2012

Communicable Disease Unit

Annual Report

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Executive Summary

Communicable Disease Unit

The primary focus for the Communicable Disease (CD) Unit for 2012 year was on continuity and standardization of service with the ability to analyze data related to program outcomes. This was the second full year for the CD Unit leadership role in the report and service delivery of Interior Health (IH) Tuberculosis (TB) and Sexually Transmitted Infection (STI) programs. The interdisciplinary team has expanded from 5.6 to 6.8 FTEs and has welcomed students and project staff for learning and short term assignments.

Notable 2012 regional projects included:

- **TB** regional educational road trip reviewed updated TB Guidelines, forms and processes
- **Animal Contact Guidelines** were developed to better reflect rating on level of interventions

Disease Activity Highlights

In 2012, there was an increase in pertussis cases which involved both a family cluster and a large number of sporadic cases. Rates of enteric diseases have remained at historic levels and are comparable to or below the BC rates. The CD Unit was involved in investigating two outbreaks of norovirus linked to a church (March 2012) and an assisted living facility (November 2012).

The rates of chlamydia and gonorrhea have been declining in IH over the past five years and those in the 20-24 year age group continue to have the highest incidence of disease. The rates of human immunodeficiency virus, hepatitis B, and hepatitis C have remained stable or declined marginally.

The tuberculosis outbreak in the Kelowna street-involved population has been ongoing since 2008 and continues to see additional cases linked to the outbreak. Sporadic cases of tuberculosis also increased in 2012.

Communicable Disease Unit

Introduction

The CD Unit is IH's centralized reporting centre for all cases of reportable CD within the health region. The CD Unit was established in 2007 and is responsible for surveillance of reportable CDs; case follow-up, contact and outbreak management; program and policy development; education; research and evaluation; and preventive health promotion.

Vision:	*Excellence in communicable disease control and management.*
Mission:	*Promoting health by preventing, controlling and mitigating the effects of reportable communicable diseases.*

CD prevention and control requires an interdisciplinary team approach. The CD Unit continues to be aligned with the office of the Medical Health Officers (MH0) under the VP of Medicine and Quality as an independent department. Working in close collaboration with all other IH portfolios to fulfill its mandate, CD services are provided to IH residents and physicians, and other IH programs as required.

Services

Services to residents include:

- Case investigation for a lab report which is a confirmed or suspected reportable CD,
- Contact identification following confirmation of a CD,
- Implementation of public health (PH) measures to mitigate the effects,
- Education to prevent further exposures, and
- Collaboration with primary care provider for appropriate follow-up.

Services to all IH portfolios include:

- Consultation with Health Protection (HP), Community Integrated Health Services (CIHS) and Occupational Health staff around case definition and risk of transmission,
- Education to maintain CIHS Promotion and Prevention staff capacity to deal with CD outbreaks,
- Coordination and management of outbreaks, and
- Development of protocols and guidelines for use by field staff.

Services to primary care practitioners

- Consultation around case reporting and follow-up,
- Education and consultation (reporting and referrals), and
- Coordination of contact tracing and prophylaxis.

Services to Infection Prevention and Control

- Assistance with outbreak surveillance and management, and
- Development of protocols and guidelines to support mutual responsibilities.

Projects and Initiatives

In 2012, the CD renewed the strategic plan with activities to support the established goals and positioning the unit to provide expertise and coordination of CD functioning to meet the needs of IH and the population they serve.

CD Unit Goals (2011 – 2015)
1. Standardize CD control programs across IH
2. Mitigate effects attributed to CD cases and outbreaks
3. Reduce risk to IH population from CDs
4. Efficient and effective use of public health and IH resources
5. CD Unit and PH staff have the required skills to manage CD
6. IH CD programs support aboriginal communities programs
7. Reduce the impact of chronic CD infections on individuals and society
8. IH residents and stakeholders are knowledgeable about emerging communicable disease issues

CD Unit Team

The CD Unit is comprised of an interdisciplinary team of seven permanent CD Specialists (registered nurses (RN) and environmental health officers (EHO)), a Clinical Manager, a MHO and dedicated administration staff (Appendix 1). The diversity of the team allows us to respond to cases of reportable CDs such as hantavirus and meningococcal meningitis or community outbreaks such as measles and legionnaires disease with the goal of mitigating the effects of these events on the population of IH.

Future Directions

At the end of 2012, the Ministry of Health announced the expansion of STOP-HIV funding to all health authorities which will allow Interior Health to increase access to testing, treatment and support to all Health Service Delivery Areas. The CD unit will be working with all IH departments to implement key initiatives.

Analyses of Disease Trends

Introduction

The CD Unit monitors disease trends and publishes a monthly report of case numbers and variances. New for the 2012 year are the presentation of adjusted rates where BC and IH data are being compared. Appendix 2 provides a 5-year trend of selected disease rates under review with comparisons to BC rates.

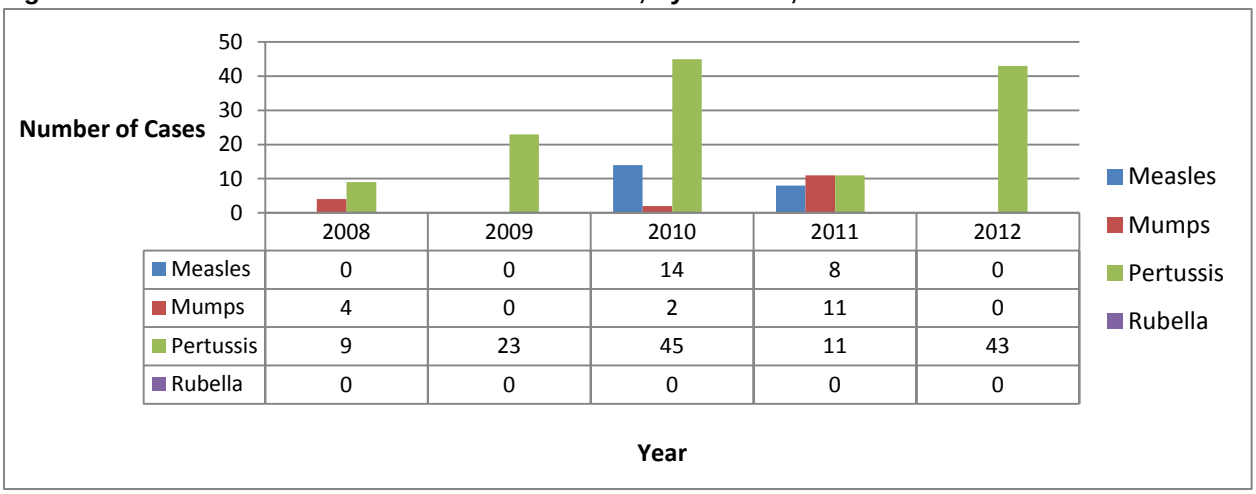
Vaccine Preventable Diseases

Vaccine preventable diseases are diseases for which publicly funded, effective vaccines are readily available and used for disease prevention.

Most notable for IH in 2012 was the large increase in pertussis cases compared to recent years, with 43 confirmed cases (5.8 per 100,000; 95% CI 4.1-7.6 per 100,000). The last time such an increase was observed was in 2010, when an outbreak with 36 cases occurred in the Kootenay Boundary area. No cases of measles, mumps, and rubella were reported this year in IH, which parallels the low incidence of these diseases in BC overall.

In IH, 75% of children in the 2010 birth cohort were up-to-date on their routine childhood immunization schedule including booster at age two, compared to 71% in BC (excluding VCH). Immunization coverage ranged depending on the vaccine, with the highest coverage for Meningococcal C conjugate (90%) and the lowest for D/T/aP/IPV/Hib and D/T/aP/IPV (80%). While our current immunization rates are below the BCCDC and World Health Organization goals for herd immunity (95%), the current vaccine uptake combined with rapid response to cases to limit disease transmission, have made these diseases relatively rare in IH.

Figure 1: Vaccine Preventable Disease Cases in IH, by disease, 2008 to 2012



	2008	2009	2010	2011	2012
Measles	0	0	14	8	0
Mumps	4	0	2	11	0
Pertussis	9	23	45	11	43
Rubella	0	0	0	0	0

Source: BCCDC Cognos Cube

1. Measles

IH Activity:	0 cases

Following two years of increased measles activity in IH in 2010 and 2011, there were no reported cases of measles in IH or BC in 2012. The CD Unit continues to monitor for measles activity occurring internationally, due to the ongoing risk of importation of measles from endemic countries or regions where outbreaks are occurring.

Measles is highly contagious but can be prevented by immunization. In 2011, a change in the immunization schedule was made to recommend one dose of the measles, mumps, rubella vaccine (MMR) at 12 months, and a second dose at 4 to 6 years of age. In the 2010 birth cohort, 89% of children in IH had received their first dose of MMR by age two. Regional variation between health service delivery areas (HSDA) exists: 76% of 2-year olds in Kootenay Boundary had received MMR, compared to East Kootenay, Okanagan, and Thompson Cariboo Shuswap which all had MMR coverage in 2-year olds of 90% or greater.

2. Mumps

IH Activity:	0 cases

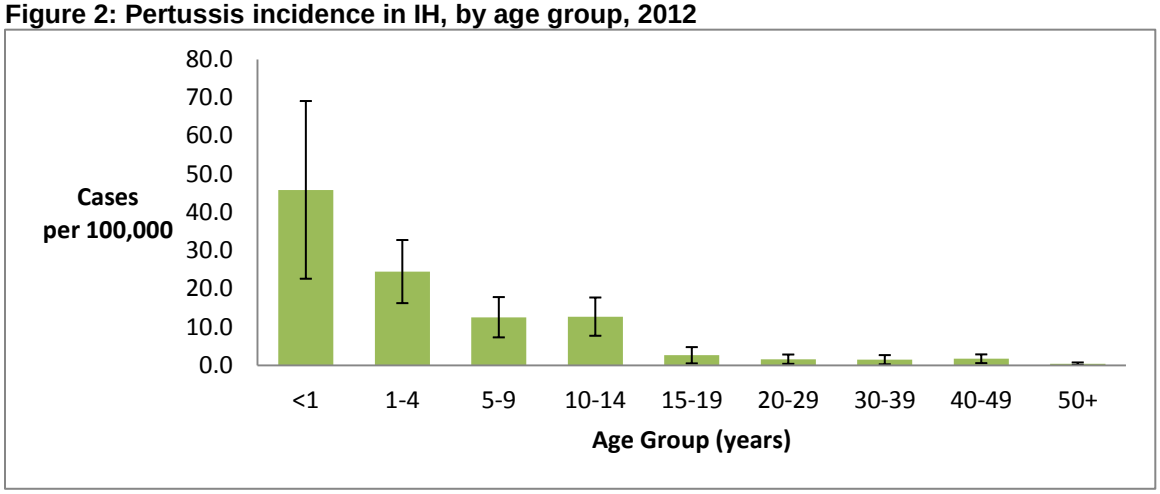
No cases of mumps were reported in 2012, which is comparable to low case counts from 2008-2010 and a decrease from 2011 when a mumps outbreak occurred. Although mumps activity in BC is low overall, large localized outbreaks of mumps have occurred in other provinces in recent years, with young under-immunized adults being the most susceptible to infection.

3. Pertussis

IH Activity:	43 cases; 9 in a Kootenay Boundary outbreak

In 2012, all HSDA's experienced an increase in pertussis cases over the previous year. The largest increase was observed in the Okanagan, where 17 cases were reported in 2012, compared to 1 case in 2011 and 8 cases in 2010. Regional variation in pertussis rates can be seen in IH, with historically higher rates in the Kootenay Boundary where a large outbreak of pertussis occurred in 2010. As shown below in the 5-year age-specific rates for pertussis in IH, children, especially those less than 1 year old, experience higher rates of pertussis compared to adults.

Figure 2: Pertussis incidence in IH, by age group, 2012



Source: BCCDC Cognos Cube

The 5-year rate (2008-2012) for pertussis in IH is 3.6 per 100,000 (95% CI 3.0-4.2 per 100,000), which is lower than the 5-year rate in BC of 5.8 per 100,000 (95% CI 5.5-6.1 per 100,000).

A family cluster of nine pertussis cases occurred in the Kootenay Boundary area in August 2012. The index cases were children who were initially exposed to a confirmed pertussis case while attending camp in northeastern Washington. The children and their family members developed symptoms in the weeks following. All nine family members were confirmed positive for pertussis and started on antibiotic therapy. Around the same time, a case of pertussis was reported in East Kootenay. This case was exposed to a confirmed pertussis case during a swim meet in Washington, located in the same city as the summer camp.

A MHO Physician Update was distributed in August 2012 to alert physicians about the increase in pertussis in IH. Key messages were also distributed to public health nurses within IH to assist in answering questions regarding pertussis.

There are a number of pertussis-containing vaccines available in BC, often combined with vaccines for other diseases like diphtheria, tetanus, polio, and Haemophilus influenzae type B. For the 2010 birth cohort in IHA, 80% of 2-year old children had received 4 doses of pertussis vaccine. As with other vaccines, lower than average rates were observed in Kootenay Boundary (65%).

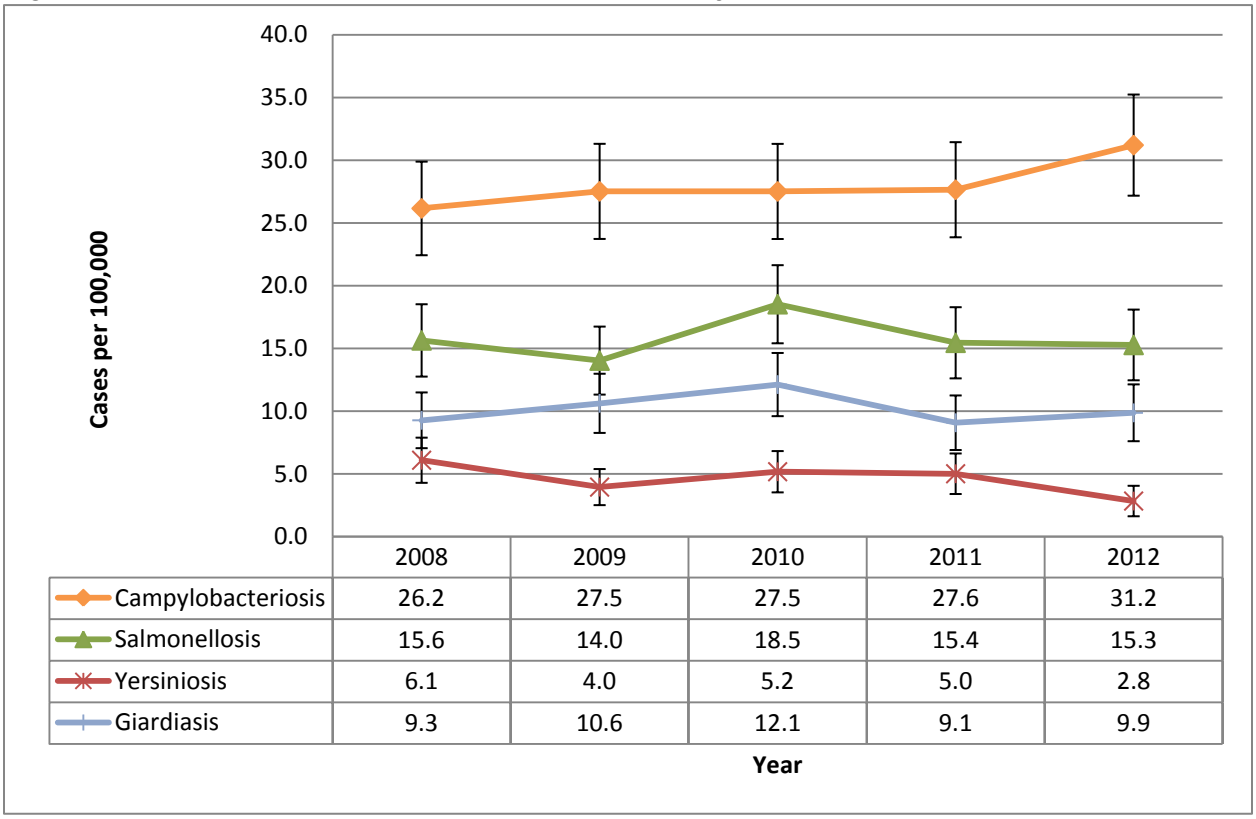
4.	Rubella	
	IH Activity:	0 cases in 2012

In 2012, there were no cases of rubella reported in IH or BC overall. The last reported case of rubella in IH was in 1998.

Enteric, Food and Waterborne Diseases

The most commonly reported enteric diseases in IH are campylobacteriosis (31.2 per 100,000; 95% CI 27.2-35.3 per 100,000), salmonellosis (15.3 per 100,000; 95% CI 12.5-18.1 per 100,000) and giardiasis (9.9 per 100,000; 95% CI 7.6-12.1 per 100,000). Over the past 5 years, cases and rates of enteric, food and waterborne disease have remained relatively stable across IH for most diseases. For the most common enteric diseases (campylobacteriosis, salmonellosis, giardiasis and yersiniosis), the IH rates are lower than the BC rates for the past 5 years.

Figure 3: Incidence of common Enteric Diseases in IH, by disease, 2008-2012

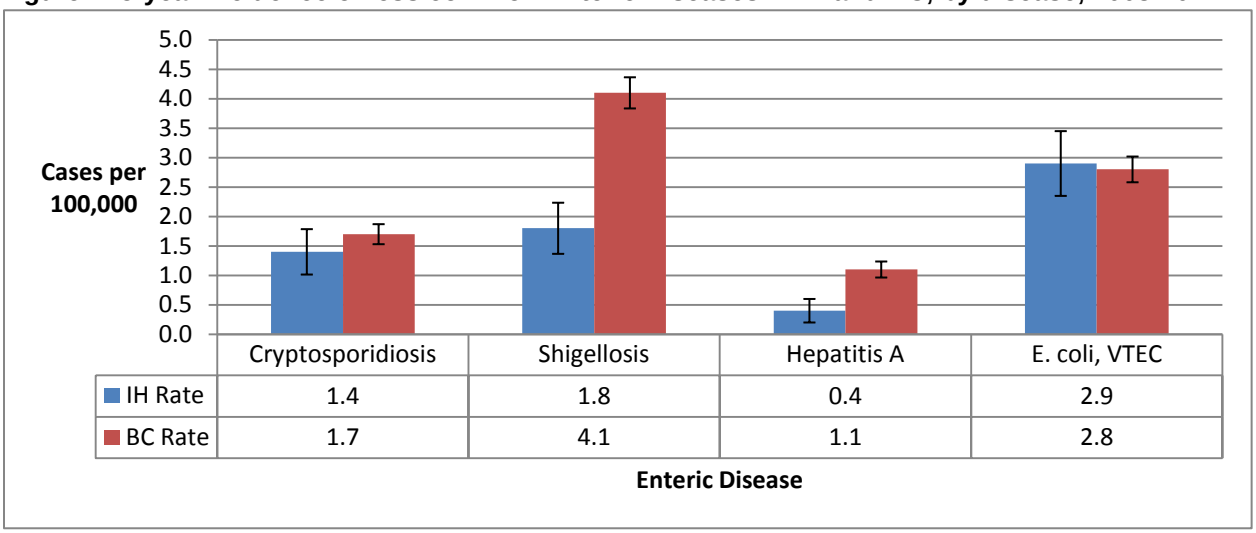


	2008	2009	2010	2011	2012
Campylobacteriosis	26.2	27.5	27.5	27.6	31.2
Salmonellosis	15.6	14.0	18.5	15.4	15.3
Yersiniosis	6.1	4.0	5.2	5.0	2.8
Giardiasis	9.3	10.6	12.1	9.1	9.9

Source: BCCDC Cognos Cube

Less common enteric diseases were examined using 5-year rates (2008-2012) to compare between IH and BC. Rates of cryptosporidiosis and verotoxigenic *E.coli* are similar between IH and BC, and rates of shigellosis and hepatitis A were lower in IH.

Figure 4: 5-year Incidence of less common Enteric Diseases in IH and BC, by disease, 2008-2012



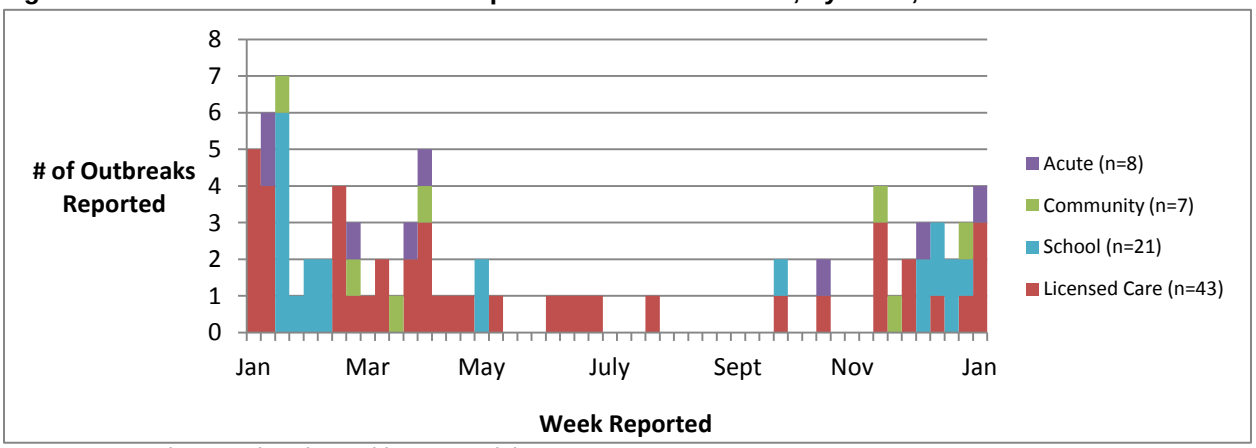
Source: BCCDC Cognos Cube

Gastrointestinal (GI) Outbreaks

GI outbreaks occurring in licensed care and acute care facilities are reported to the CD Unit in accordance with the IH Health Care Facilities Gastrointestinal Outbreak Guidelines, which were revised and released in March 2013.

Of the 43 outbreaks reported in licensed care facilities, lab samples were tested for 28 outbreaks and norovirus was identified in 18 of those outbreaks. 74% (32/43) of the outbreaks in licensed care facilities occurred in the peak winter months of January-March and November-December. Seven GI outbreaks were reported by acute care facilities, occurring in January – March and October-November. Five out of the seven outbreaks were confirmed positive for norovirus. Seventeen schools reported more than 10% absenteeism due to GI illness in 2012, for a total of 21 suspect viral GI outbreaks.

Figure 5: Gastrointestinal outbreaks reported to the IH CD Unit, by week, 2012



Source: CD Unit GI Outbreak Tracking Spreadsheet 2012

In March 2012, the CD Unit investigated a norovirus outbreak involving 71 cases linked two events held at a church. The CD Unit conducted case interviews using a standardized questionnaire to ask about events attended and foods consumed. There was no single food item identified as being common. A terminal disinfection of the church was required prior to permitting continued use of the church by a daycare and other community groups.

In November 2012, the CD Unit investigated a GI outbreak at a privately-owned assisted living facility where there were initial reports of cases with bloody stools. Upon further investigation and laboratory testing, one of the residents tested positive for norovirus. A total of 15 out of 32 residents (47%) were ill and 7 out of 14 staff (50%).

Sexually Transmitted Infections

Surveillance of sexually transmitted infections (STI) and follow-up of positive chlamydia and gonorrhea reports are centralized through the CD Unit. The CD Unit will also initiate case follow-up and contact notification at the request of the testing provider. While the majority of STI testing in IH is done by physicians, positive chlamydia and gonorrhea tests are also reported by nurse practitioners, community health nurses, STI clinics, and Options for Sexual Health clinics.

Women are overrepresented in reports of chlamydia and gonorrhea, as this is likely attributed to testing that occurs during women's routine health examinations (e.g. Pap smears).

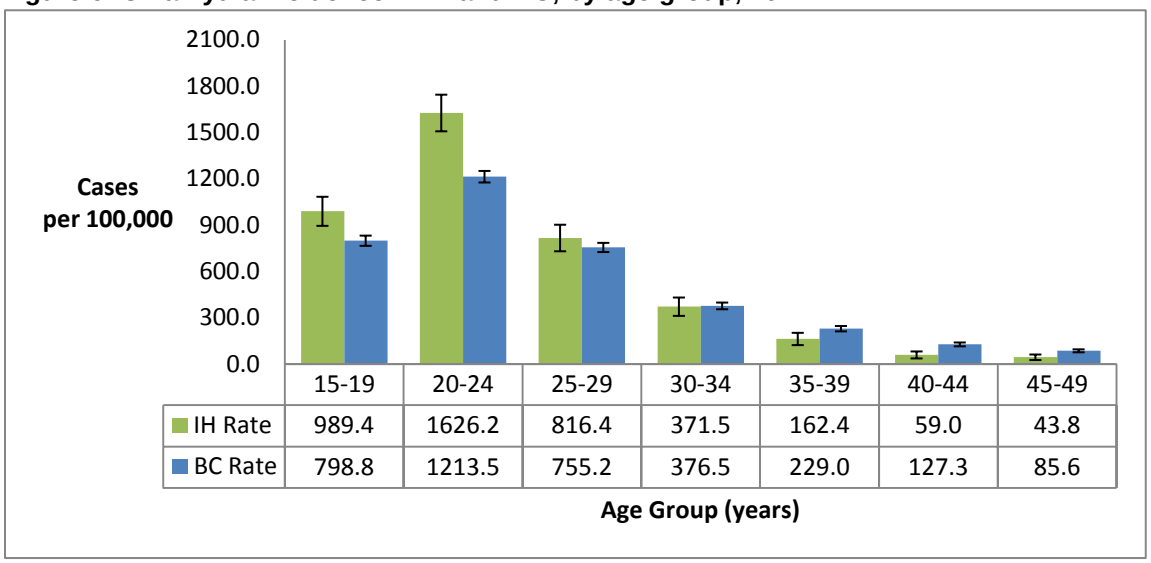
5. Chlamydia

IH Activity:	1774 cases; 2% increase from 2011 case count

In 2012, there were 1774 chlamydia cases reported for the IH resident population. The IH crude rate for chlamydia was 239.8 per 100,000 (95% CI 228.7-251.0 per 100,000) and the trend for the past five years is declining overall. Meanwhile, the BC rate continues to increase to its highest level in the past decade (252.6 per 100,000 in 2012).

The incidence of chlamydia is highest among the 20-24 year age group. Compared to the BC rate, the IH rate for chlamydia is much higher for the 15-19 year and 20-24 year age groups.

Figure 6: Chlamydia incidence in IH and BC, by age group, 2012



	15-19	20-24	25-29	30-34	35-39	40-44	45-49
IH Rate	989.4	1626.2	816.4	371.5	162.4	59.0	43.8
BC Rate	798.8	1213.5	755.2	376.5	229.0	127.3	85.6

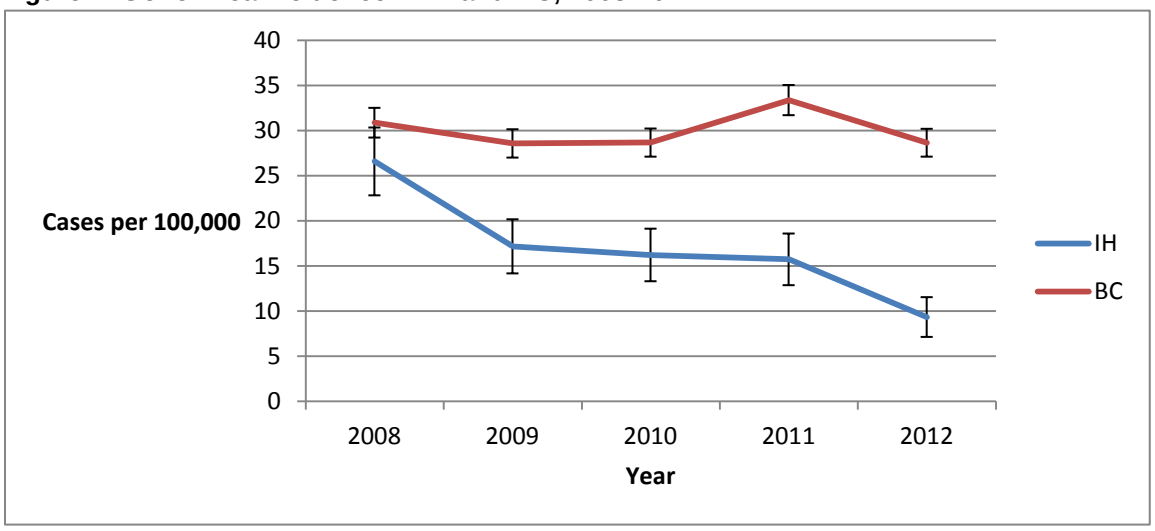
Source: CD Unit STI Data Collection Spreadsheet; BCCDC Cognos Cube

6. Gonorrhea

IH Activity:	68 cases; 41% decrease from 2011 case count

In 2012, the number of gonorrhea cases decreased to an all-time low of 68 cases from 116 cases in 2011 and 119 cases in 2010. Rates of gonorrhea continue to decline in IH while remaining stable in BC overall. Similar to chlamydia, the highest incidence was among the 20-24 year age group.

Figure 7: Gonorrhea incidence in IH and BC, 2008-2012



Source: CD Unit STI Data Collection Spreadsheet; BCCDC Cognos Cube

Chronic Infectious Diseases

Harm reduction aims to promote safe and healthy communities by minimizing disease and injury from risky behaviour. Harm reduction is one strategy that is used to reduce the risk of transmission of chronic infectious diseases such as Hepatitis B, Hepatitis C, and HIV. Services available through IH include education, counseling, testing, treatment, referrals, safer inhalation supplies, safer sex supplies, and safer injection supplies.

IH distributes needles, syringes, acidifiers, cookers, water vials, and condoms as part of its harm reduction services. The number of needles distributed by IH has been increasing every year since 2008. In 2012, a total of 551,975 needle syringes were distributed. The largest increase in needle distribution was in Thompson Cariboo Shuswap with a 35% increase compared to 2011.

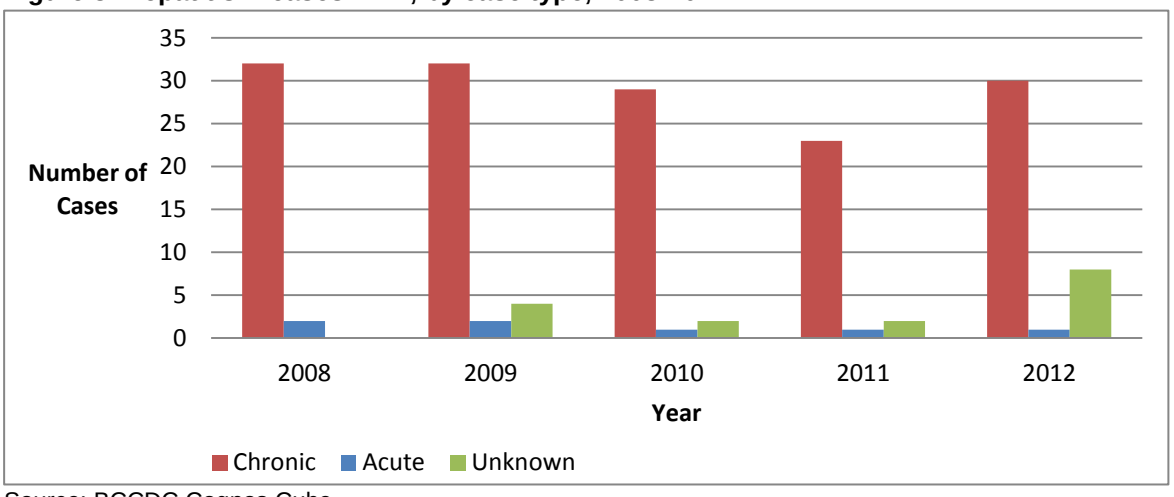
7. Hepatitis B (HBV)

IH Activity:	Increase in chronic cases over 2011, stable number of acute cases

People who become infected with HBV may become chronically infected if the virus remains in the blood for a long period of time. This is especially true for infants and young children who are infected with HBV.

The number of acute HBV cases has remained steady over the past 5 years; however the number of chronic carriers increased in 2012 back to 2010 levels.

Figure 8: Hepatitis B cases in IH, by case type, 2008-2012



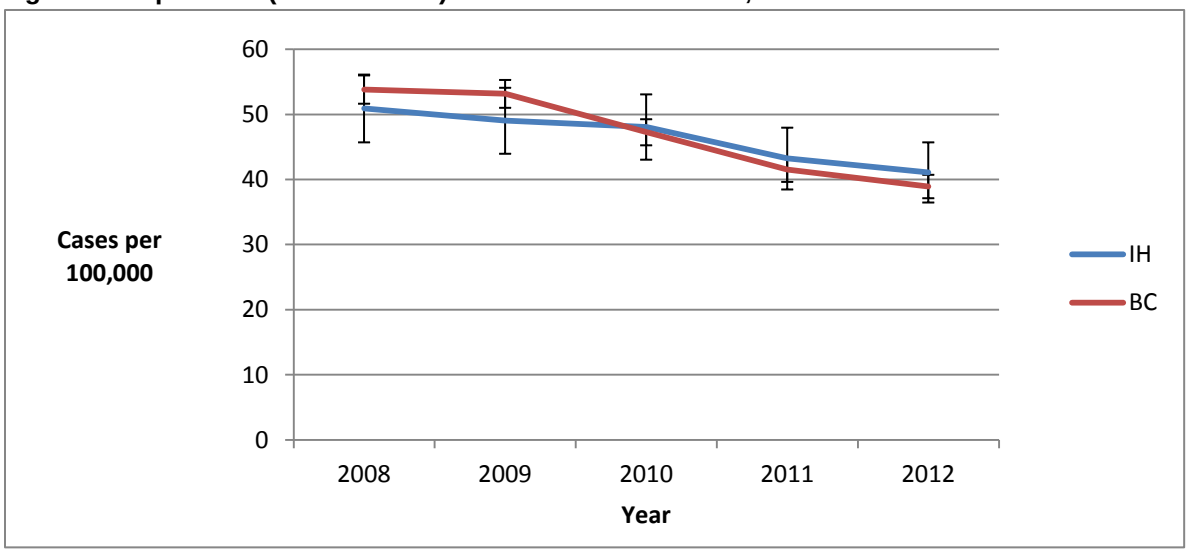
Source: BCCDC Cognos Cube

8. Hepatitis C (HCV)

IH Activity:	Decrease in non-acute cases; steady number of acute cases

The rate and number of non-acute HCV cases continues to decline marginally over the past five years in IH and BC overall. The majority of HCV non-acute cases occur among adults between the ages of 20 and 69 years and males are diagnosed more often than females by a 2:1 ratio.

Figure 9: Hepatitis C (chronic case) incidence in IH and BC, 2008-2012



Source: BCCDC Cognos Cube

The 5-year rate (2008-2012) of acute HCV cases in IH is 1.4 per 100,000 (95% CI 1.0-1.8 per 100,000), which is lower than the BC rate of 2.1 per 100,000 (95% CI 1.9-2.3 per 100,000).

9. HIV / AIDS

IH Activity:	Numbers of new HIV and AIDS cases remain steady

There were 11 new cases of HIV in 2012, which is consistent with numbers reported over the past two years (10 in 2011 and 11 in 2010). As is often seen with HIV, the majority of cases diagnosed with HIV are men. Seven of 11 cases had a known risk factor for HIV (men who have sex with men or injection drug use). Four new cases of AIDS were diagnosed in 2012. The number of AIDS cases in IH have remained stable over the past 5 years and have been declining in BC overall.

When the 5-year (2008-2012) rates were compared, IH rates were lower than BC rates for both HIV and AIDS.

Table 1: 5-year incidence of HIV and AIDS in IH and BC, 2008-2012

5-year rate, 2008-2012 (cases per 100,000)		
	HIV	**AIDS**
IH	2.0 (95% CI 1.6-2.5)	0.6 (95% CI 0.3-0.8)
BC	6.7 (95% CI 6.3-7.0)	1.8 (95% CI 1.6-2.0)

Source: BCCDC Cognos cube; CD Unit HIV Reporting Spreadsheet

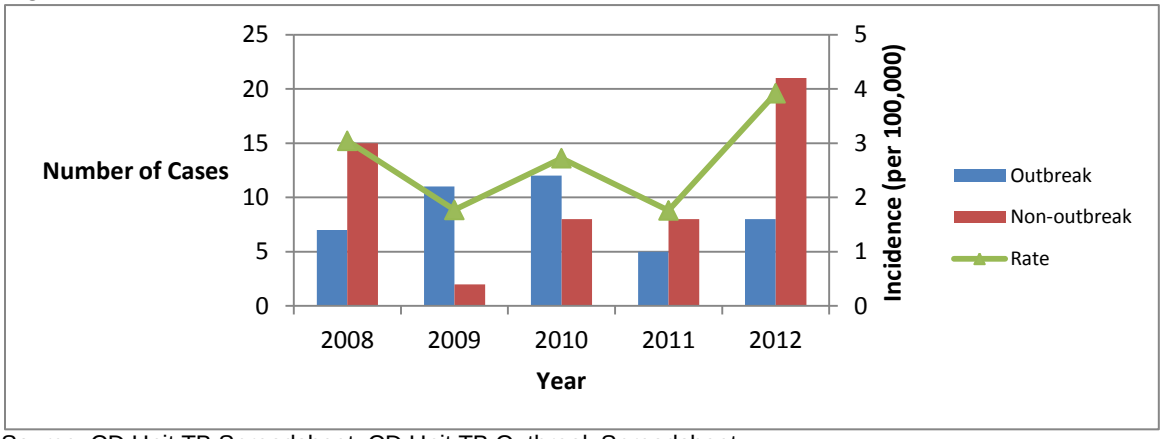
Diseases with Direct Contact or Respiratory Transmission

10. Tuberculosis

IH Activity:	30 reported cases, of which 8 new cases and 1 re-activation are linked to Kelowna outbreak

Tuberculosis rates in IH fluctuate from year to year (due to low case counts), however the 2012 rate of tuberculosis is the highest it has been in the past five years (3.9 per 100,000, 95% CI 2.5-5.3 per 100,000). The number of tuberculosis cases in 2012 (n=30) more than doubled that of 2011 (n=13).

Figure 10: Tuberculosis incidence in IH and BC, 2008-2012



Source: CD Unit TB Spreadsheet; CD Unit TB Outbreak Spreadsheet

A TB outbreak that began in 2008 continues to affect the street-involved population in Kelowna. There were 8 new cases and 1 case re-activation reported in IH plus one additional case in a non-IH resident, for a total of 46 cases linked to the outbreak as of the end of 2012. All new cases were started on directly observed therapy. Among the 21 non-outbreak tuberculosis cases, 18 (86%) were pulmonary TB cases. Six cases had links to another active TB cases.

Regional surveillance of latent TB infections (LTBI) began in 2010. In 2012, 714 positive tuberculin skin tests (TST) were reported. Of these, 162 (23%) were identified as LTBI, 379 (53%) required no further follow-up, and 173 (24%) with no recommendations on file. Of those identified as LTBI, 71% (115/162) were recommended for preventative therapy with 17% (n=19) having initiated therapy, 23% (n=27) recommended to be followed by surveillance and 14% (n=16) had no recommendations on file.

11. Respiratory Infections (RI) - Influenza

IH Activity:	More licensed facility outbreaks but less school absenteeism compared to 2011/2012 season

For the 2012/2013 influenza season (August 26 2012 to March 30, 2013), there were 34 RI outbreaks in licensed care facilities, compared to 15 in the same time period for the 2011/2012 season and 13 in the 2010/2011 season. The laboratory-confirmed agent in 23 (68%) of these outbreaks was Influenza A; other etiologic agents included respiratory syncytial virus (n=2), rhinovirus/enterovirus (n=2) and parainfluenza (n=1). A total of 399 ill residents and 166 ill staff were associated with these RI outbreaks, and ten hospitalizations and 15 deaths were reported.

During the 2012/2013 influenza season, there were 58 schools across IH reporting >10% absenteeism due to RI illness, compared to a mild 2011/2012 season when only 36 schools were reporting >10% absenteeism.

Influenza illness as a proportion of all submitted BC Medical Services Plan claims in IH rose above the 10-year 75th percentile beginning in mid-December 2012 and remained elevated until it peaked in mid-January 2013, when it exceeded the 10-year maximum for that time of year.

According to the BC Public Health Microbiology and Reference Laboratory, influenza subtype A/H3N2 made up the majority of influenza detections among respiratory specimens submitted in the 2012/2013 season; however detections of influenza subtypes A/H1N1 and Type B are still seen in small numbers.

Source: CD Unit RI Outbreak Tracking Spreadsheet 2012

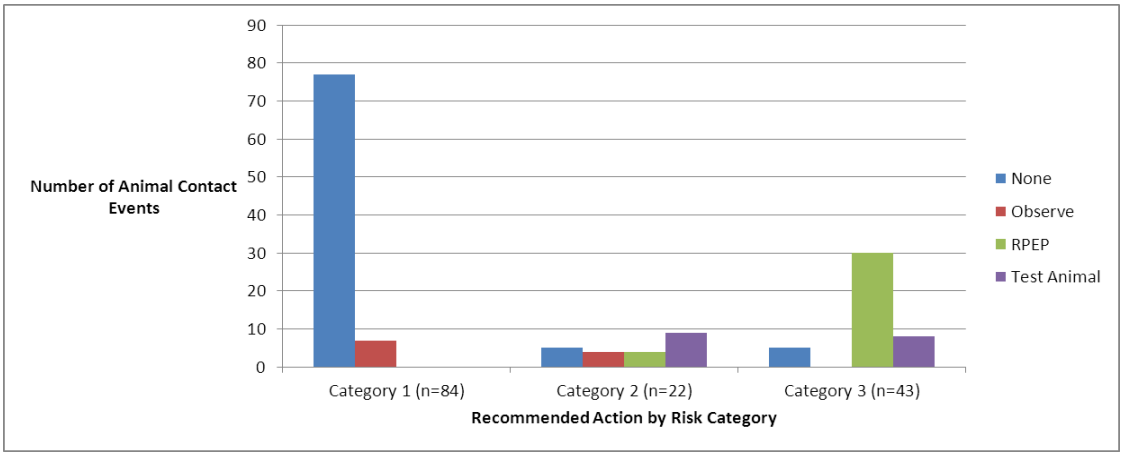
12. Animal Contact Investigations - Rabies

IH Activity:	149 animal contact events; 0 cases in 2012

Animal contacts are initially investigated and assessed by environmental health officers, then referred to the CD Unit for surveillance and consultation with the medical health officer. If immunization is required, the public health nurse will work with the client to ensure rabies post-exposure prophylaxis (RPEP) is provided as appropriate.

In 2012, a total of 149 animal contact events were investigated by the CD Unit. To manage animal contact investigations, the CD Unit categorizes the contact event into one of three risk management categories, with Category 1 events being the lowest risk. The majority of animal contact events reported in 2012 were Category 1 events (n=84). Most Category 1 events result in no further action, whereas for Category 3 events RPEP or animal testing is usually recommended.

Figure 11: Animal Contact Events reported to the IH CD Unit, by Risk Category and Follow-up Action, 2012



Source: CD Unit Animal Contacts 2012 Spreadsheet

Most animal contact events occurred within BC, with only 11% (n=17) of exposures occurring outside the province, mostly due to bites from dogs (n=10) or monkeys (n=5). Exposures to wild bats and domesticated dogs and cats made up 85% (n=110) of the animal contact events occurring within IH.

In addition to animal contact investigations, the CD Unit coordinated RPEP immunization service for six individuals who were non-IH residents exposed outside of IH to ensure continuation of their RPEP vaccine series initiated elsewhere.

13. West Nile Virus (WNV)

IH Activity:	0 cases in 2012

In 2012, no cases of human WNV disease were reported in IH. IH activities to prevent and control WNV include surveillance, mosquito control, and education. For the 2012 season, there were no positive mosquitoes, birds, horses, or other mammals identified with WNV in IH.

IH provides an integrated pest management plan (PMP) that may be accessed by local governments to control mosquito populations. In 2012, none of the local government agencies applied to access the PMP however those who are active in mosquito control programs typically have their own PMP's.

Mosquito trapping occurred from mid-July to early September 2012 at 13 sites in IH. The number of mosquitoes captured per trap catch provides an indication of mosquito populations and these numbers are monitored weekly to measure the mosquito activity levels. Populations of *C. tarsalis and C. pipiens* mosquitoes, the two most significant vectors for WNV, began to increase the first week of July and did not return to low levels until the last week of August. Populations of *C. pipiens* were the largest in traps placed in the Central and Southern Okanagan (Oliver and Osoyoos area), while populations of *C. tarsalis* were identified most often in the Southern Okanagan.

Source: BCCDC Cognos Cube; IH Health Protection Environmental Health Program

14. Lyme Disease

IH Activity:	4 cases in 2012 (2 confirmed, 2 probable)

Four cases (two confirmed and two probable) of human lyme disease caused by *Borrelia burgdorferi* were reported in 2012, however there may be some underreporting of cases. The two confirmed cases were determined to be likely travel-related.

One species of lyme disease-carrying tick, *Ixodes* pacificus, is more often found in the coastal areas of BC. While this type of tick is less common in the BC interior, IH residents may travel to areas where these ticks are endemic and become ill from tick bites. In IH, the most common tick species is the Wood Tick (*Dermacentor andersoni)*, which does not carry *B.burgdorferi* bacteria but can cause other diseases such as Rocky Mountain Spotted Fever.

Public health efforts in IH to address lyme disease include passive surveillance and messaging to the public that coincides with the beginning of tick season (spring).

Source: BCCDC Cognos Cube

Appendix 1

Table of Case Numbers and Rates for Selected Diseases 2008 to 2012

Case Numbers and Rates for Selected Diseases 2008 to 2012

	2008			2009			2010			2011			2012				
	Cases	Rate		Cases	Rate		Cases	Rate		Cases	Rate		Cases	Rate		Five Year Average	
	IH	IH	BC	IH	IH	BC	IH	IH	BC	IH	IH	BC	IH	IH	BC	IH	BC
Campylobacteriosis	189	26.2	37.8	202	26.2	37.8	202	27.7	39.6	204	27.2	34.4	231	27.5	37.7	27.0	37.5
Cryptosporidiosis	14	1.9	2.6	8	1.9	2.6	8	1.1	1.9	9	1.1	1.2	13	1.2	1.2	1.4	1.9
E.coli, Verotoxigenic	17	2.4	2.6	22	2.4	2.6	29	3.0	3.6	18	3.9	2.4	20	2.4	2.1	2.8	2.7
Giardiasis	67	9.3	14.6	78	9.3	14.6	89	10.7	13.9	67	12.0	13.8	73	9.0	13.5	10.1	14.1
Hepatitis A	6	0.8	0.9	2	0.8	0.9	2	0.3	0.7	3	0.3	0.7	1	0.4	2.4	0.5	1.1
Hepatitis B: Acute	2	0.3	0.7	2	0.3	0.7	1	0.3	0.6	1	0.1	0.2	1	0.1	0.3	0.2	0.5
Hepatitis B: Chronic carrier	32	4.6	30.2	32	4.6	30.2	29	4.2	26.7	23	3.6	22.7	30	3.1	22.5	4.0	26.5
Hepatitis B: Unknown/undetermined	0	0.0	5.1	4	0.0	5.1	2	0.5	3.9	2	0.4	5.5	7	0.3	3.0	0.2	4.5
Hepatitis C	369	51.2	53.8	364	51.2	53.8	353	50.2	53.8	321	48.0	47.2	304	43.3	42.3	48.8	50.2
Hepatitis C: Acute	15	2.1	3.5	10	2.1	3.5	6	1.4	2.5	8	1.1	1.7	12	1.1	1.4	1.6	2.5
Influenza	200	27.7	26.6	885	27.7	26.6	3	121.4	182.2	80	0.4	3.2	119	10.8	18.2	37.6	51.4
Measles: Rubeola (Red)	0	0.0	0.0	0	0.0	0.0	14	0.0	0.0	8	1.9	1.9	14	1.1	0.2	0.6	0.4
Meningitis/Encephalitis: Bacterial	2	0.3	0.1	7	0.3	0.1	3	1.0	0.2	3	0.4	0.1	3	0.4	0.2	0.5	0.2
Meningococcal invasive	4	0.6	0.6	3	0.6	0.6	4	0.4	0.7	4	0.5	0.3	3	0.5	0.5	0.5	0.5
Mumps	4	0.6	3.1	0	0.6	3.1	2	0.0	0.6	11	0.3	0.4	0	1.5	3.7	0.6	2.2
Pertussis	9	1.2	5.6	23	1.2	5.6	45	3.2	3.7	11	6.1	2.9	43	1.5	1.5	2.6	3.8
Pneumococcal Meningitis	2	0.3	0.3	1	0.3	0.3	1	0.1	0.3	4	0.1	0.2	4	0.5	0.2	0.3	0.3
Pneumococcal Other	79	10.9	8.9	53	10.9	8.9	56	7.3	7.1	59	7.6	5.8	51	8.0	7.0	8.9	7.5
Rubella (German Measles)	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.2	0	0.0	0.0	0.0	0.0
Salmonellosis	113	15.6	19.4	103	15.6	19.4	136	14.1	20.0	114	18.3	22.8	113	15.4	22.8	15.8	20.9
Shigellosis	6	0.8	4.7	11	0.8	4.7	21	1.5	4.4	16	2.8	4.2	12	2.2	3.5	1.6	4.3
Group A strep : Invasive	49	6.8	6.1	25	6.8	6.1	12	3.4	4.0	25	1.6	3.2	35	3.4	4.1	4.4	4.7
West Nile Virus	1	0.1	0.0	2	0.1	0.0	1	0.3	0.0	0	0.1	0.0	0	0.0	0.0	0.1	0.0
Yersiniosis	44	6.1	13.1	29	6.1	13.1	38	4.0	10.4	37	5.1	9.4	21	5.0	0.0	5.3	9.2
HIV	26	3.5	7.9	18	2.4	7.6	11	1.5	6.6	11	1.5	6.3	12	1.6	6.3	6.6	6.9
Chlamydia	1864	258	246.2	1842	251.2	251.3	1847	249.0	261.2	1704	229.8	256.9	1699	228.3	269.0	249.2	203.1
Gonorrhea	192	26.6	32.9	126	17.2	30.3	118	15.9	30.1	128	17.3	36.0	59	7.9	30.7	20.7	25.9
Infectious Syphilis	7.0	1.0	7.5	13	1.8	4.8	4	0.5	3.4	11	1.5	4.2	11	1.5	3.5	1.2	4.0