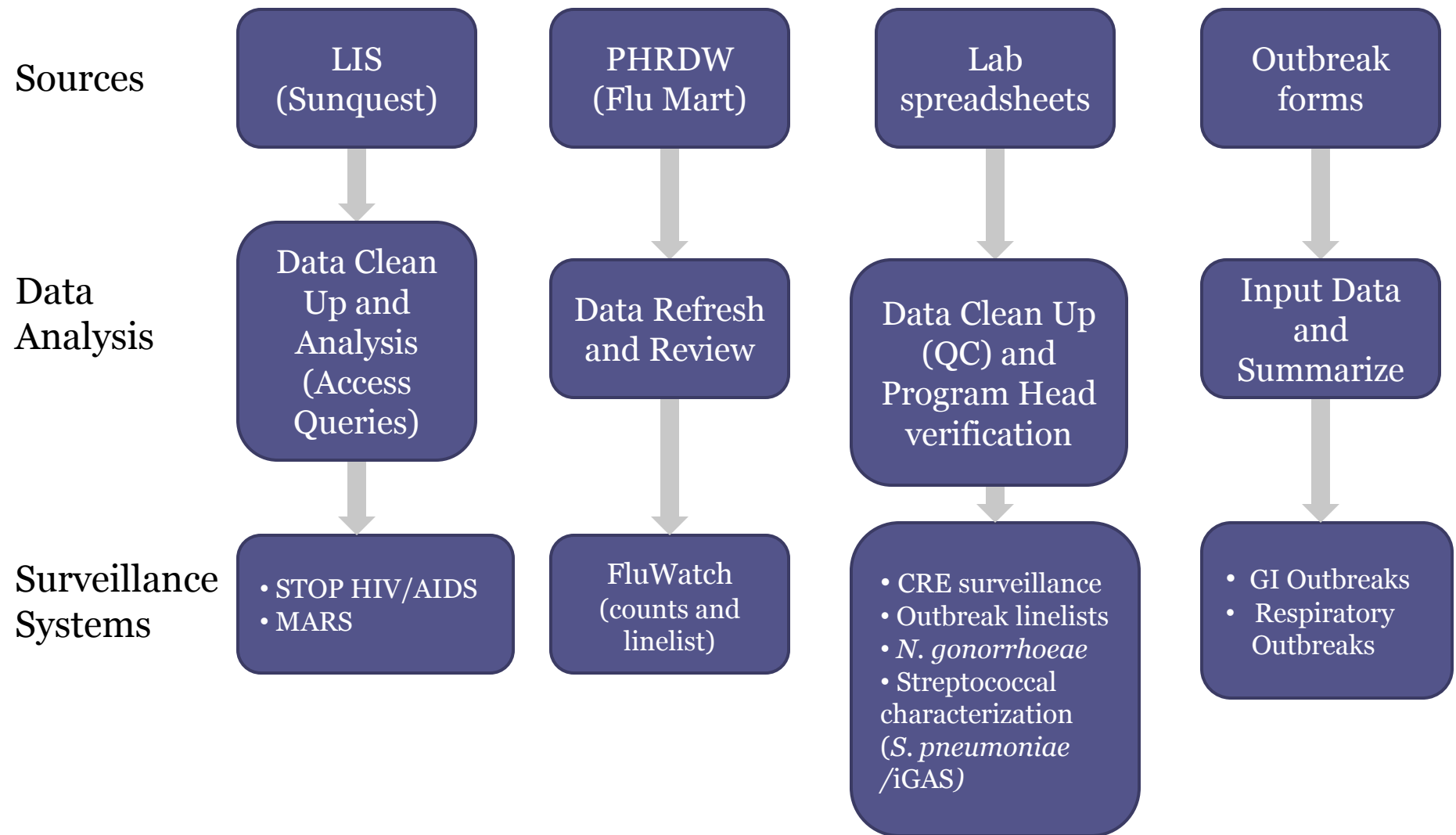
Challenges

- Legacy system: pre-2006
 - Able to generate query-based reports
- Lab Information System (Sunquest)
 - Crystal reports extracts
 - Two systems (6.1/6.4)
 - Data clean up issues
- PHRDW (Public Health Reporting Data Warehouse)
 - Limited data available
- Internal spreadsheets
 - Requires manual entry and staff to analyze data
- SunSet
 - Early stages of establishing/validating

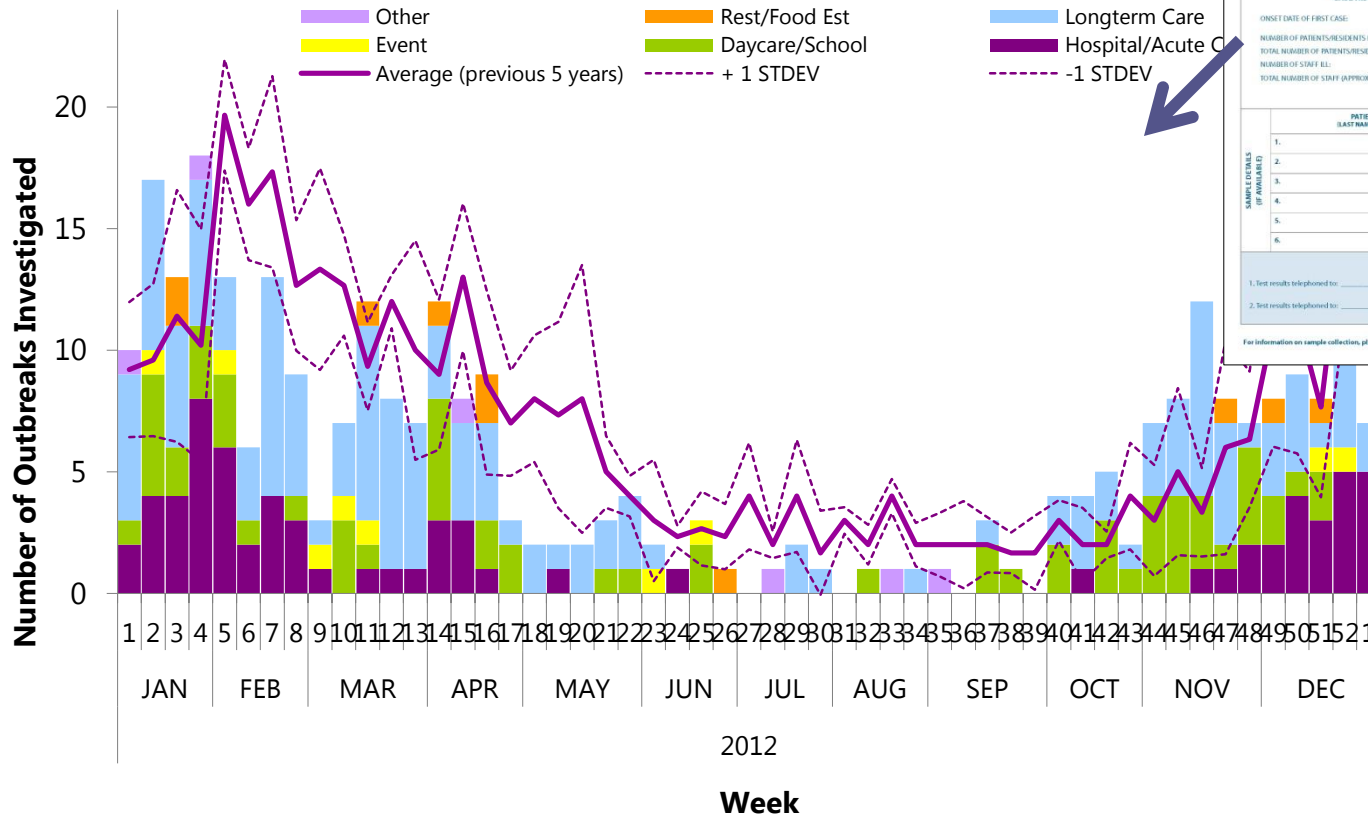
Surveillance Roles of LSOC

- Understand and work with various data sources
- Coordinate SMEs
 - Sunquest 6.4 implementation
 - Assist in validation
 - Support staff in use
- Information Skills Training Team

Path of Data for Surveillance



GI Outbreaks



PHSA Laboratories Gastrointestinal Disease Outbreak Notification Form

Public Health Microbiology & Reference Laboratory
 35 Centre Street, 455 West 12th Avenue, Vancouver, BC V6Z 4R1 www.phsa.ca/health/public-health

Fax to Environmental Microbiology at (604) 707-2607 Date: _____

OUTBREAK IDENTIFICATION: Outbreak ID to specify to the event facility/hospital ward followed by the year (e.g. BSH04b/2009) HA & AREA: e.g. BHS, East Vancouver

CONTACT NAME: _____ EHO SMO JCP Medical Microbiologist

CONTACT TELEPHONE: _____ Other, specify _____

LOCATION OF OUTBREAK: NAME OF INSTITUTION/NEWSOURCE: _____ ADDRESS: _____ CITY: _____ POSTAL CODE: _____ TELEPHONE: _____

OUTBREAK SETTING: Residential Care

OUTBREAK SUB-SETTING: Acute Care Extended Care Prison/Hospital Adult Long Term Other _____ **Child Care Centres (Age of Children):** 0 - 36 months 3 - 5 yrs 6-18 yrs

Source

CASE HISTORY: ONSET DATE OF FIRST CASE: (DD/M/YY) _____ NUMBER OF PATIENTS/RESIDENTS ILL: _____ TOTAL NUMBER OF PATIENTS/RESIDENTS: _____ NUMBER OF STAFF ILL: _____ TOTAL NUMBER OF STAFF (APPROX): _____

SIGNS / SYMPTOMS (MUST be completed for appropriate testing. Provide number of cases): Diarrhea () Watery () Bloody () Pusulent () Vomiting () Abdominal cramps () Fever () Other, specify ()

MODE OF TRANSMISSION: Food Water Person to person Unknown Other, specify _____

SAMPLE DETAILS (IF AVAILABLE)	PATIENT NAME (LAST NAME, FIRST NAME)	PHN	DOB (DD/M/YY)	Date Sample Collected (DD/M/YY)
1.				
2.				
3.				
4.				
5.				
6.				

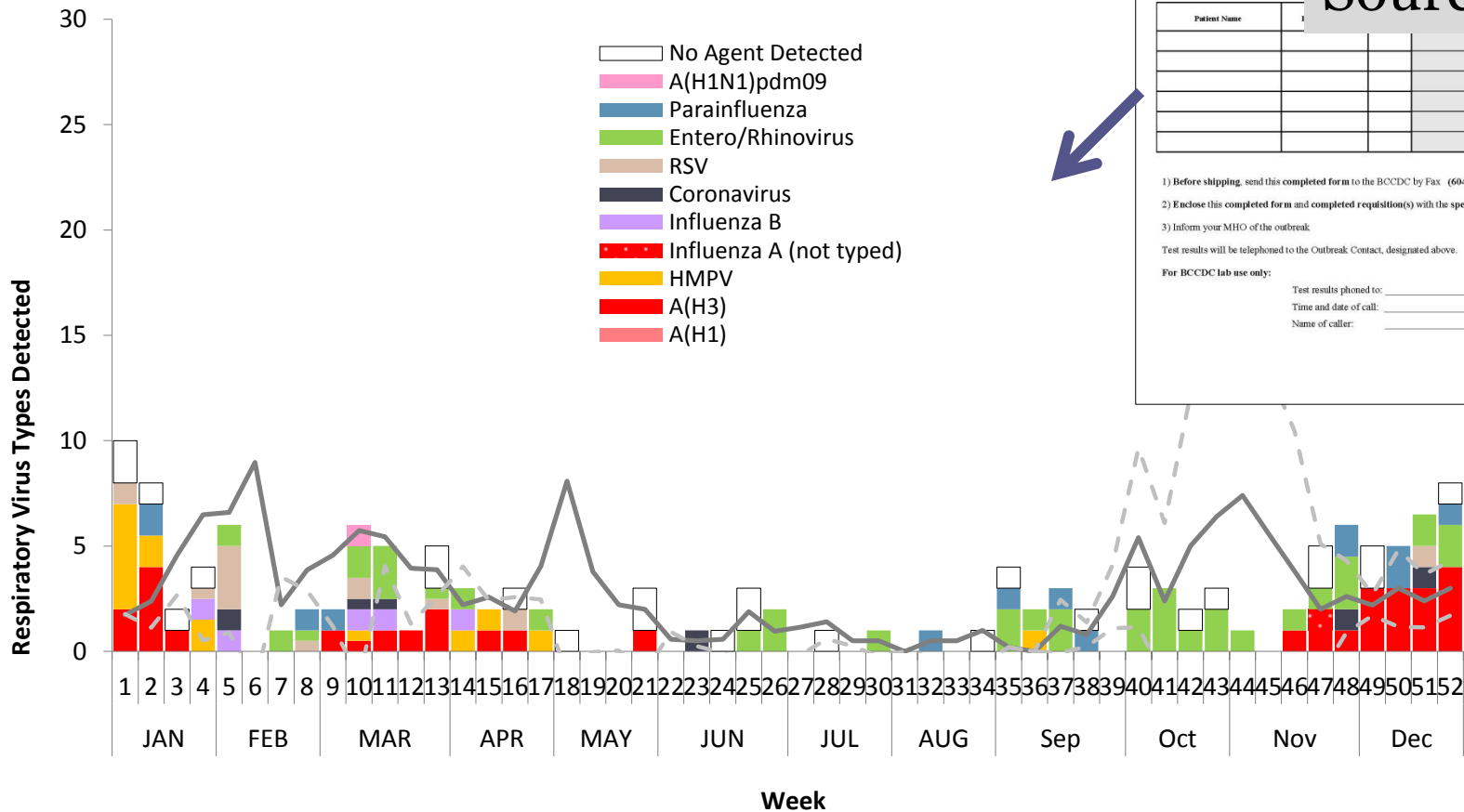
PHSA LABORATORIES USE ONLY

1. Test results telephoned to: _____ Time and date of call: _____ Lab Personnel Initial: _____

2. Test results telephoned to: _____ Time and date of call: _____ Lab Personnel Initial: _____

For information on sample collection, please call Environmental Microbiology Lab at (604) 707-2611 Form DOPP_102_1001F Version 1.0 (08/2009)

Respiratory Outbreaks



Courier Company: _____
Waybill Number: _____

PHSA Laboratories
Public Health Microbiology & Reference Laboratory

Influenza-Like Illness (ILI) Outbreak Laboratory Form

Submit specimens to: BCCDC Public Health Microbiology & Reference Laboratory
Virology Laboratory
655 WEST 12TH AVENUE
VANCOUVER, BC V5Z 4R4 Tel: 604-707-2623

Submitter's Name and Address: _____

Outbreak Contact: (The order of reporting results will be 1) Facility, 2) MHO, 3) Med Micro on call for the BCCDC; if an answering machine or pager is contacted a message will be left and in 15 minutes the next call will be made... when the result has been reported the call chain will stop.)

1) Facility Name: _____
2) MHO Name: _____

Date of Collection: (yy/mm/dd) _____

Patient Name	1	Notes

1) Before shipping, send this completed form to the BCCDC by Fax (604) 707-2675
2) Enclose this completed form and completed requisition(s) with the specimen(s) and ship to BCCDC
3) Inform your MHO of the outbreak

Test results will be telephoned to the Outbreak Contact, designated above.

For BCCDC lab use only:
Test results phoned to: _____
Time and date of call: _____
Name of caller: _____

DCVL_100_1001F2

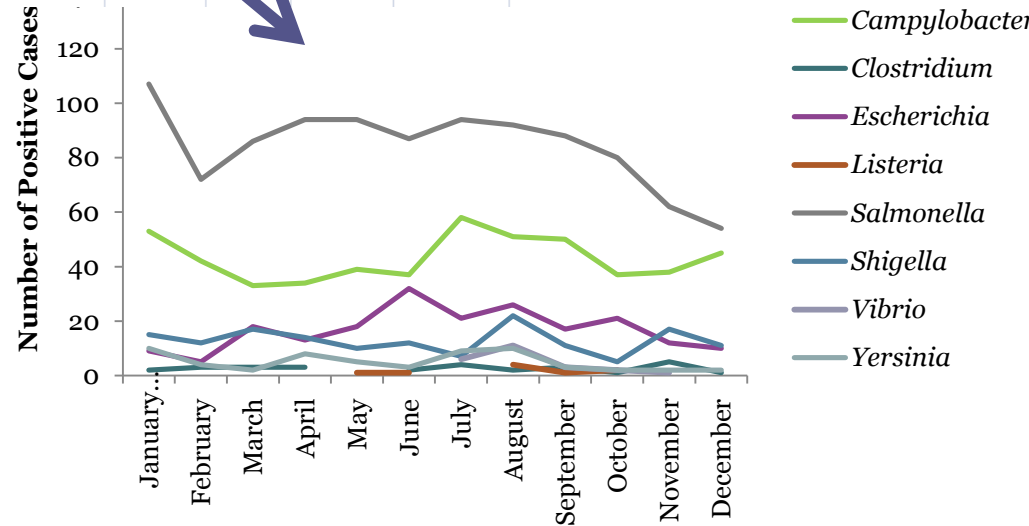
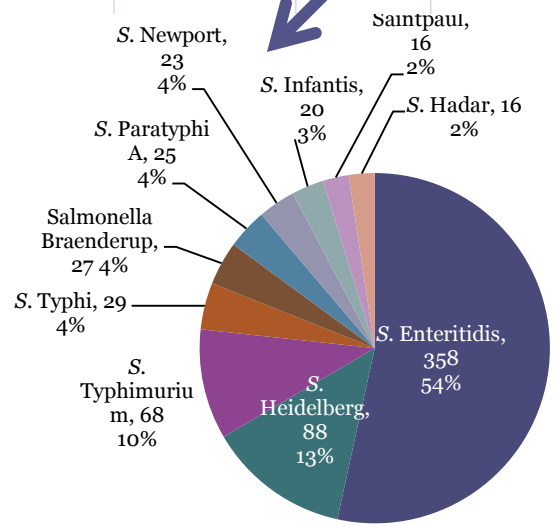
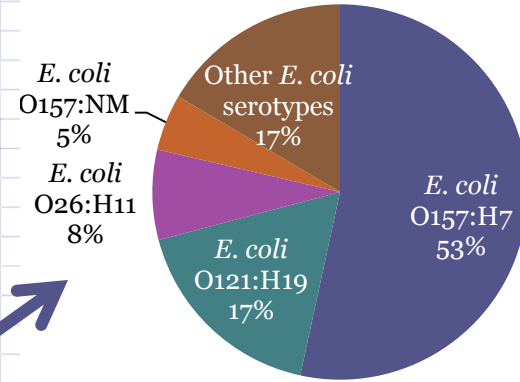
Source



Enteric Surveillance

	A	B	C	D	E	F	G	H	I	J
1	Proficiency Test.Yes No	No								
2	Test Performed.Yes No	(Multiple Items)								
3	Organism Isolated	Yes								
4										
5	Lab Patient Count	Column Labels								
6	Row Labels	<input checked="" type="checkbox"/> Campylobacter	<input checked="" type="checkbox"/> Clostridium	<input checked="" type="checkbox"/> Escherichia	<input checked="" type="checkbox"/> Listeria	<input checked="" type="checkbox"/> Salmonella	<input checked="" type="checkbox"/> Shigella	<input checked="" type="checkbox"/> Vibrio	<input checked="" type="checkbox"/> Yersinia	Grand Total
7	2012	512	29	184	11	933	151	23	60	1879
8	January	53	2			107	15		10	196
9	February	42	3			72	12		4	135
10	March	33	3			86	17		2	158
11	April	34	3			94	14		8	165
12	May	39		18	1	94	10		5	165
13	June	37	2	32	1	87	12		3	173
14	July	58	4	21		94	7	6	9	175
15	August	51	2	26	4	92	22	11	10	216
16	September	50	3	17	1	88	11	3	3	176
17	October	37	1	21	2	80	5	2	2	149
18	November	38	5	12		62	17	1	2	135
19	December	45	1	10	1	54	11		2	121
20	Grand Total	512	29	184	11	933	151	23	60	1879

Source



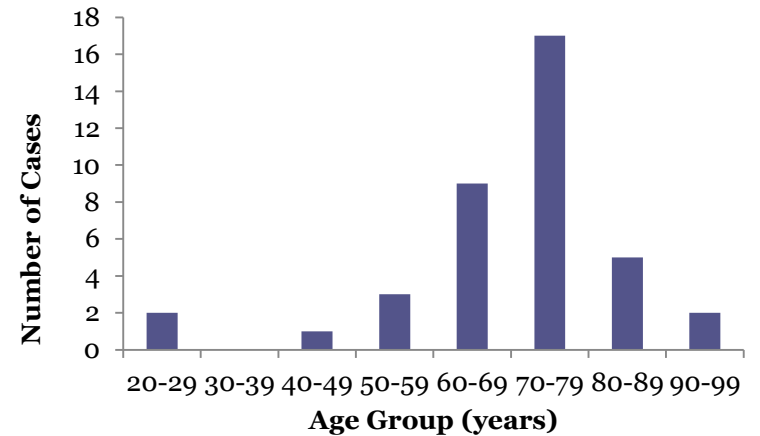
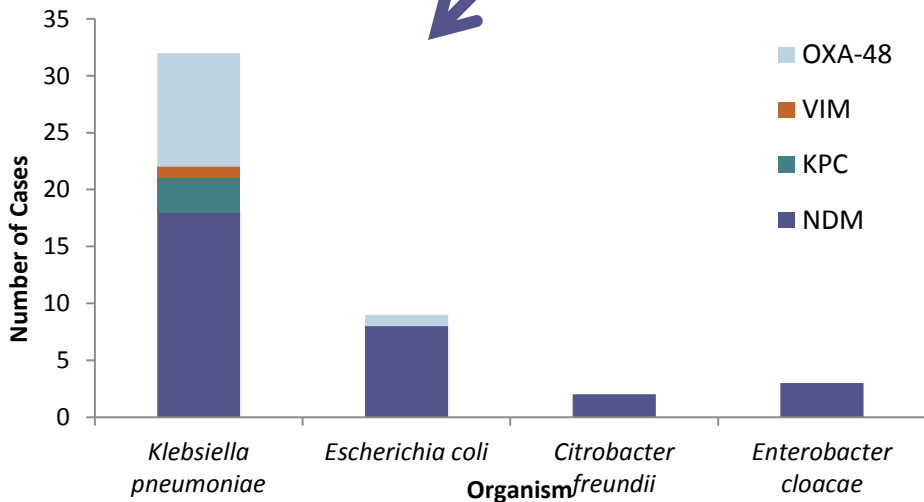
Carbapenem-Resistant Enterobacteriaceae

K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	
																					CID
					KPC	NDM	IMP	VIM	SHV	TEM	CTX-M	OXA-1	OXA-2	CMY-1/MOX	CMY-2/LAT	DHA	ACC	MIRACT	FOX	GES	
E2390395860	H699571	GENOST#1, Box 8, Loc04	Enterobacteriaceae	03-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2390395811	W797840	GENOST#1, Box 8, Loc05	Klebsiella pneumoniae	03-Dec-12	Negative	Negative	Negative	Negative	Positive	Positive	Positive	Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2390395311	W823043	GENOST#1, Box 8, Loc06	Pseudomonas aeruginosa	03-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2390395354	W823070	GENOST#1, Box 8, Loc07	Proteus mirabilis	03-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2390395383	W823082	GENOST#1, Box 8, Loc08	Escherichia coli	03-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Positive	Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2390405347	H882736	GENOST#1, Box 8, Loc09	Escherichia coli	03-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Positive	Negative	Negative	Positive	Negative	Negative	Negative	Negative	Negative	Negative
E2390413228	H885531	GENOST#1, Box 8, Loc10	Morganella morganii	03-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Positive	Negative	Negative	Negative	Negative	Negative
E2400030326	H709566	GENOST#1, Box 8, Loc11	Enterobacteriaceae	10-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2390368922	T798157	GENOST#1, Box 8, Loc12	Acinetobacter baumannii	10-Dec-12	Neg								Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400101656	F766938	GENOST#1, Box 8, Loc13	Pseudomonas aeruginosa	10-Dec-12	Neg								Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400110681	S135104	GENOST#1, Box 8, Loc14	Pseudomonas sp.	10-Dec-12	Neg								Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400134680	H719541	GENOST#1, Box 8, Loc15	Escherichia coli	17-Dec-12	Neg								Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400162303	T822080	GENOST#1, Box 8, Loc16	Escherichia coli	17-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Positive	Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400181479	H904372	GENOST#1, Box 8, Loc17	Pseudomonas aeruginosa	17-Dec-12	Negative	Negative	Negative	Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400181540	H904396	GENOST#1, Box 8, Loc18	Pseudomonas aeruginosa	17-Dec-12	Negative	Negative	Negative	Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400199110	H774924	GENOST#1, Box 8, Loc19	Enterobacter aerogenes	17-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400188114	H900932	GENOST#1, Box 8, Loc20	Escherichia coli	24-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Positive	Negative	Positive	Negative	Negative	Negative	Negative	Negative	Negative
E2400279155	H5668	GENOST#1, Box 8, Loc21	Pseudomonas aeruginosa	24-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400279161	H5674	GENOST#1, Box 8, Loc22	Pseudomonas aeruginosa	24-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400300278	F786948	GENOST#1, Box 8, Loc23	Klebsiella pneumoniae	24-Dec-12	Negative	Positive	Negative	Negative	Positive	Positive	Positive	Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400320109	H738003	GENOST#1, Box 8, Loc24	Escherichia coli	31-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400355438	H16657	GENOST#1, Box 8, Loc25	Enterobacter cloacae	31-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400364335	F792608	GENOST#1, Box 8, Loc26	Pseudomonas aeruginosa	31-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
E2400365121	F793016	GENOST#1, Box 8, Loc27	Escherichia coli	31-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Positive	Negative	Positive	Negative	Negative	Negative	Negative	Negative	Negative
E240036519	F793186	GENOST#1, Box 8, Loc28	Pseudomonas aeruginosa	31-Dec-12	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative

Source

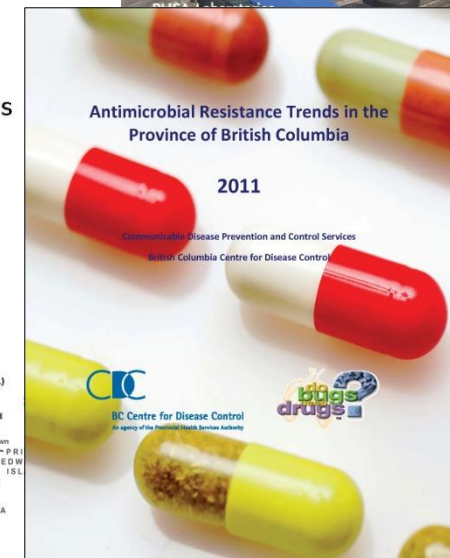
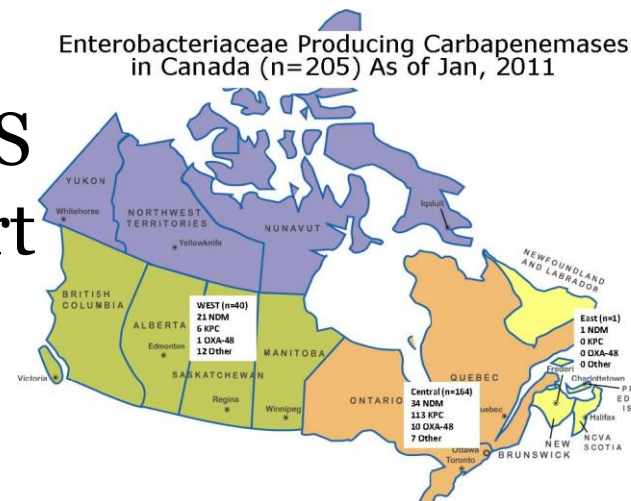
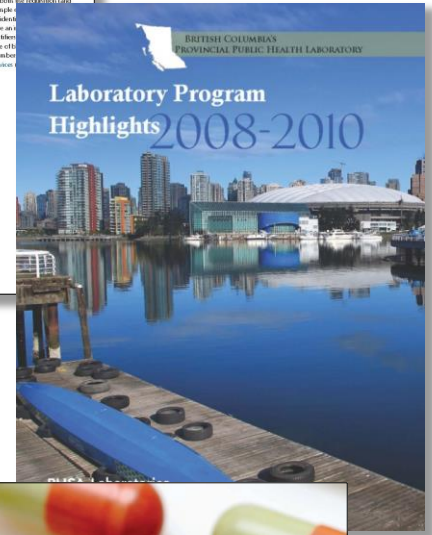
Collection Year

	2008	2009	2010	2011	2012
NDM	1	1	3	7	13
KPC			1	1	1
VIM			1		
IMP					
OXA-48				1	10



Surveillance Outputs

- *Laboratory Trends* report
- Annual Report
- Provincial/National surveillance
- STOP HIV/AIDS Quarterly Report



Future of Surveillance at BCPHMRL

- Strengthening capacity at Program level
 - New Initiative: Skills training workshops
- Improve ease of data extraction
 - Become less reliant on extracts
- Enhance surveillance role for decision-making, improve laboratory operations, trends