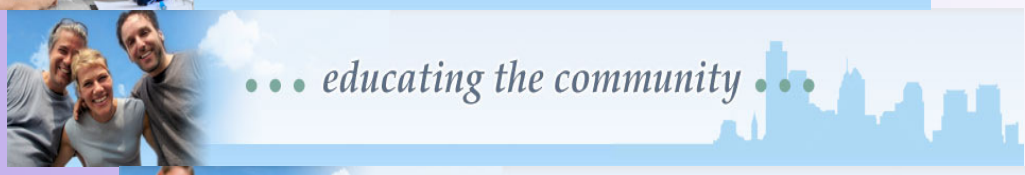
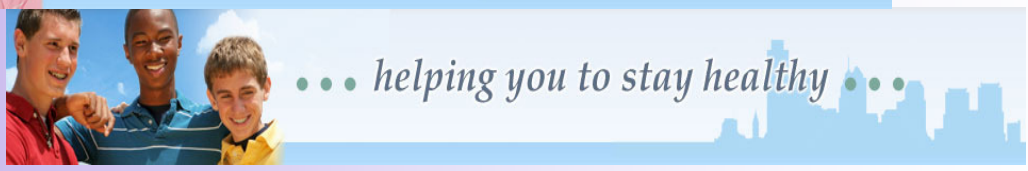
Division of Disease Control
2011 Annual Report





Philadelphia Department of Public Health
Division of Disease Control
500 South Broad Street
Philadelphia, PA 19146

Telephone: 215-685-6740
Fax: 215-238-6947
Website: www.phila.gov/health

Donald F. Schwarz, MD, MPH
Deputy Mayor, Health & Opportunity Health Commissioner

Nan Feyler, JD, MPH
Chief of Staff

Caroline C. Johnson, MD
Director, Division of Disease Control

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Introduction

Overview

This annual report provides an epidemiologic summary of conditions reported to the Division of Disease Control (DDC) in 2011. The report highlights the most commonly reported conditions and those of public health importance. Conditions with limited reports are only included in the summary table (Appendix C).

This report is available on the following websites: http://www.phila.gov/health/DiseaseControl/DataReports.html
https://hip.phila.gov/xv/AnnualReports/tabid/161/Default.aspx

Case Definition

A standard reporting case definition has been set for most reportable conditions by the Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE). These case definitions may differ from the criteria used to make a clinical diagnosis.

The current case definition list is available here: http://wwwn.cdc.gov/nndss/

Reporting to PDPH

We want to take this opportunity to thank the medical and laboratory communities for their disease reporting activities. As a reminder, reports can be submitted to DDC by telephone, fax, mail (see DDC contact information below), or through PA-NEDSS. The most recent PDPH Notifiable Disease Case Report Form can be found in Appendix A.

The list of reportable conditions is in Appendix B and on the DDC website:
https://hip.phila.gov/xv/Portals/0/HIP/Disease_Reporting/PDPH%20Notifiable%20List%202005-seal.pdf

How DDC Can Assist Health Care Providers

If you suspect a disease outbreak or that a patient is infected with a disease of urgent public health importance (Appendix B), DDC can facilitate diagnostic testing and assist with infection control and disease management. To speak with a medical specialist, please use the contact information below.

DDC Contact Information

Business Hours Consultation	215-685-6740
Urgent After-Hours Consultation	215-686-4514, Ask for DDC on-call staff.
Disease Reporting by Telephone	215-685-6748
Disease Reporting by Fax	215-238-6947
Disease Reporting by Mail	PDPH DDC, 500 South Broad Street, Philadelphia, PA 19146

Annual Report Contributors

Caroline Johnson, *Division Director*
Marialisa Ramirez, *Layout Editor*

Acute Communicable Disease Control Program
Yvette Khachadourian
Aasit Nanavati
Ami Patel
Dana Perella
Jennifer Sears

Bioterrorism & Public Health Preparedness Program
Steve Alles

Immunization Program
Veronica Alvarez
James Lutz

Epidemiology Unit
Kathryn Gevitz
Danica Kuncio
Jose Lojo
Liyuan Ma
Robbie Madera
Claire Newbern

Office of Program Collaboration and Service Integration (PCSI)
Marcelo Fernandez– Vina
Seth Sheffler-Collins

Tuberculosis Control Program
Christina Dogbey
Daniel Dohony

STD Control Program
Greta Anschuetz
Martin Goldberg
Melinda Salmon

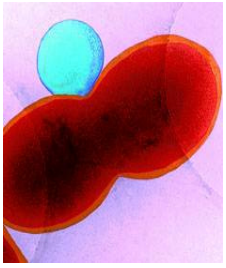
Commonly Used Abbreviations

AACO	AIDS Activities Coordination Office
ACIP	Advisory Committee on Immunization Practices
AIDS	Acquired Immunodeficiency Syndrome
AVHPC	Adult Viral Hepatitis Prevention Coordinator
CDC	Centers for Disease Control and Prevention
CRS	Congenital Rubella Syndrome
CSF	Cerebrospinal fluid
CSTE	Council of State and Territorial Epidemiologists
DNA	Deoxyribonucleic acid
DDC	Division of Disease Control
DFA	Direct fluorescent antibody
DOT	Direct observed therapy
DTaP	Diptheria, tetanus, acellular pertussis vaccine
ED	Emergency Department
EHS	Philadelphia Department of Public Health Environmental Health Services
EIA	Enzyme Immunoassay
GAS	Group A Streptococcus
GI	Gastrointestinal
HAV	Hepatitis A Virus
HBIG	Hepatitis B immunoglobulin
HBsAg	Hepatitis B surface antigen
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HCW	Health Care Worker
HIV	Human Immunodeficiency Virus
HRC	Health Resource Centers
Ig	Immunoglobulin
IFA	Immunofluorescent Assay
ILI	Influenza-like illness
INH	Isoniazid
IPD	Invasive Pneumococcal Disease
LD	Legionnaires' Disease
LTBI	Latent Tuberculosis Infection
MDR-TB	Multi-drug Resistant Tuberculosis
MMR	Measles, mumps, rubella vaccine
MRC	Medical Reserve Corps
MSM	Men who have sex with men
NAAT	Nucleic acid amplification tests
PCV	Pneumococcal-Conjugate Vaccine
PEP	Post-exposure prophylaxis
PID	Pelvic Inflammatory Disease
PDPH	Philadelphia Department of Public Health
PFGE	Pulsed Field Gel Electrophoresis
PHBPP	Perinatal Hepatitis B Prevention Program
PHL	Philadelphia Department of Public Health Laboratory
POD	Point of Dispensing Site
P&S	Primary and secondary (syphilis)
PZA	Pyrazinamide
RNA	Ribonucleic acid
RWI	Recreational Water Illnesses
SPDR	Drug resistant Streptococcus pneumoniae
STEC	Shiga-toxin producing Escherichia coli
STD	Sexually Transmitted Disease
TB	Tuberculosis
Td	Tetanus, diphtheria vaccine
TDaP	Tetanus, diphtheria, acellular pertussis vaccine
TMP/SMX	Trimethoprim/Sulfamethoxazole (Bactrim)
US	United States
VFC	Vaccines for Children Program
VFAAR	Vaccines for Adults at Risk Program
WNV	West Nile Virus

Central Nervous System

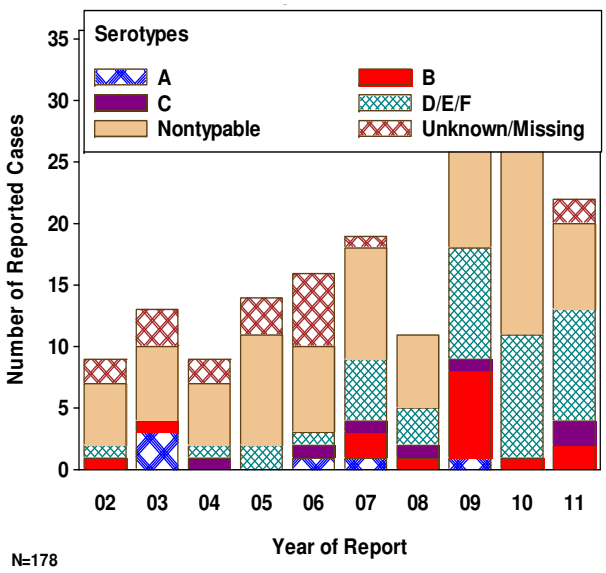
Infections and Sepsis

Invasive *Haemophilus influenzae* Disease

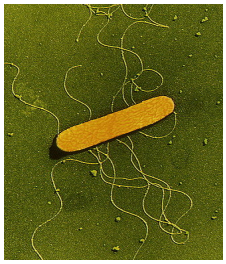


Twenty-two cases of confirmed invasive *Haemophilus influenzae* (Hflu) were reported to PDPH in 2011. Fewer cases were male than female (8/22 [36%] male). The median age was 59 years (range: 3 days - 90 years). Twenty-one isolates (95%) were cultured from blood. Hflu was also isolated from CSF for 2 cases. Of those with hospitalization and fatality information, 21/22 cases (95%) were hospitalized and 1/22 (5%) was fatal. Serotype information was available for 22 cases, of which 8/22 (36%) were serotype f, 7/22 (32%) were nontypeable, 2/22 (9%) were serotype c, 2/22 (9%) were serotype b (Hib), and 1/22 (5%) was serotype e. Four cases were children under the age of 5 years, but none were infected with serotype b.

Figure 1. Invasive *Haemophilus influenzae* by Serotype: Philadelphia, 2002-2011

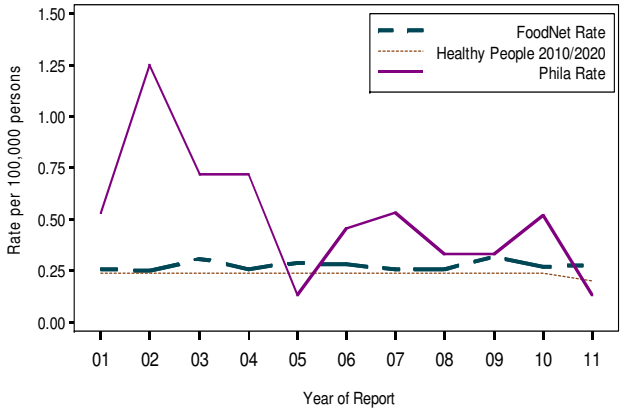


Listeriosis (*Listeria monocytogenes*)



In 2011, there were 2 cases of listeriosis in Philadelphia residents, a decrease from 8 cases in 2010. Both cases were males in their 50s. PDPH did not identify any links between these cases – they occurred sporadically in time and place, and the DNA fingerprints identified by pulsed field gel electrophoresis were different. One case had a history of asthma and hypertension and the other had a history of hypertension as well. One of the isolates was obtained from CSF and the other isolate was obtained from bile fluid. Both cases were hospitalized, but neither case was fatal.

Figure 2. Rates of Lab-Confirmed Listeriosis by Year of Report: Philadelphia, 2001-2011



MENINGOCOCCAL INFECTION *(Neisseria meningitidis)*

Four cases of invasive meningococcal disease were reported in 2011. The median age of cases was 33 years (range: 2-89 years) and 2/4 (50%) of cases were male. All cases were hospitalized, and 2 cases resulted in fatality. *N. meningitidis* was isolated from CSF (1) and blood (3). Serogroup information was available for all of the cases – 1 was typed B, 2 were typed Y, and 1 was typed X (Table 1). The 2 vaccine-preventable cases (type Y) were neither age-eligible for vaccine nor at increased risk for infection.

Figure 3. Invasive Meningococal Disease by Age Group: Philadelphia, 2002-2011

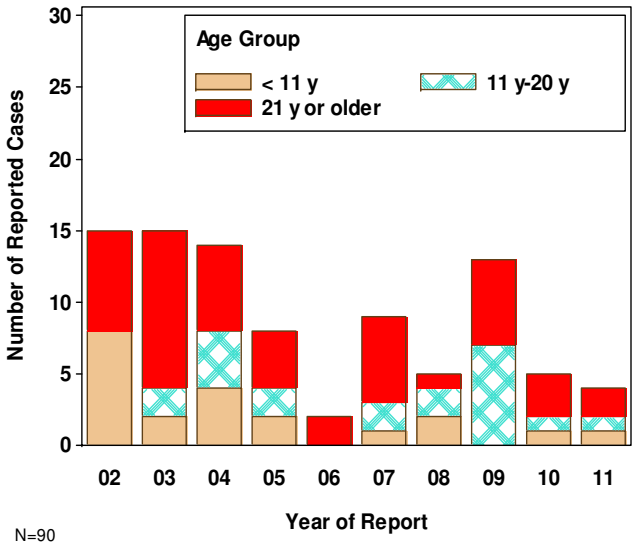
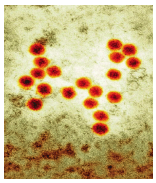


Table 1. Meningococcal Serogroups: Philadelphia, 2001 to 2010

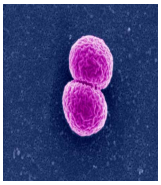
Serogroup	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total N (%)
B	1	5	3	1	1	0	0	1	8	1	1	22 (23%)
C	2	2	5	3	0	0	4	0	1	1	0	18 (19%)
W	0	0	1	0	0	1	0	0	1	0	0	3 (3%)
X	0	0	0	0	0	0	0	0	0	0	1	1 (1%)
Y	5	7	4	6	4	0	2	2	2	2	2	36 (38%)
Z	0	0	0	1	0	0	1	0	0	0	0	2 (2%)
Not grouped	1	1	2	1	3	1	2	2	0	1	0	14 (15%)
Total	**9**	**15**	**15**	**12**	**8**	**2**	**9**	**5**	**12**	**5**	**4**	**96 (100%)**

MENINGITIS, ASEPTIC



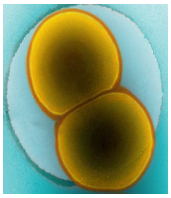
In 2011, 104 cases of aseptic meningitis among Philadelphia residents were reported to and confirmed by DDC. The median age of these individuals was 16.5 years (range: 5 days - 88 years). The gender distribution was even with 52 (50%) male cases and 52 (50%) female cases. Of the 104 cases, nearly all (99, 95%) were hospitalized and none were fatal. Among the 57 cases <20 years of age, 31 (54%) tested positive for enterovirus. Of the 47 adult cases (≥20 years of age), 12 (26%) were ruled out as neuroinvasive West Nile Virus infections.

MENINGITIS, *OTHER* BACTERIAL



In 2011, there were 12 cases of bacterial meningitis fitting this category. Median age was 3 months (range: 2 months - 43 years). There were 3 infant cases. Sixty percent of the cases were female. Group B *Streptococcus* was isolated from all cases. All cases were hospitalized but none were fatal.

INVASIVE *Streptococcus pneumoniae* DISEASE



There were 156 confirmed cases of invasive pneumococcal disease (IPD), as well as 1 suspect case, in Philadelphia during 2011. Half of the cases were among females (83/156 [53%]), and the median age of infection was 57 years (range: 8 weeks - 94 years). Six cases (6/156 [4%]) were in children under 5 years of age and 47/156 (30%) were over 65 years of age (Table 3).

Drug Resistant Invasive S. pneumoniae Infections

In 2011, 18 (13%) of the 141 isolates with susceptibilities were fully or intermediately resistant to at least 1 antimicrobial agent currently approved for use in treating pneumococcal infection. In 2011, 7 pneumococcal isolates were not susceptible to penicillin (Table 2).

Table 2. Antibiotic Susceptibilities of Invasive Streptococcus pneumonia Isolates: Philadelphia, 2011

Antibiotics	Isolates Tested (No.)	Susceptible Isolates (%)
Penicillin/Oxacillin	148	95
Ceftriaxone	114	98
Erythromycin	64	92
Clindamycin	54	94
TMP/SMX	52	88
Vancomycin	53	100
Levofloxacin	64	98

Table 3. Characteristics of Confirmed Invasive Pneumococcal Disease Cases by Age Group, Philadelphia 2011

Patient Characteristics	Age Groups		
	< 5 years old N (%)	5-64 years N (%)	≥ 65 years N (%)
Number of Reported Cases	6 (4%)	103 (66%)	47 (30%)
Age (median, range)	18 months (2-40 mos)	50 years (5-63 yrs)	79 years (65-94 yrs)
Female	1 (17%)	53 (51%)	29 (62%)
Clinical Manifestations			
Pneumonia	3 (50%)	46 (45%)	21 (45%)
Pneumonia and bacteremia	0	3 (3%)	1 (2%)
Bacteremia no focus indicated	3 (50%)	37 (36%)	17 (36%)
Bacteremia with focus	0	4 (4%)	2 (4%)
Meningitis	0	4 (4%)	1 (2%)
Other	0	5 (5%)	2 (4%)
Missing	0	4 (4%)	3 (6%)
Outcomes			
Hospitalized	6 (100%)	100 (97%)	47 (100%)
Fatal	0	5 (5%)	6 (13%)
≥1 Reported Underlying Condition**	0	73 (71%)	38 (81%)
Any Reported PCV * Vaccination			
Up-to-date vaccination	4 (67%)	N/A	N/A
Under age for vaccine	1 (17%)	N/A	N/A
S. pneumonia Serotypes	19A (3), 34 (1), 23B (1), 7F (1)		
Drug Resistant	1 (17%)	12 (12%)	5 (11%)

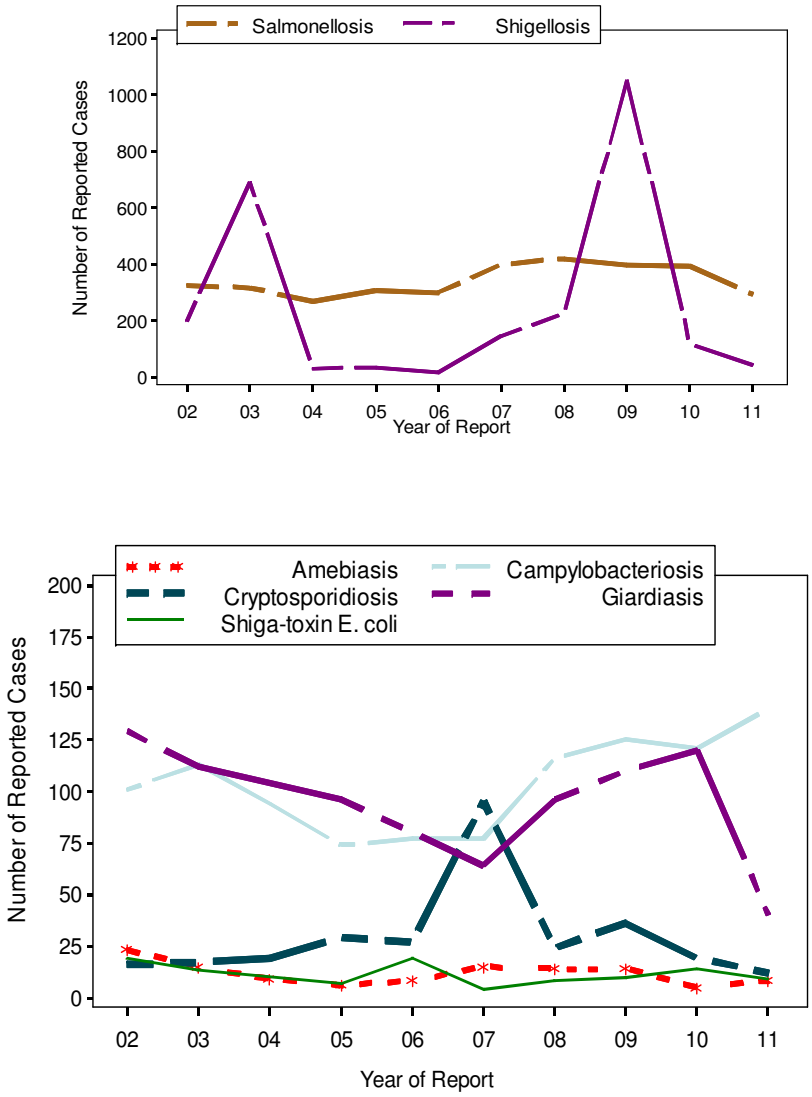
* Pneumococcal Containing Vaccine

** Any health condition that may affect a person's ability to fight infection

Gastrointestinal *Infections*

PDPH receives reports on at least eight notifiable gastrointestinal (GI)infections– *Entamoeba histolytica, Campylobacter, Cryptosporidia*, shiga-toxin producing *Escherichia coli, Giardia, Listeria* (included in the section on central nervous system infections), *Salmonella*, and *Shigella*. All of these infections require culture or identifications to be attributed to the agent. Generally, the most commonly reported notifiable GI illness in Philadelphia is salmonellosis (Figure 4).

Figure 4. Reported Cases of Gastrointestinal Diseases: Philadelphia, 2002 to 2011



Amebiasis *(Entamoeba histolytica)*

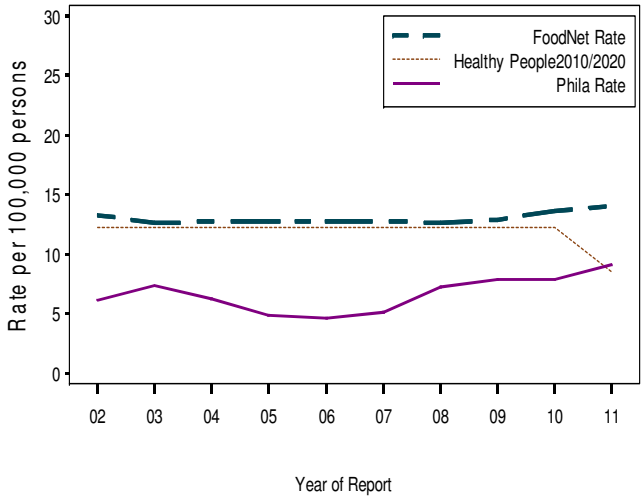
In 2011, 9 confirmed cases of amebiasis were reported – an increase from the 4 cases that were reported in 2010. No outbreaks or clusters of amebiasis were identified during 2011. Of those infected, 6 cases (67%) were male and the median age was 35 years (range: 24-60 years). Five (56%) of the 9 confirmed cases recorded international travel histories during their incubation period (India, Ethiopia, Vietnam, New Guinea, Niger). One of the 6 adult males interviewed reported having sex with men (MSM).

Campylobacteriosis (*Campylobacter* spp.)

In 2011, a total of 141 cases (140 confirmed and 1 probable case) of campylobacteriosis were reported among Philadelphia residents. There were 2 household clusters. The one probable case was symptomatic and linked to a confirmed case in the same household. The 2011 cases were nearly equally divided by gender (75/141 (53%) male). The median age was 30 years (range: 0-84 years). Information on symptoms was available for 118 cases – 114 (97%) reported diarrhea, 67 (56%) reported fever, 40 (34%) reported vomiting, and 46 (39%) reported nausea. Fourteen of the 110 cases (13%) with travel information available reported traveling outside the US during their incubation period, and 13 cases (12%) reported traveling out of state. Forty-nine had animal contact, but only 6 persons had contact with an animal other than a cat or dog (1 bird, 2 with farm animal exposure, 1 fish, 1 rabbit, and 1 other/unknown). Three individuals reported raw milk consumption during the incubation period. No campylobacteriosis fatalities were reported.

Of the 53 isolates with serotype information, 51 were *Campylobacter jejuni*, 1 was *Campylobacter coli*, and 1 was *Campylobacter rectus*. Ciprofloxacin susceptibility was available for 23 of 140 Campylobacter isolates (16%). Of these, 5 (22%) were ciprofloxacin-resistant (Table 5). Three of the 5 cases with ciprofloxacin resistance had risk factor information available, and one reported international travel (Spain) during the incubation period. The other two did not report any obvious risk factors.

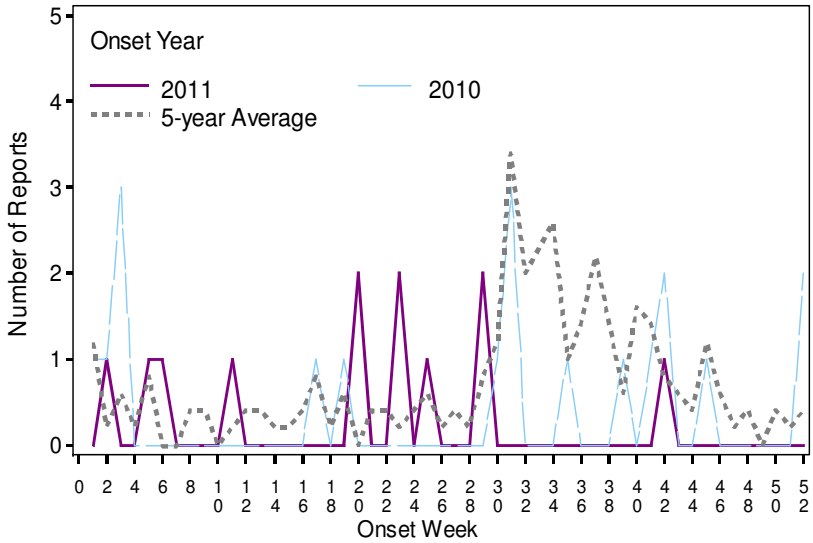
Figure 5. Rates of Lab-Confirmed Campylobacteriosis by Year of Report: Philadelphia, 2002 to 2011



CRYPTOSPORIDIOSIS (*Cryptosporidium* SPP.)

In 2011, a total of 5 confirmed cases and 9 probable cases of cryptosporidiosis were reported in Philadelphia, a decrease from 17 confirmed cases in 2010. The median age of the 2011 cases was 40.5 years (range: 5-67 years) and 9 (64%) of the cases were male. Among those with available data, risk factors that were reported include an immunocompromising medical condition (2) and international travel (1). There were no fatalities, but 5 cryptosporidiosis cases were hospitalized.

Figure 6. Number of Cryptosporidiosis Reports by Week of Onset: Philadelphia, 2010, 2011 and 5-year Moving Average



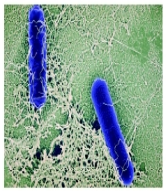
GIARDIASIS (*Giardia lamblia*)

In 2011, 42 confirmed cases and 1 probable case of giardiasis were reported among Philadelphia residents compared with 122 cases in 2010. Males accounted for 74% of cases. Cases ranged in age from 0 to 70 years with a median age of 38 years. There were no fatalities as a result of giardiasis, however, 5 cases were hospitalized (12%). Diarrhea was the most commonly reported symptom (88%), followed by nausea (37%), fever (21%), and vomiting (19%). Of the 42 cases with reported risk factors during their incubation period, 11 cases (26%) traveled or lived in a foreign country, with India and Mexico as the most common locations reported, and two (5%) traveled outside of Pennsylvania. One (2%) reported swimming without foreign travel, eleven cases (26%) reported animal contact with no foreign travel, and one (2%) attended a day-care center (Table 4).

Table 4. Risk Factors Reported by Giardiasis Cases: Philadelphia, 2011

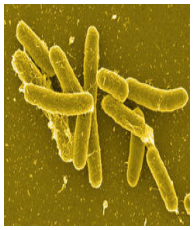
Risk Factors	N / (Total Answered Y or N)
Foreign Travel	11 (26%)
Swimming Alone (No foreign travel)	1 (2%)
Work/Attend Daycare	1 (2%)
Animal Contact Alone	11 (26%)
Total	

INFANT BOTULISM



Infant botulism is a serious illness that is caused when the bacteria *Clostridium botulinum* grows inside a baby's gastrointestinal tract. In 2011, 2 cases of infant botulism were reported. Both cases were male and less than 4 months old. Symptoms experienced were poor feeding, constipation, loss of head control, and droopy eyelids. Both cases were hospitalized, were infected with type B *C. botulinum* toxin, received botulism antitoxin, and survived. PDPH did not identify a common source between these cases.

SALMONELLOSIS (*Salmonella* SPP.)



A total of 301 salmonellosis cases were reported in 2011 of which 279 (93%) were laboratory-confirmed and 22 were probable cases identified from epidemiologic links. The incidence rate of salmonellosis in 2011 is about 20 cases per 100,000 persons (301/1,526,006), a decrease from 2010 where it was about 26 cases per 100,000 persons. US 2011 salmonellosis rates were lower at 16.5 cases/100,000 persons. Fifty-five percent of *Salmonella* cases were female. The median age was 14 years with a range of 0-87 years. Disease incidence was highest in those under 1 year of age (41 infant cases). Although 2011 US data is not yet available, the age–specific rate of infant salmonellosis has traditionally been much higher in Philadelphia compared with the national rate, as seen in Figure 13. Thirty-eight percent of all cases were hospitalized, although there were no reported fatalities. Of the 279 laboratory-confirmed salmonellosis cases, *S.* Enteritidis and *S.* Typhimurium were the most common serotypes, responsible for 132 (47%) and 40 (14%) cases respectively.

Twenty-one percent of cases were part of *Salmonella* clusters – including 25 household clusters, 1 daycare cluster, and 1 school cluster that was linked to a multi-state outbreak associated with chicken livers. Philadelphia also had a case that was linked to a multi-state out-break associated with ground turkey and had 2 cases linked to a multi-state outbreak of S. Typhimurium that was associated with a laboratory-strain in teaching laboratories.In 2011, 17 cases (6%) reported turtle contact, which is slightly lower than the percentage of cases (9%) who reported turtle exposure in 2010.

Figure 7. Age-Specific Salmonellosis Rates: Philadelphia, 2002-2011

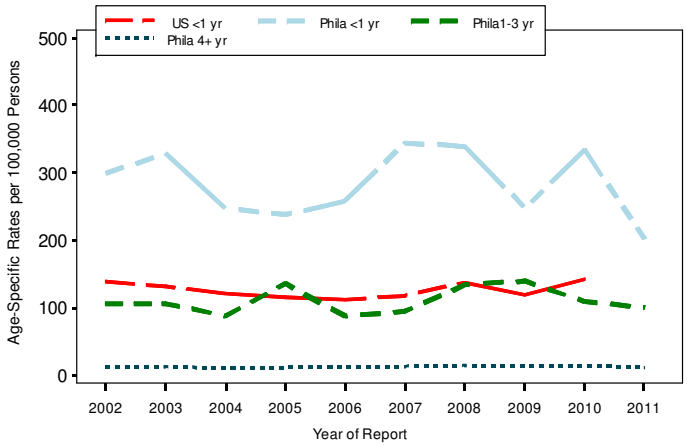
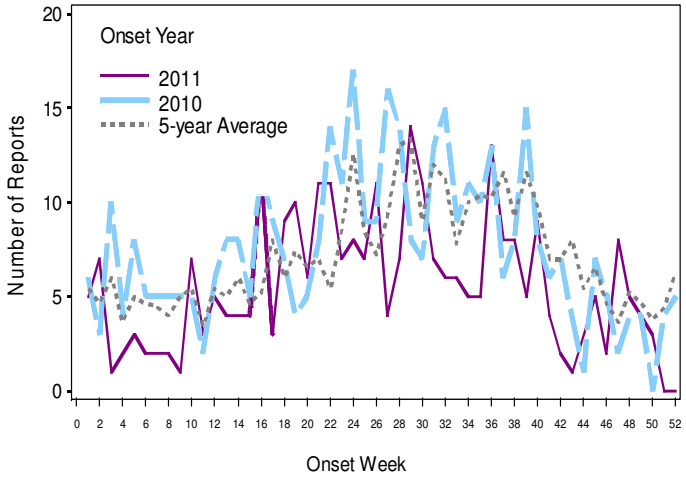
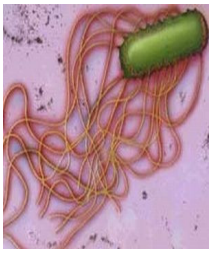


Figure 8. Number of Salmonellosis Reports by Week of Onset: Philadelphia, 2010, 2011 and 5-Year Moving Average



Antibiotic susceptibility testing was available for 237 (85%) of laboratory-confirmed cases. Eight percent (18/237) were ampicillin-resistant, 2% (4/223) were resistant to trimethoprim-sulfamethoxazole, and 4% (9/201) were ciprofloxacin-resistant (Table 5).

TYPHOID FEVER (*Salmonella enterica* SEROVAR TYPHI)

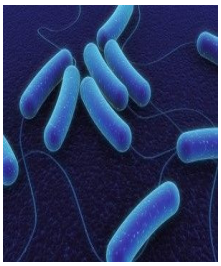


Typhoid fever is a potentially life-threatening illness caused by *Salmonella* Typhi (*Salmonella enterica* serovar Typhi, or *S*. Typhi). In 2011, 3 cases were reported. The cases were confirmed by the isolation of *S*. Typhi from the stool and blood. All 3 reported fever, 2 reported loss of appetite, and 1 reported diarrhea. The age range was 11-42 years. Travel to Nepal and Liberia was reported for 2 cases and travel information was not available for the third. None of the cases were known to have received the typhoid vaccine.

SHIGA-TOXIN PRODUCING *Escherichia coli* (STEC)

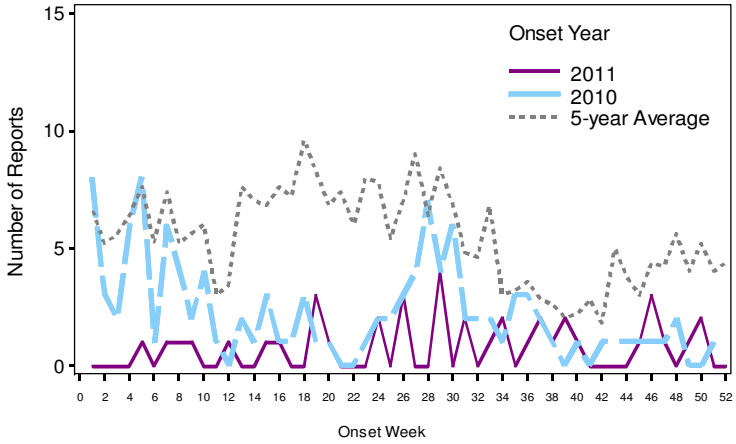
Of the 9 STEC cases reported in 2011 (14 reported in 2010), 8 were confirmed and 1 was a probable case. *E. coli* O157:H7 was isolated from 6 confirmed cases, *E. coli* O103:H2 was isolated from 1 confirmed case, and the other confirmed case was typed as *E. coli* non-O157, non-O103. The probable case was identified as *E. coli* O157 with no H antigenic characterization or shiga-toxin data available. Other than a family cluster, no epidemiological links were identified among the cases. Five (56%) cases were male and the median age was 14 years (range 0-57 years). All 9 cases reported experiencing diarrhea (5 had bloody diarrhea), 5 reported vomiting, 4 reported nausea, 3 had abdominal cramps, and 2 reported a fever. Two cases had hemolytic uremic syndrome (HUS). No deaths were associated with STEC infections, however, 5 (56%) cases were hospitalized. Regarding potential risk exposures during the incubation period, cases reported consumption of ground beef (4), being on a farm (2), and traveling to a foreign country (1).

SHIGELLOSIS (*Shigella* SPP.)



During 2011, PDPH received 41 reports of shigellosis, of which 39 (95%) were culture-confirmed. In 2011, there was an approximate 70% decrease in the number of cases compared to 2010. Of the 39 culture-confirmed cases, 23 (59%) were identified as *S. flexneri*, 14 (36%) were identified as *S. sonnei*, and 2 (5%) were reported as *Shigella* species. Cases were 80% male with a median age of 35 years (range 1-59 years). Four cases reported international travel (Mexico, Liberia, Jamaica, and Canada) during their incubation period. 75% of the *Shigella* isolates tested for ampicillin resistance were resistant (24/32) and 53% (16/30) showed resistance to trimethoprim-sulfamethoxazole (Table 5). No fatalities were reported.

Figure 9. Number of Shigellosis Reports by Week of Onset: Philadelphia, 2010, 2011 and 5-Year Moving Average



In 2011, there was a state-wide increase in *S. flexneri*, serovar 2 cases in Pennsylvania with similar DNA fingerprints, suggesting a possible epidemiological link. Philadelphia had 7 cases that matched the cluster of 17 total cases. In the US, *S. flexneri* is frequently seen among men who have sex with men (MSM). At least 4 individuals within the cluster identified themselves as MSM. The 2011 increase in *S. flexneri* cases [23 cases (59%) in 2011 vs. 12 cases (13%) in 2010] explains the overall male predominance in total *Shigella* cases. Three household clusters of *S. sonnei* were identified in 2011.

Table 5. Antibiotic Resistance of Selected Enteric Pathogens: Philadelphia, 2011

Pathogen	Antibiotics Tested	Total Tested	Resistant		Intermediate	
			N	(%)	N	(%)
Campylobacter	Ciprofloxacin	23	5	(22%)	0	(0)
	Erythromycin	18	0	(0)	0	(0)
	Trimethoprim-Sulfamethoxazole	2	0	(0)	0	(0)
Salmonella	Ampicillin	237	18	(8%)	1	(0.4%)
	Ceftriaxone	90	2	(2%)	0	(0)
	Ciprofloxacin	201	9	(4%)	0	(0)
	Erythromycin	0	0	(0)	0	(0)
	Trimethoprim-Sulfamethoxazole	223	4	(2%)	1	(0.4%)
Shigella	Ampicillin	32	24	(75%)	0	(0)
	Ceftriaxone	0	0	(0)	0	(0)
	Ciprofloxacin	19	0	(0)	0	(0)
	Erythromycin	0	0	(0)	0	(0)
	Trimethoprim-Sulfamethoxazole	30	16	(53%)	0	(0)

Immunizations and Vaccine-Preventable Diseases

KIDS Plus Immunization Information System

The KIDS Plus Immunization Information System (IIS) is a web-based system that has served as a centralized repository for immunization records of Philadelphia's children for over 20 years. In 2011, the KIDS Plus IIS continued collecting pediatric and adult immunization records from public and private providers. As of December 31, 2011, KIDS Plus contained data for 871,784 patients and 8,709,582 doses of vaccine.

In 2011, several grants funded upgrades in technology of the KIDS Plus IIS. The upgraded KIDS Plus launched in January 2012 provides new functionalities that benefit provider offices in their immunization practices. New functionalities include practice-based immunization rates, practice-based reminder and recall reports and practice-based patient rosters. In addition to these improvements in functionality for the user, KIDS Plus created new ways for data submission and exchange between provider electronic health records and KIDS Plus utilizing nationally standardized HL7 interface. The new interface makes sharing of data between KIDS Plus and providers more secure, efficient and reliable. PDPH also continues to work with providers to attain Centers for Medicaid and Medicare Services (CMS) meaningful use requirements.

Childhood Vaccines

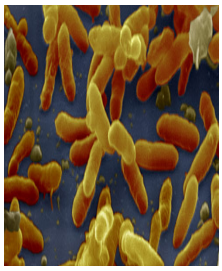
Through the Federal Vaccines for Children (VFC) program, the Immunization Program provides over $25 million worth of vaccines at no-cost to nearly 230 health care providers in Philadelphia annually. In 2011, the demand for vaccines increased as providers had to respond to new vaccine requirements put forth in 2009 by the Philadelphia Board of Health. These requirements included 2 doses of Varicella, 1 dose of Tdap, and 1 dose of Meningococcal conjugate vaccines for entrance into sixth grade in all Philadelphia schools. In 2012, the Immunization Program, with grant support from the Centers for Disease Control and Prevention, initiated special programs aimed at improving vaccination coverage rates amongst adolescents.

Adult Vaccines

A number of vaccines are recommended for adults, with indications determined by health condition, age, lifestyle/behavior, and occupation. The Vaccines for Adults at Risk (VFAAR) program provides vaccines to select health care clinics that serve adults at high-risk for vaccine preventable diseases. In 2011, PDPH was able to expand the VFAAR program by offering adult vaccines to new medical clinics and through new or expanded special project initiatives making particular vaccines available to specific adult populations based on the Advisory Committee for Immunization Practices recommendations. In 2011, the VFAAR program partnered with community-based organizations to target and access uninsured, high-risk, and hard to reach populations. The VFAAR program is committed to improving and maintaining adult vaccination rates.

For more information on the Immunization Program, please visit our website for more information: https://kids.phila.gov/

PERTUSSIS (*Bordetella pertussis*)



The 101 total pertussis reports investigated by PDPH in 2011 resulted in 33 confirmed and 16 probable cases, yielding a rate of 3.2 cases per 100,000 population. The highest rate was among infants (Figure 10). Thirty (30/49 [61%]) cases were female. Symptom information was available for all 49 cases. The most commonly reported symptoms included paroxysmal cough (36/49 [73%]), post-tussive vomiting (22/49 [45%]), whoop (20/49 [41%]), and apnea (25/49 [51%]). Seventy (70/49 [95%]) cases had documented cough lasting ≥2 weeks. Eleven (11/49 [22%]) cases were hospitalized, 9 of which were <1 year old. There were no fatal cases. Among the confirmed cases, 23/33 (70%) had appropriate laboratory testing (pertussis PCR or culture), while the remainder of confirmed cases had documented cough lasting ≥2 weeks and contact to another case.

Eight clusters were identified in 2011. All involved disease transmission in a household. On average, each household cluster involved 3 individuals (range: 2-4 individuals).

Six out of the 19 cases under 5 years of age were up-to-date on their vaccinations. Vaccination was not always appropriate for the child's age (Table 6). Of the 14 cases between 5-19 years with vaccination information, 6 (43%) were up-to-date. Sufficient vaccination information was not available to determine the number of cases 20 years and older that were appropriately vaccinated.

Figure 10. Rates of Pertussis per 100,000 Population by Age and Gender: Philadelphia, 2011

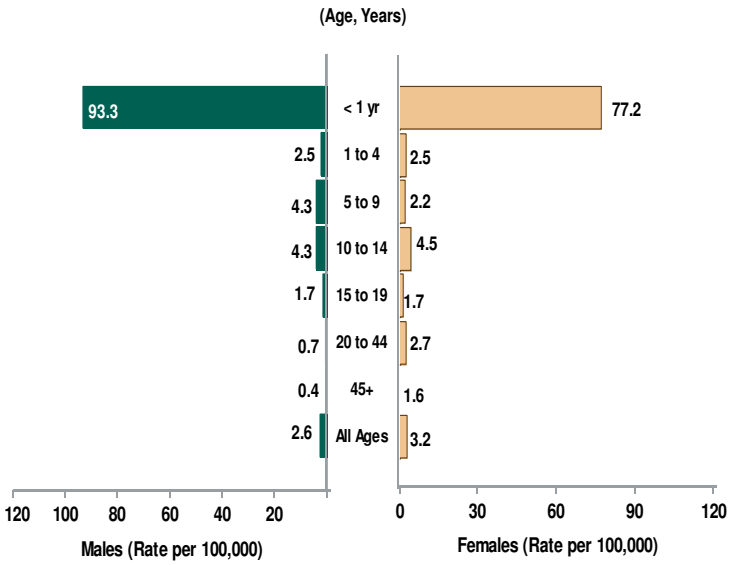
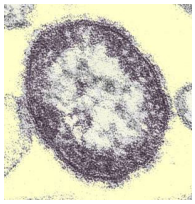


Table 6. Doses of Pertussis-Containing Vaccine Given to Pertussis Cases by Age

		# of Pertussis-Containing Vaccine Doses Received Prior to Illness				
Age in Months	**# in Age Group**	**0**	**1**	**2**	**3**	**4**
Under 2	5	0	0	0	0	0
2-5	9	2	7	0	0	0
6-11	3	2	1	0	0	0
12-59	2	0	0	0	0	2

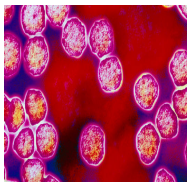
Measles



There were no confirmed cases of measles in Philadelphia in 2011. There were 2 reports of individuals with suspected measles; however, both were found not to have the disease.

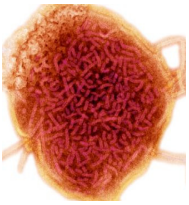
The most recent cases of measles in Philadelphia prior to 2011 were three travel-related cases (India in 2009, Mongolia in 2001, and Nigeria in 1998) and 7 cases in 1996, 6 of whom were associated with a homeless shelter.

Rubella



Philadelphia had no confirmed cases of rubella in 2011. There was 1 lab report suggestive of congenital rubella syndrome; however, upon investigation, this infant was not classified as a case. The last 2 cases of rubella infection recorded for Philadelphia occurred in 1996 and 1998.

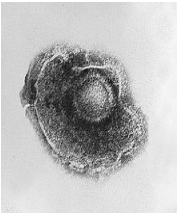
Mumps



In 2011, DDC investigated 21 reports of mumps infections. BOL and/or CDC performed mumps virus PCR testing on specimens of cases with active parotitis. Commercial laboratories conducted mumps virus IgM antibody testing, and BOL and/or CDC confirmed these results. None of the cases were hospitalized or experienced complications.

DDC identified 2 (10%) confirmed and 4 suspect cases. Both confirmed cases were fully immunized with 2 doses of Measles, Mumps, and Rubella vaccine (MMR). There were no clusters identified, however, one confirmed case involved travel internationally.

Varicella-Zoster Virus



Varicella Vaccine Coverage

According to the KIDS Immunization Registry, varicella vaccination coverage rates ranged from 68% to 84% for children 1 to 12 years of age in Philadelphia during 2011 (Figure 11). In Fall 2011, school entry regulations in Philadelphia required 2 doses of varicella vaccine for all children in all grades (Kindergarten through 12th). These requirements are essential for maintaining high single-dose varicella vaccination coverage rates and increasing 2-dose coverage rates among children in Philadelphia.

City-wide Passive Varicella Surveillance

During 2011, 262 varicella cases (confirmed and probable) were reported to PDPH though city-wide passive surveillance, which was similar to the number of cases reported in 2010 (n=261). The lower levels of varicella incidence in recent years may be attributed to increasing 2-dose varicella vaccination coverage. In 2011, median age for varicella cases was 6 years (range: 3 months-74 years). Six varicella cases were hospitalized with one individual's illness resulting in death. The varicella fatality occurred in a 30-year old male who had an unknown varicella vaccination status, was immunocompromised, and resided at a behavioral health facility illness in Philadelphia. The 5 other varicella hospitalizations in 2011 were adults except for a 23-month old case who was unvaccinated. Sixty-one percent (n=160) of the reported varicella cases had been vaccinated (Figure 12), including 75 (17 confirmed and 58 probable) children aged 4 to 18 years who developed breakthrough infections after receiving a second dose of vaccine.

Figure 11. Varicella Vaccination Coverage Among Children by Age and Dosage: Philadelphia, 2011

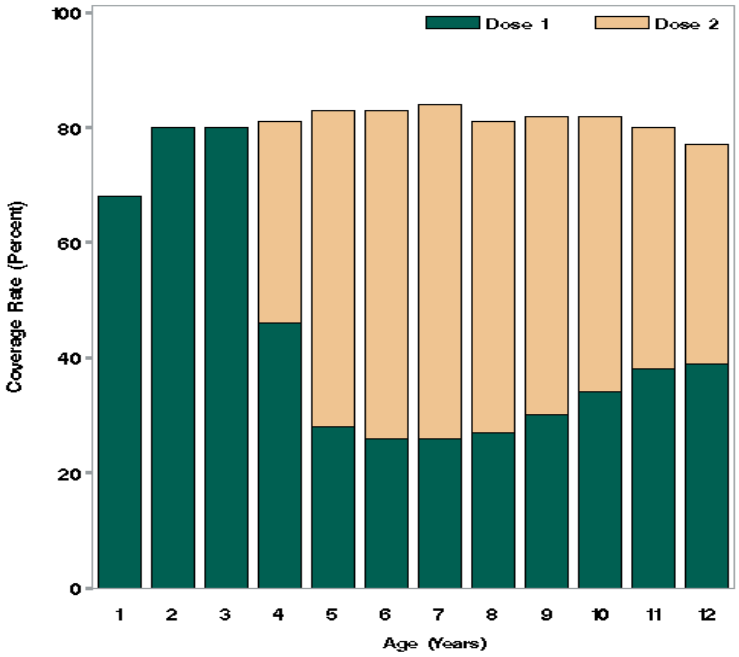
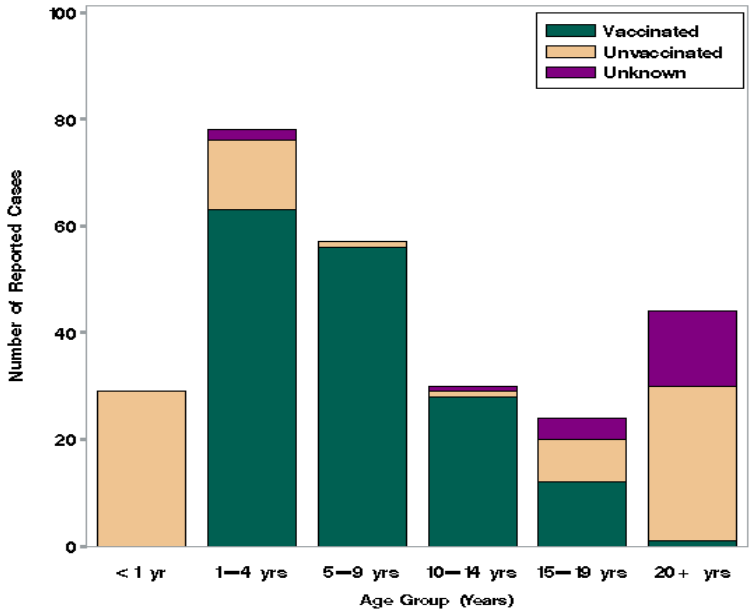
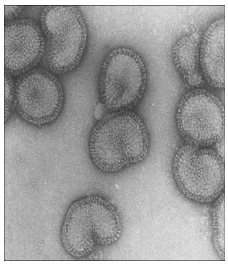


Figure 12. Citywide Varicella Reports by Age Group and Varicella Vaccination Status: Philadelphia, 2011



Respiratory *Infections*

Influenza and Respiratory Virus Surveillance (2011-2012 Season)



Influenza-like Illness Surveillance

PDPH maintains an active surveillance system that monitors chief complaints related to emergency department (ED) visits from 17 local hospitals. De-identified data from hospital triage logs are received daily and subsequently analyzed for influenza-like illness (ILI) and other syndromes of interest.

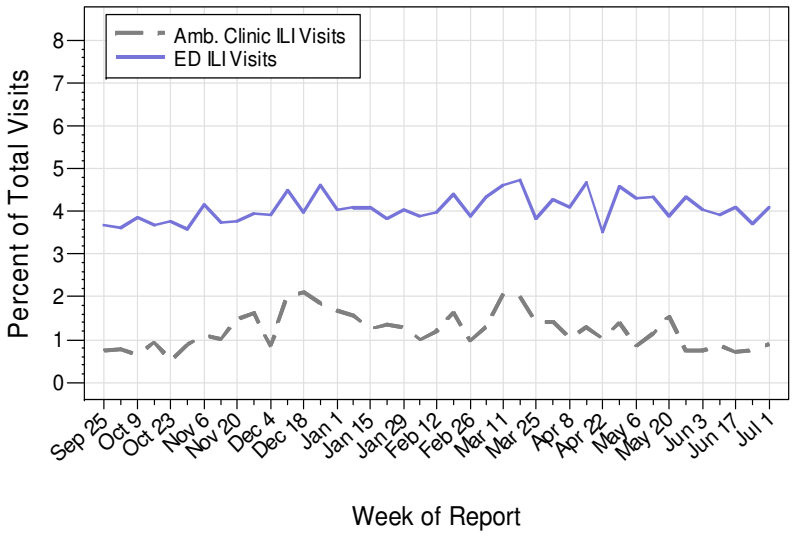
Much like PDPH's ED surveillance, de-identified data from several pediatric ambulatory clinics in our area are also received and analyzed in order for the detection of ILI. These data are categorized by reason of visit and measured temperature to determine the proportion of ILI (measured fever ≥ 100° F AND cough and/or sore throat [in the absence of a known cause other than influenza]) present at these facilities on a weekly basis. The figure (Figure 13) below depicts both surveillance systems, and plots the percentage of ILI by week of visit. Overall, very little significant ILI activity was detected throughout the season from either system. ED visits that were due to ILI never surpassed 5% of total visits, whereas they typically account for 10% of all visits during peak periods in previous seasons. Pediatric ambulatory clinic office visits due to ILI remained similarly flat, never quite surpassing 2.5% of all visits.

Respiratory Virus Surveillance

DDC conducts active, laboratory-based surveillance of circulating respiratory viruses to monitor for influenza and other viral respiratory illnesses in Philadelphia. Seven hospital laboratories participate in this surveillance system, providing aggregate weekly counts of influenza. Five of the laboratories also provide data on respiratory syncytial virus (RSV), parainfluenza, and adenovirus, while 2 hospitals submit data regarding rhinovirus detections. Test methods vary and may include rapid antigen tests, viral culture, and PCR.

The 2011-2012 respiratory virus season produced a typical RSV season, with a November onset and a peak in the early winter.

Figure 13. Philadelphia Emergency Department (ED) and Pediatric Ambulatory Clinic Surveillance for Influenza-like Illness through June 2012



Rhinoviruses spread throughout the year with only minor declines in activity during the winter (Figure 14). Influenza activity was very mild relative to previous seasons (data not shown). The onset also differed compared to previous seasons, as the small upswing in activity occurred later than normal (excluding the fall wave of H1N1 [Figure 15]).

Severe Morbidity Surveillance of Influenza

Since the influenza pandemic of 2009, DDC has conducted surveillance for severe morbidity of influenza, including hospitalization and admission to intensive care units. Reported severe morbidity for the 2011-12 season show that overall hospitalizations declined relative to the previous season (120 cases versus 622 cases) - further highlighting the mildness of the 2011-12 flu season. In addition, younger age groups comprised a larger proportion of severe influenza cases for 2011-12 season compared to the 2010-11 season (Figure 16).

Vaccine Recommendations

Seasonal Influenza Vaccine for 2011-2012

The routine seasonal influenza vaccine was distributed during the fall. Seasonal influenza vaccine (available as an injection of inactivated influenza virus or as a nasal spray of a live attenuated virus vaccine) remains the most important measure for preventing influenza and influenza-related complications – including death. For the 2011-2012 seasonal influenza vaccine, the vaccine strains were identical to those used in 2010-11 vaccine, and included a 2009 pandemic influenza A/H1N1 component. All people 6 months and older were recommended for vaccination, while traditional high-risk groups, including children aged 6-59 months, adults 50 years and older, immunocompromised or chronically ill individuals, pregnant women, and those living or working in close contact with high-risk person, were strongly encouraged to receive the vaccine. In Philadelphia, seasonal influenza vaccination was conducted by DDC in cooperation with Philadelphia Corporation for Aging, the Federally Qualified Health Centers, local nursing schools, and other volunteer providers – delivering nearly 12, 000 adult flu shots in a 3 month span.

Figure 14. Respiratory Agents by Week (Reports from 6 Hospital Laboratories): Philadelphia, 2011-2012 Season

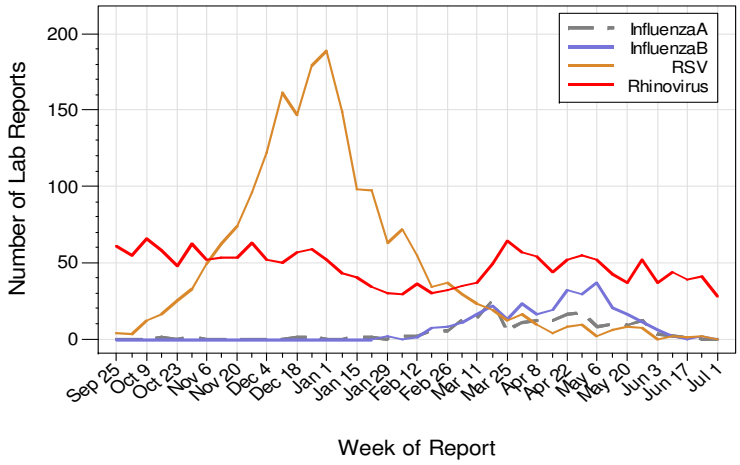


Figure 15. Laboratory Confirmed Influenza A Reports from Select Hospital Labs by Week of Report: Philadelphia, 2008/09 to 2011/12 Influenza Seasons

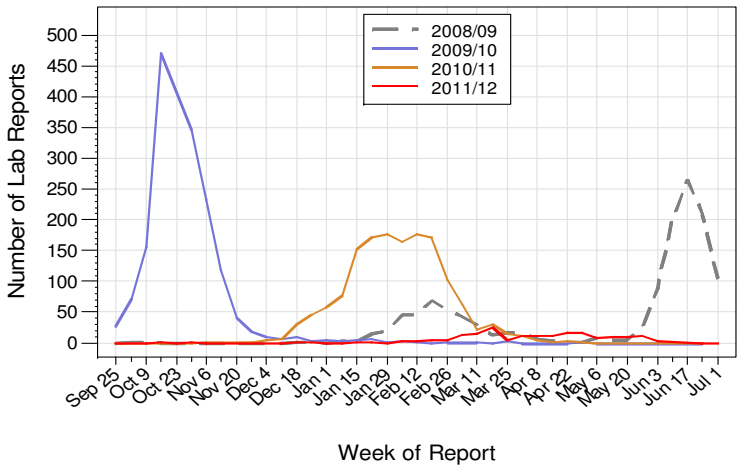
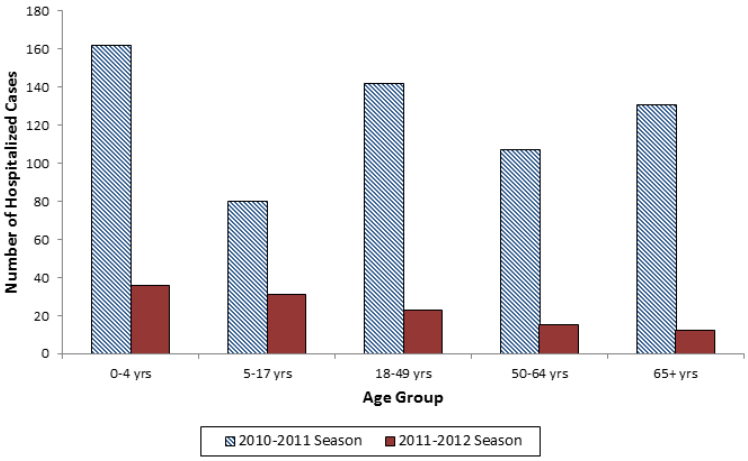


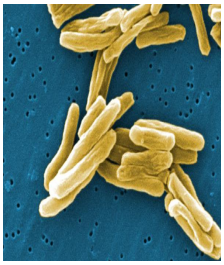
Figure 16. Philadelphia Hospitalized Influenza Cases by Age Group and



LEGIONELLOSIS *(Legionella pneumophila)*

In 2011, there were 64 confirmed cases of legionellosis in Philadelphia, compared with 32 cases in 2010. These cases appeared sporadically throughout the city, with no apparent pattern or identified clusters. 66% of cases were male (42/64). The mean age was 61, and cases ranged in age from 31 to 96 years of age. Two cases died. *L. pneumophila* was isolated from urine antigen testing in 95% (61/64) of cases and by positive culture in 5% (3/64) cases. Nearly 40% (25/64) of cases were smokers. Two-thirds (42/64) cases had some type of underlying condition, 3 cases were immunocompromised and 6 cases had diabetes mellitus.

TUBERCULOSIS *(Mycobacterium tuberculosis)*



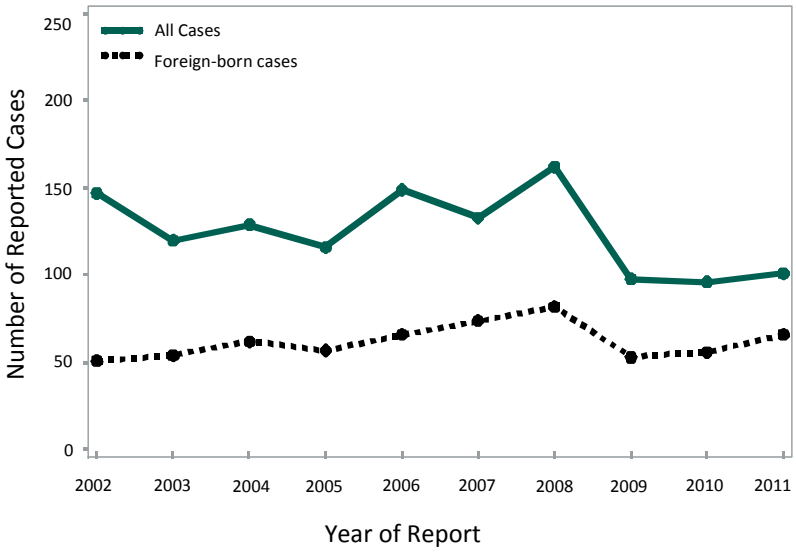
Over the last ten years, TB morbidity had fluctuated between approximately 120 and 160 cases annually before dramatically decreasing in 2009 to fewer than 100 cases. Philadelphia experienced a slight increase in 2011 with 101 new TB cases, up from 96 TB cases reported in 2010.

The overall TB case rate for 2011 in Philadelphia was approximately 6.5 cases per 100,000 population. This is above the Healthy People 2010 Objective of no more than 3.5 TB cases per 100,000 population.

Drug Resistant TB

TB cultures were available for (79/101) 78% of the TB cases reported during 2011. Of those, all but one had susceptibility testing performed. Twenty six percent (20/78) of all cases with susceptibility testing performed were resistant to at least one TB drug. Two cases were multi-drug resistant (MDR), which is defined as having a strain of TB resistant to both isoniazid and rifampin. In addition, 13% of cases were isoniazid mono-resistant, and 4% of cases were rifampin mono-resistant. The continuing prevalence of drug resistance represents a challenge in clinical case management of TB in Philadelphia, prompting new strategies for treatment regimens for both cases and their contacts.

Figure 17. Reported Cases of Tuberculosis by Nationality: Philadelphia, 2002 to 2011



Populations at High Risk for TB

TB cases among the foreign-born first exceeded 50% of the reported cases in 2007 and has remained so each year since, as indicated in Figure 17. The number of TB cases among the foreign-born increased slightly from 2010 accounted for over 65% (66/101) of cases in 2011.

The 66 foreign-born cases reported in 2011 originated from 25 different countries and all 6 World Health Organization (WHO) regions. Western Pacific region countries (which includes Cambodia, China, Lao PDR, the Philippines and Vietnam) accounted for over 40% (28/69) of the foreign-born TB cases, with China (10) and Vietnam (9) indicated most often as the country of origin.

Outreach and targeted testing programs in long term care facilities (LTC), correctional facilities, and throughout the homeless shelter network have led to early detection and prevention of TB cases in these populations. In 2011, 6 (5.9%) of the confirmed TB cases were homeless, 3 (3%) resided in LTC facilities at diagnosis, and 3 (3.0%) cases were identified in a correctional facility.

In 2011, 86% (87/101) of TB cases had a documented positive or negative HIV test result. Of these, 12 (14%) were positive.

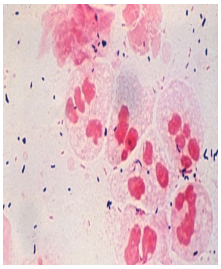
Table 7. Susceptibility Results for TB Isolates: Philadelphia, 2011

TB Isolates Tested for Drug Resistance: 2011		
	N=78	**90%**
Single Drug Resistance	**n=13**	
Steptomycin	5	
Isoniazid	5	
Rifampin	1	
Pyrazinamide	2	
Resistance to >1 drug	**n=7**	
MDR (INH + RIF)	2	
Isoniazid + Streptomycin	3	
Isoniazid, Streptomycin, Eth	1	
Isoniazid + Ethionamide	1	

Sexually Transmitted

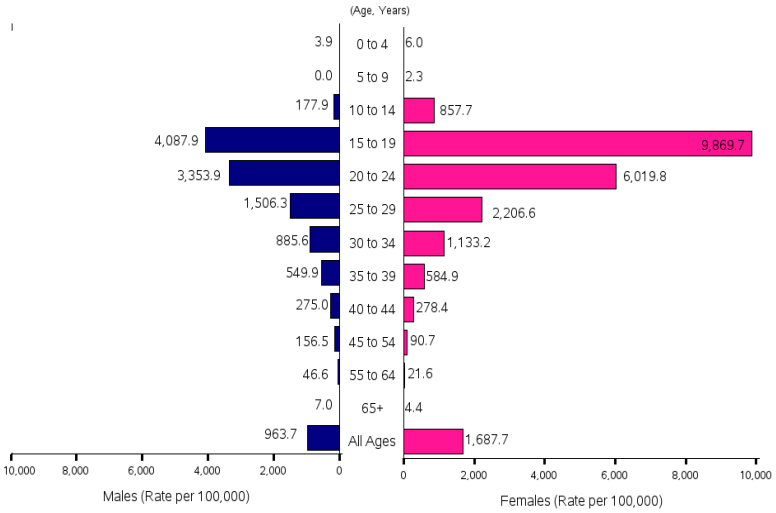
Diseases

Chlamydia (*Chlamydia trachomatis*)

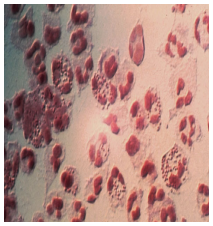


In 2011, there were 20,471 positive *Chlamydia trachomatis* results reported to PDPH, including 12,235 (60%) performed as part of the PDPH STD screening programs. Rates of reported chlamydial infection in 2011 continue to be much higher in women than in men and are highest in 15-19 year olds, as can be seen in Figure 18. Positive chlamydia results among males increased 3% between 2010 and 2011 (6,865 cases in 2011 compared to 6,673 cases in 2010). At the same time, chlamydial infection among women increased 7% (13,606 cases in 2011 compared to 12,755 cases in 2010).

Figure 18. Rates of Chlamydia per 100,000 Population by Age and Gender: Philadelphia, 2011

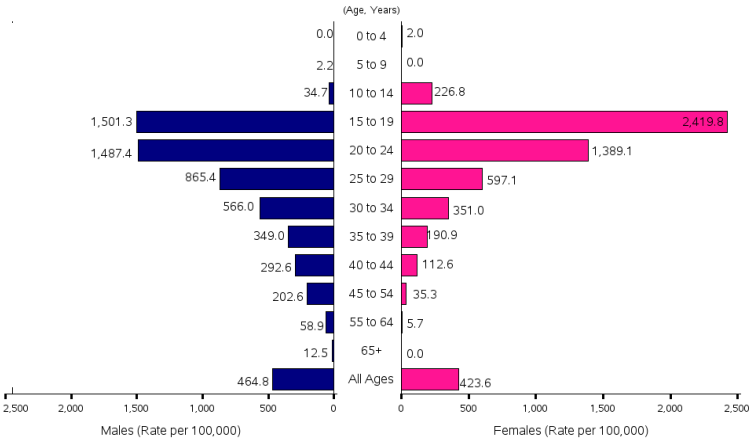


Gonorrhea (*Neisseria gonorrhoeae*)

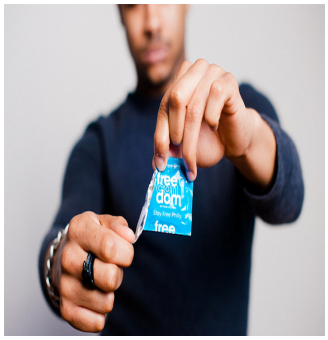


In 2011, 6,761 cases of gonorrhea were reported in Philadelphia, a 3% (+228 cases) increase from 2010. This increase is modest when compared to the 36% increase last year. No particular risk behaviors associated with the increase were identified. Every year, DDC submits approximately 300 *N. gonorrhoeae* isolates from male STD clinic attendees to the CDC Gonococcal Isolate Surveillance Project (GISP) for antibiotic susceptibility testing. Of the 288 isolates submitted in 2011, 22 (8%) were found to be ciprofloxacin resistant (MIC ≥1), a lower percentage than was reported for the nation as a whole in the most recent GISP report (16% in 2007). To date, gonococcal resistance to ceftriaxone has been documented and reported worldwide, although no resistant cases have been identified in the United States. However, recent evidence suggests that effective treatment of pharyngeal gonorrhea requires higher doses of ceftriaxone. Of the 288 isolates submitted, 1 (0.3%) was found to have an increased Minimum Inhibitory Concentration (MIC) to Ceftriaxone and 2 (0.7%) isolates had an increased MIC to Cefixime, but none were resistant to these antibiotics. In accordance with the most recent CDC Guidelines, treatment for uncomplicated urogenital, rectal, and pharyngeal GC is now dual therapy with 250 mg ceftriaxone IM plus either 1 gram azithromycin orally as a single dose or doxycycline 100 mg orally twice daily for 7 days.

Figure 19. Rates of Gonorrhea per 100,000 Population by Age and Gender, Philadelphia, 2011



Chlamydia and Gonorrhea Screening in Philadelphia High Schools

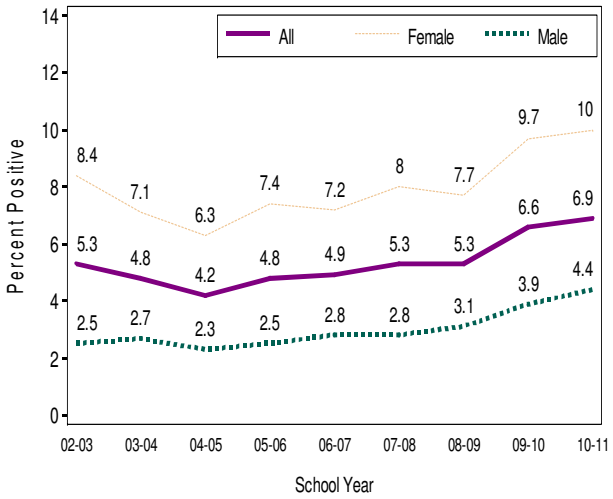


Since January 2003, PDPH and the Philadelphia School District have collaborated to offer voluntary chlamydia and gonorrhea screening in all public high schools. After screening for 10 consecutive school years, 150,473 screening tests have been completed on 103,625 students, resulting in 8,087 positive tests for either or both of these diseases. Treatment has been confirmed for approximately 7,889 (98%) of the students with positive results. Additional school screening is offered at select charter schools and within the existing Health Resource Centers in certain public high schools. During the 2011-2012 school year, the three programs – public school screening, charter school screening, and HRC testing – identified 602 students infected with chlamydia, gonorrhea, or both, and to date 585 (97%) students have documented treatment for these infections.

Public High School Screening Program

During the 2011-2012 school year, 377 (10%) of the 3,757 females and 212 (5%) of the 4,762 males screened were positive for chlamydia only, gonorrhea only, or both infections (Figure 20). At the time of this report, of the male and female high school students who tested positive, 277 (47%) were rescreened 3-4 months after their infection, and 41 (15%) were again positive.

Figure 20. Percent of Philadelphia Public High School Students Testing Positive for CT and/or GC by Gender and School Year



Syphilis (*Treponema pallidum*)

P & S Syphilis Surveillance in Philadelphia

In Philadelphia, infectious syphilis rates in 2011 decreased for the first time since 2004. In 2011, 207 cases of primary and secondary (P&S) syphilis were reported to PDPH, a 13% (-31 cases) decrease from 2010. Sixty-eight percent of P&S syphilis cases occurred in individuals identifying as Black. As it has been since 2000, in 2010 P&S syphilis was disproportionately found among males (89%, Figure 21). Of the 185 P&S cases among males in 2011, most (140, 76%) were men who reported having sex with men (MSM). Among the 140 MSM with P&S syphilis, 122 disclosed their HIV status – 70 (57%) were HIV positive. Cases among females remained similar in 2011 (N=22) compared to 2010 (N=26); 19 of these cases were reported in females of childbearing age (15-40 years).

Early Latent Syphilis Surveillance in Philadelphia

There were 242 cases of early latent syphilis reported in 2011, a 9% increase from 2010. Most early latent cases were male (89%, Figure 22).

Congenital Syphilis

Subsequent to changes in the case definition of congenital syphilis in 1990 and a peak of 301 cases in 1991, the number of reports of congenital syphilis has greatly decreased (Figure 23). However, between 2007 and 2011, PDPH received 25 case reports (9 in 2007, 7 in 2008, 4 in 2010, 4 in 2011) meeting the surveillance case definition for congenital syphilis. In the first 6 months of 2012, 1 case report meeting the surveillance case definition for congenital syphilis has been received.

Adequate prenatal care, which includes routine screening and treatment of syphilis, clearly plays a major role in preventing congenital syphilis. PDPH currently recommends that all pregnant women without a history of adequate prenatal care who present to an ED should be tested for syphilis.

Figure 21. Rates of Primary and Secondary Syphilis per 100,000 Population by Age and Gender: Philadelphia, 2011

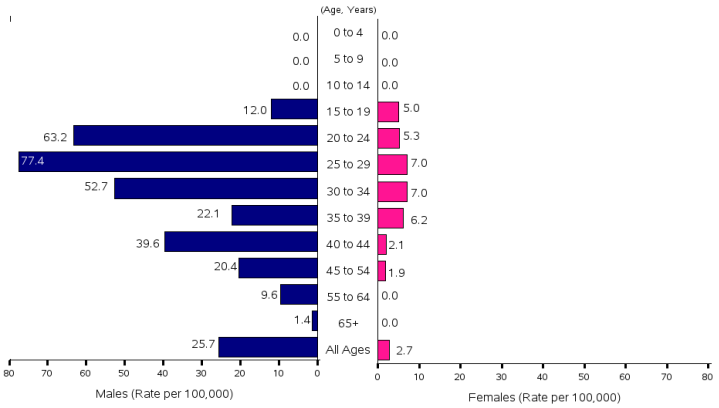


Figure 22. Rates of Early Latent Syphilis per 100,000 Population by Age and Gender: Philadelphia, 2011

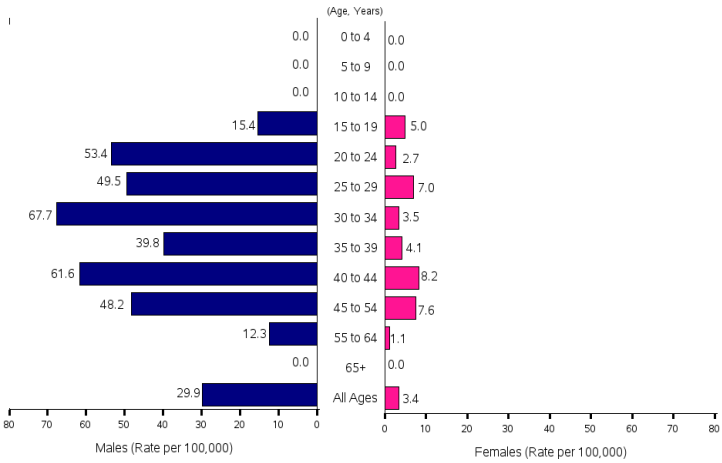
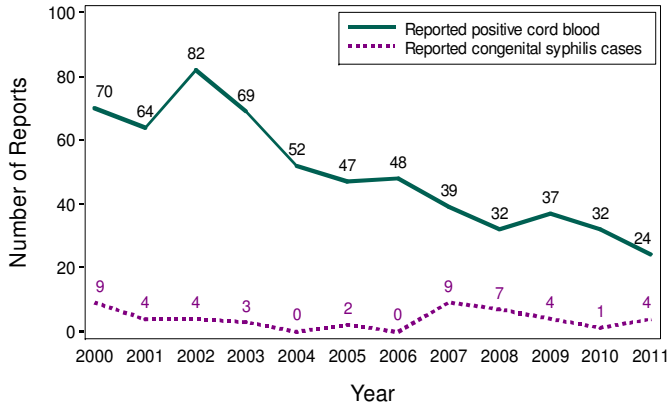
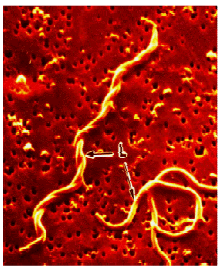


Figure 23. Reported Cases of Congenital Syphilis and Positive Cord Blood Tests: Philadelphia, 2001 to 2011



Vector-borne *Diseases*

Lyme Disease *(Borrelia burgdorferi)*

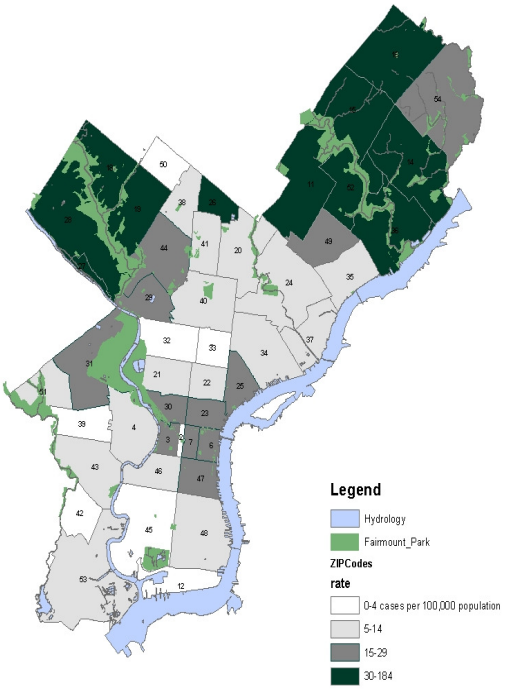


CHANGE IN CDC CASE DEFINITION:

In 2008, CDC adopted a new case definition. A case of erythema migrans (EM) with either laboratory evidence of infection (Lyme IgG immunoblot or *B. burgdorferi* culture) or known exposure is considered a confirmed case. While Lyme IgM immunoblot results are not reliable to determine late-stage Lyme disease, individuals with a late-stage clinical manifestation and Lyme IgG immunoblot may also be classified as confirmed cases. Probable cases are determined by laboratory criteria and physician diagnosis. A case is deemed suspect when laboratory evidence of infection exists without clinical information.

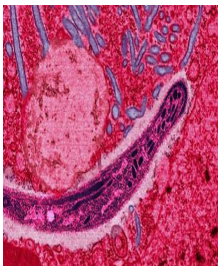
In 2011, clinical laboratories reported positive Lyme disease serologic tests on 1,045 unique individuals. Upon investigation 301 reports fit the CDC case definition, 131 (44%) were confirmed cases, 34 (11%) were probable cases, and 136 (45%) were suspect cases. Lyme Disease cases occurred among residents of all ages with the median age being 35 years (range: 2—88 years). A higher proportion of cases were male than female (61% vs. 39%). Among the 131 confirmed cases, 84 (64%) had erythema migrans. The other 47 (36%) confirmed cases had IgG positive Immunoblot results and a late manifestation of Lyme disease: arthritis (40, 85%), Bell's palsy (2, 4%), radiculoneuropathy (1, 2%), 2° or 3° antrioventricular blocks (1, 2%), or ≥2 of the previously mentioned complications (3, 6%).

Figure 24. Rates of Lyme Disease by ZIP code: Philadelphia, 2011



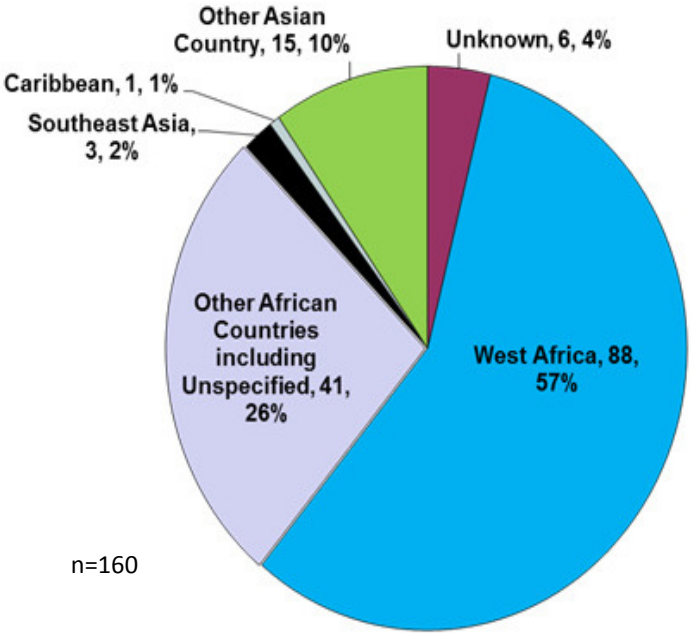
The number of Lyme Disease cases reported in 2011 was consistent with the median annual case count in Philadelphia from 2008 through 2010 (287, [range: 238—363]). Similar to national trends, the greatest number of Lyme Disease cases in 2011 were received during June and July, which coincides with increased outdoor activity and potential exposure to *B. burgdorferi*-infected tick nymphs. The highest Lyme Disease incidence occurred in the northeast and northwest areas of the city that border two of the city's major parks, Wissahickon River Valley and Pennypack (Figure 24).

MALARIA (*Plasmodia* SPP.)

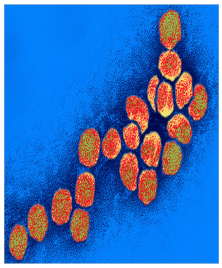


In 2011, 19 confirmed cases of malaria were reported to PDPH. Over one-half (11, 56%) of the malaria cases were male. The median age was 27 years (range: 13 months—66 years). Among the 13 (68%) cases with species identification performed, the most common parasite was *Plasmodium falciparum* (10), followed by *P. vivax* (2) and *P. malariae* (1). Prior to the onset of symptoms, all 19 confirmed cases reported travel to or recent arrival in the United States from malaria-endemic countries and only 5 (26%) reported receipt of malaria chemoprophylaxis prior to travel. Consistent with trends from the previous decade (Figure 25), nearly one-half of the malaria cases (47%) from 2011 likely acquired infection in West African countries.

Figure 25. Countries Traveled by Malaria Cases: Philadelphia, 2001-2011



WEST NILE VIRUS



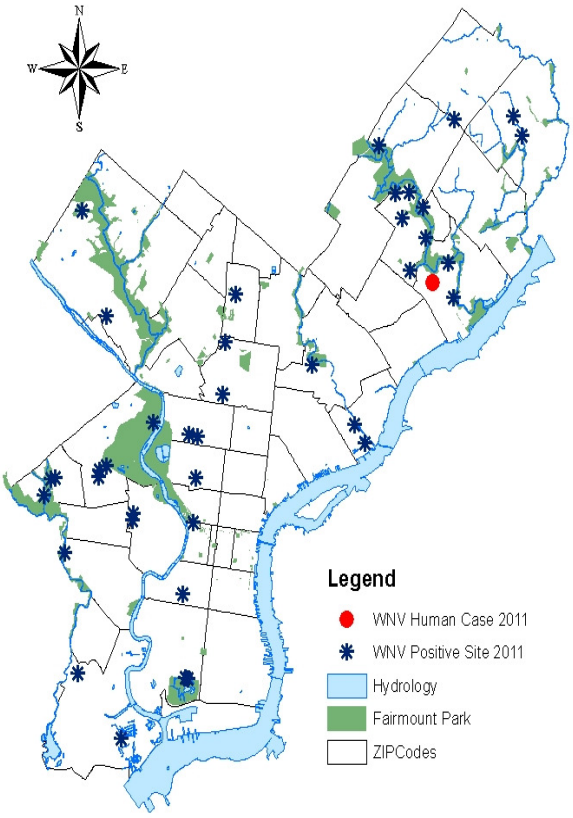
WNV prevention necessitates a close partnership between DDC and the PDPH Environmental Health Services (EHS) Vector Control Program. EHS performs surveillance for WNV in mosquitoes, as well as targeted treatment of mosquito pools, which is the primary means of reducing WNV transmission. From April through October 2011, the EHS program performed 105 larval control events and treated 38,809 catch basins (storm-water sewers) with larvicide in order to kill mosquito larvae. EHS also conducted 27 adult-focused treatments including barrier treatments for control and ultra low volume spray events. During the 2011 season, 51 sampled mosquito pools in locations throughout the city tested positive for WNV. Although the presence of WNV positive mosquito pools indicated that the virus was still circulating within Philadelphia, the WNV mosquito positivity rate was in 2011 (5%) was much lower than the rate documented in 2010 (24%), which was the highest on record and a peak year for human cases.

The current case definition for WNV infection includes both neuroinvasive (encephalitis, meningitis, and acute flaccid paralysis) and non-neuroinvasive (WNV fever) disease. In 2011, 486 neuroinvasive and 226 non-neuroinvasive cases were reported nationally, of which 43 infections resulted in death. Over one-fifth (132, 22%) of the WNV cases from 2011 occurred among residents of California, while only 6 cases were Pennsylvania residents.

During the 2011 season, only 1 confirmed WNV case occurred in Philadelphia. This individual, a healthy, 56-year old male from the city's Holmesburg section developed WNV meningitis in late August, was hospitalized, and recovered fully. Prior to his illness, he reported outdoor exposures at his place of employment and while visiting Burlington County, New Jersey.

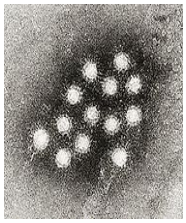
DDC and EHS collaborate when WNV infection is identified in humans. EHS surveys the residential area where the case lives, set mosquito traps, test mosquitos for WNV, and apply insecticide. Figure 26 shows the sites where WNV-positive mosquitos pools were located as well as WNV human cases.

Figure 26. West Nile Virus (WNV)— WNV Positive Mosquito Sampling Sites: Philadelphia, 2011



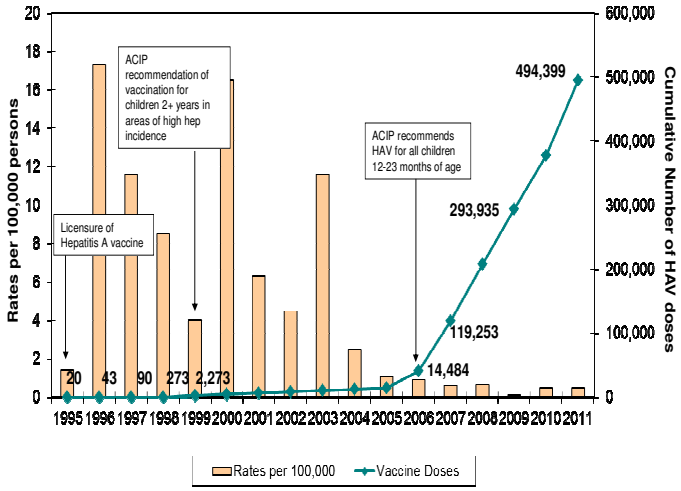
Viral Hepatitis *Infections*

Hepatitis A

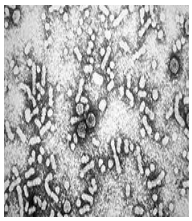


Hepatitis A rates in Philadelphia have been decreasing dramatically since 2003 (Figure 27). The hepatitis A vaccine has been part of the childhood immunization schedule since 2005. In 2011, DDC investigated 124 reports of suspect hepatitis A infections, or positive IgM hepatitis A virus tests. Of these, 8 were found to be confirmed acute hepatitis A cases. The median age was 36 years (range: 24-65 years). Reported symptoms were consistent with hepatitis A infections (e.g. jaundice, nausea, fatigue and abdominal pain) and 6 of the cases liver enzymes were known to be elevated. Five cases were hospitalized and there were no fatalities. Five of the 8 (63%) cases reported foreign travel within their incubation period -- 2 cases reported travel to Africa, 2 cases traveled to India, and 1 case to Ecuador. No other common hepatitis A risk factors such as consumption of raw shellfish or recent needle exposure were reported.

Figure 27. Rates of Hepatitis A: Philadelphia, 1995-2011



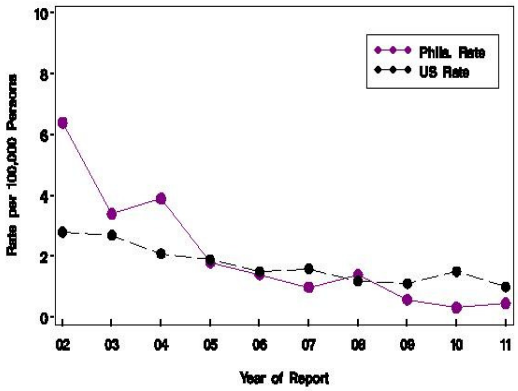
Acute and Chronic Hepatitis B



Acute Hepatitis B

In 2011, there were 7 confirmed case reports of acute hepatitis B virus infection in Philadelphia. This represents a dramatic decrease over the past decade (Figure 28) from a peak of 134 cases reported in 2000. The median age of acute HBV cases was 41 years (range: 29-62 years). Four cases (57%) were male. Six individuals had evidence of jaundice and 5 had documented elevated liver enzymes. Five out of the 7 individuals (71%) were known to be hospitalized. One case reported a history of injection drug use; no other risk factors were noted among cases and none of the individuals were known to be vaccinated.

Figure 28. Rates of Acute Hepatitis B: Philadelphia and US, 2002 to 2011



Chronic Hepatitis B

The main priority for surveillance of chronic hepatitis B infections is to identify women of childbearing age with potential for perinatal transmission of the virus. Further expansion of outreach and education regarding HBV transmission, and testing and vaccination of contacts at risk are targets for the coming years.

During 2011, PDPH received 1,209 reports of potential chronic hepatitis B infections, of which 728 were newly reported cases and 481 were newly confirmed chronic hepatitis B infections. Of the newly reported probable chronic case reports with age or sex information, 396/719 (55%) were males and the median age was 41 years (range: 16 years – 86 years). Of the newly reported confirmed chronic case reports with age or sex information, 227/479 (47%) were males and the median age was 42 years (range: 3 years - 96 years).

Perinatal Hepatitis B

In 2010, the most recent year with follow-up completed, 165 live infants were born to women with chronic HBV who reside in Philadelphia, 161 of which were managed by the program. This total is 7%(n=12) lower compared to 173 managed live-births in 2009 reports (Table 8). One infant was born prematurely and died from unrelated causes at age 1, though received HBIG and the birth dose of vaccine within 24 hours of birth. In 2010, 43% (n=65) of these pregnant women with chronic HBV were of Asian descent. 99% (n=159) of infants received the birth dose of HBV vaccine and 99% (n=159) of infants received the HBIG within 1 calendar day of birth. 128 (80%) of the infants were known to receive HBIG and 3 doses of vaccine by 8 months of age and 140 (87%) received all immunoprophylaxis (HBIG and 3 vaccine doses) by 1 year of age. Complete serological testing was not possible for 1 infant whose family refused serology, while 3 infants transferred out of jurisdiction unassigned, 3 infants were not located, and 20 infants moved out of the United States. Of the 135 infants with serological results, 131 (97%) infants were found to be immune, 1 was still susceptible, and 3 were HBsAg positive (despite receiving timely birth doses of HBIG and vaccine). During home visits, 130 household contacts of HBsAg+ mothers were identified, educated, and offered free serological testing. Of the 86 contacts tested, 7 (8%) were positive for HBV infection, 70 (81%) were immune, and 8 (9%) were susceptible. Two of the 8 susceptible household contacts were vaccinated by DDC staff.

Table 8. Comparison of Perinatal Hepatitis B, Philadelphia 2005-2010

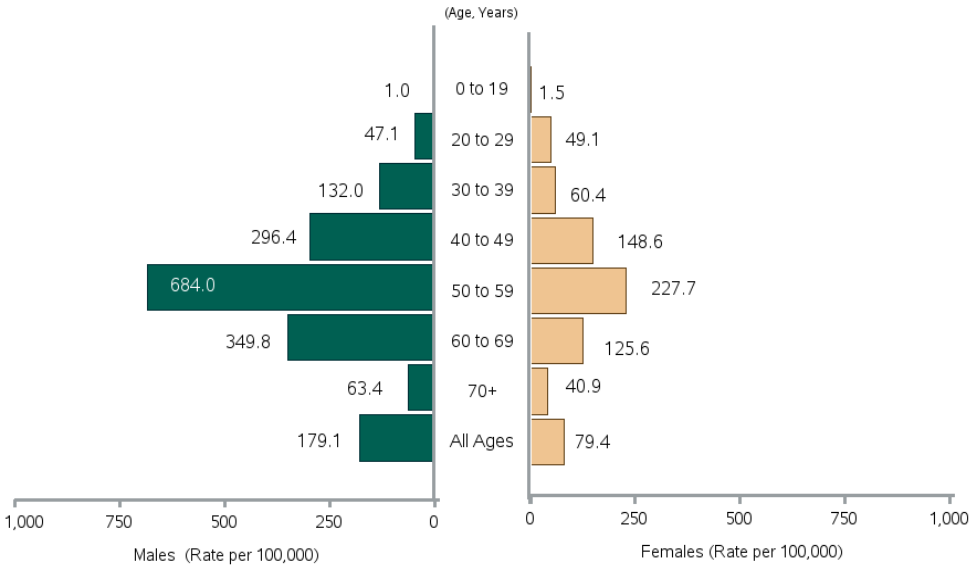
	2005	2006	2007	2008	2009	2010
Total Mother-Child Pairs Followed	138	119	110	162	173	161
Total Children Receiving HBIG within One Calendar Day of Birth	138 (100%)	118 (99%)	110 (100%)	162 (100%)	168 (97%)	159 (99%)
Total Children Receiving Birth HBV within One Calendar Day of Birth	138 (100%)	119 (100%)	110 (100%)	162 (100%)	171 (99%)	161 (100%)
Total Children Receiving 3 HBV Vaccines in 1 Year	138 (100%)	115 (97%)	109 (99%)	153 (94%)	156 (90%)	140 (87%)
Children HBV+ at Screening	1 (1%)	2 (2%)	1 (1%)	0	0	3 (2%)
Household Contacts Identified and Educated	188	197	187	167	182	130
Household Contacts Tested	153	151	144	117	115	86
Household Contacts Susceptible	21	16	15	17	6	8
Susceptible Household Contacts Vaccinated	17	11	9	9	4	2

Complete 2011 PHBPP results will not be available until 2013. The PHBPP identified 149 pregnant women with chronic HBV in the 2011 report year, and learned of 133 infants born to mothers with chronic HBV infections in 2011. Four mother-child pairs transferred out of the program and 1 infant died, leaving 128 infant cases in follow-up. As of September 2011, 85 received a birth-dose of HBV vaccine and HBIG. Data collection, follow-up, and serologic testing will continue as the year progresses.

Hepatitis C

In 2011, DDC added 4,664 reports to the HCV registry, which is 13% lower than in 2010. There were no acute HCV infections reported during 2011. Of those individuals with test results reported in 2011, 1,929 (41%) met the case definition for a confirmed case, 49 (1%) were considered probable (positive antibody test and elevated liver enzymes, but lacking additional confirmatory testing), and 2,686 (58%) had only HCV antibody tests. Of the confirmed reports with information on sex, 1,271 (67%) were male. Of the confirmed reports with age, median age was 53 years (range: 2.4 months - 93 years).

Figure 29. Rates of Newly Confirmed Hepatitis C Virus, Past or Present Infection per 100,000 Population by Age and Gender: Philadelphia, 2011



The highest burden of coinfection among the 40,246 individuals reported with Hepatitis C in 2000-2010 is coinfection with HIV (Table 9). For the 7,704 individuals with Hepatitis B reported in this period, the most common coinfections are with Hepatitis C, followed closely by HIV.

Table 9. Coinfections among Individuals with Hepatitis C or Hepatitis B, 2000-2010

Individuals with:	HCV Coinfections		HBV Coinfections	
	N	%	N	%
Hepatitis B	697	1.7	----	---
Hepatitis C	-----	----	697	9.0
Syphilis	405	1.0	120	1.6
Gonorrhea	1,048	2.6	268	3.5
Chlamydia	1,260	3.13	376	4.9
HIV	3,146	7.8	650	8.4

Other Reportable

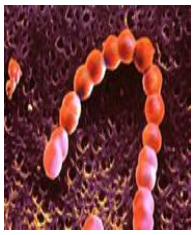
Diseases and Conditions

HIV/AIDS

Currently around one million individuals are thought to be living with HIV or AIDS in the US. More in depth analysis of HIV and AIDS surveillance in Philadelphia can be found at:

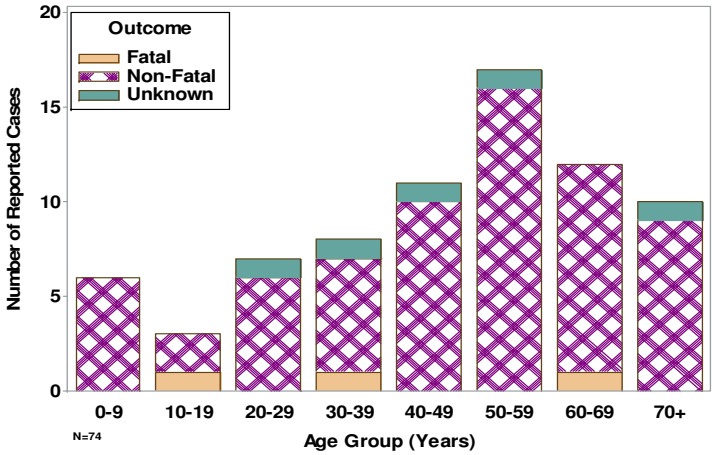
http://www.phila.gov/health/pdfs/HIVAIDS_Report.pdf

Invasive Group A *Streptococcus* (GAS)



In 2011, there were 73 confirmed cases of invasive GAS in Philadelphia, compared with 64 cases in 2010. GAS was isolated from blood in 93% of cases. Cases were almost equally distributed between males (36/73) and females (37/73). Cases ranged from 9 weeks to 97 years of age. The median age at time of infection was 51 (range: 9 weeks – 97 years). Three cases were fatal.

Figure 30. Invasive Group A Streptococcus by Age Group and Outcome: Philadelphia, 2011



Office of Program Collaboration and Service Integration (PCSI)

The Office of Program Collaboration and Service Integration (PCSI) at PDPH serves to foster collaboration across public health programs, primarily HIV/AIDS, viral hepatitis, STD, and Tuberculosis programs, and to promote the provision of integrated services to clients for maximum public health benefit. PDPH is one of six PCSI demonstration projects funded through CDC.

The Office of PCSI regularly assesses program and service needs, and addresses those needs through collaborative projects. The Office of PCSI uses public health data to identify priority areas, venues, and populations that could benefit from improved service integration, and plans and implements effective integrated interventions.

Program assessment and project prioritization is achieved through: regular PDPH PCSI Workgroup meetings; ongoing assessments with participating programs; development of and adherence to a local PCSI Plan; and regular matching of data across programs to inform and improve program planning. The PDPH PCSI Workgroup was established in May 2008, and has met regularly since then.

The PDPH PCSI Workgroup is comprised of key staff from PDPH programs, including the AIDS Activities Coordinating Office (AACO), the STD Control Program, the Viral Hepatitis Prevention Program, the Tuberculosis Control Program, the Epidemiology Unit, the Acute Communicable Disease (ACD) Program, the Immunization Program, the Bioterrorism & Public Health Preparedness Program, and the Office of Addiction Services.

The Office of PCSI's matching of data across programs has provided insight on disease co-occurrence, disease coinfection, and overlapping risk factors across PCSI disease areas. Table 9 serves as an example of the types of data produced and used by the Office of PCSI for integrated program planning.

Bioterrorism & Public Health Preparedness

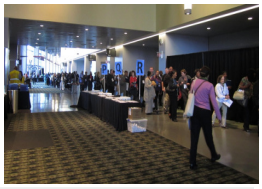
(BT-PHP) Activities: Highlights of 2011

New Preparedness Guidance from CDC

In March of 2011, the Centers for Disease Control and Prevention (CDC) issued a set of public health preparedness capabilities for state and local health departments to focus preparedness activities in meeting the National Preparedness Goal. DDC's BT-PHP has directed several planning and training activities in addressing these capabilities including Community Preparedness, Volunteer Management, Responder Safety and Health, and Medical Countermeasure Dispensing.

Mass Prophylaxis Accomplishments

Mega-Point of Dispensing (POD)



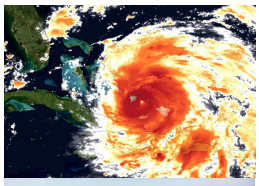
The public mass medication model was expanded to triple throughput by utilizing an expanded venue and a conservative staffing model. This Mega-POD model was tested at the Lincoln Financial Field and has become an integral part of DDC's emergency medication plan.

First Responder and Essential Personnel Medical Countermeasure Dispensing Plan

The prioritization of H1N1 influenza vaccine in 2009 advised DDC to improve its First Responder and Essential Personnel Medical Countermeasure Dispensing Plan. This plan targets Philadelphia health and public safety responders and their family members as first tier prophylaxis recipients. This model was tested in the fall by offering free seasonal influenza vaccine to Philadelphia Police Department and Fire Department personnel and family members ages 9 and older. DDC utilized nurses from its Medical Reserve Corps (MRC) to administer approximately 1,400 vaccinations in 5.5 hours with no adverse events.

Real Event Responses

Hurricane Irene



Philadelphia agencies activated several response plans to manage the impact of Hurricane Irene in August 2011. Irene was downgraded to a Tropical Storm as it passed over the Delaware Valley, however 5-7 inches of rain fell in 20 hours, further soaking a very wet Mid-Atlantic region. DDC supported the medical management of people who presented at three Red Cross Shelters activated by the Philadelphia Office of Emergency Management. DDC deployed MRC nurses who provided on site blood glucose and blood pressure management, as well as evaluation for acute health related complaints.

Photokeratitis

Epidemiological Investigation and Responder Safety and Health are capabilities that were exercised through a real event where approximately 300 people suffered acute eye irritation shortly after attending a cheerleading competition at a school gymnasium in Philadelphia. Following initial inspection of the school by the Philadelphia Fire Department's HazMat Unit, DDC led the investigation to determine the cause from a metal halide bulb with a damaged outer casing that emitted ultraviolet radiation causing photokeratitis of event attendees. Quantifying the symptoms and possible exposures was streamlined by the use of a web-based survey tool.

Notifiable Disease Case Report
(Confidential)

Philadelphia Department of Public Health
Division of Disease Control
Communicable Disease Control Program
500 S. Broad Street, Philadelphia, PA. 19146

Identification of Patient

Report Date *(Mo., Day, Yr.)*

Name *(Last, First, M.I.)*

Parent or caretaker (if applicable)

Address *(Number, Street, Apt #, City, Zip Code)*

Philadelphia

Telephone (H) (W) (C)

DOB *(Mo., Day, Yr.)*

Age

Sex ☐ M ☐ F

Occupation

Name of Employer or School

Address *(Number, Street, City, Zip Code)*

Medical Information

Disease or Condition

Date of Onset *(Mo., Day, Yr.)*
(If animal bite ,Date it Occurred)

Diagnosis (check one) ☐ Clinical ☐ Lab confirmed

Fatal (check one) ☐ Yes ☐ No

Chief Symptoms / Complaints

Suspected source of Infection (if known)

If Case Hospitalized *(Name of Hospital)*

Admission Date

Discharge Date

Laboratory Information If Pertinent *(Attach Copies If Applicable)*

Name of Tests Done	Site/Source	Results	Dates Done

Animal Exposures

Parts of Body Bitten

Type of Animal

Breed of Animal

Current Location Of Animal *(Indicate if available for testing)*

Name of Owner

Address of Owner *(Number, Street, Apt #, City, Zip Code)*

Reporter Information

Name of Person Reporting Case

Reporter ☐ ICP ☐ ED ☐ Other_____

Phone

Reporting Institution

Address (Number, Street, City, Zip Code)

DO NOT WRITE IN AREA BELOW - FOR DEPARTMENT USE

Name *(Person Receiving Report)*

Method of reporting ☐ Phone ☐ Fax ☐ Mail ☐ Active Surveillance ☐ Other_____

Any unusual illness, disease clusters or possible outbreaks should be reported *immediately* by telephone.
Please fax all completed reports to 215-545-8362, or call 215-685-6748 to report case by phone.

PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH
DIVISION OF DISEASE CONTROL (DDC)

Report: 215-685-6748 **Fax: 215-238-6947**

For after hours immediate reporting & consultation: 215-686-4514 – ask for Division of Disease Control on-call staff

REPORTABLE DISEASES AND CONDITIONS

Acquired Immune Deficiency Syndrome (AIDS/HIV) ‡
Amebiasis
Animal bites (wild/stray/domestic)
Anthrax *
Botulism *
Brucellosis *
Campylobacteriosis
Chlamydia trachomatis including lymphogranuloma venereum (LGV)
Chancroid
Cholera *
Creutzfeldt-Jakob disease
Cryptosporidiosis
Cyclosporiasis
Diphtheria *
Ehrlichiosis
Encephalitis including all arboviruses *
Escherichia coli O157:H7 *
Food poisoning *
Giardiasis
Gonococcal infections
Guillain-Barré syndrome
Haemophilus influenzae, invasive disease *
Hantavirus Pulmonary Syndrome *
Hepatitis A
Hepatitis B
Hepatitis C
Hepatitis, other viral
Histoplasmosis
Influenza – pediatric mortality and institutional outbreaks
Lead poisoning
Legionnaires' disease *
Leprosy (Hansen's disease)
Leptospirosis (Weil's disease)
Listeriosis *
Lyme disease
Malaria
Measles (rubeola) *
Meningitis - all types
Meningococcal infections *
Mumps
Pelvic inflammatory disease
Pertussis (whooping cough)
Plague *
Poliomyelitis *
Psittacosis (ornithosis)
Rabies *
Rickettsial diseases
Rubella (German Measles) & Congenital Rubella *
Severe Acute Respiratory Syndrome (SARS) *
Salmonellosis
Shigellosis
Smallpox *
Staphylococcus aureus, vancomycin insensitive
Streptococcal disease, invasive group A
Streptococcus pneumoniae, invasive disease
Syphilis
Tetanus
Toxic Shock Syndrome
Trichinosis
Tuberculosis §
Tularemia *
Typhoid (*Salmonella typhi* and *paratyphi*) *
West Nile Virus *
Varicella, including zoster
Yellow Fever and other viral hemorrhagic fevers *

* Report suspected and confirmed cases within 24 hours
All other cases should be reported within 5 days
‡Report to AIDS Activities Coordinating Office at 215-685-4781
§Report to TB Control Program at 215-685-6744 or -6873
All unusual disease clusters, disease outbreaks, and unusual disease occurrences should be reported immediately

To Report a Case Call, Fax or Submit through NEDSS the Following Information to DDC:
Condition | Patient Name, Age/DOB, Sex, Address & Phone | Clinician Name, Address & Phone

Appendix C: Communicable Disease Reports *Philadelphia by Year—2001-2011*

COMMUNICABLE DISEASE	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
ACQUIRED IMMUNODEFICIENCY SYNDROME	914	848	760	508	699	690	504	216	173	176
AMEBIASIS	20	18	9	6	4	19	14	14	4	9
ANIMAL BITES/EXPOSURES	1,922	1,612	1,353	1,418	1,457	1,499	1,614	1,578	1,624	1,311
ANTHRAX	0	0	0	0	0	0	0	0	0	0
BABESIOSIS	0	1	0	0	0	1	0	0	0	1
BOTULISM	3	3	0	1	1	1	1	0	1	2
BRUCELLOSIS	1	0	0	0	0	1	0	0	0	0
CAMPYLOBACTERIOSIS	97	114	96	74	73	80	118	124	121	141
CHLAMYDIA TRACHOMATIS	15,234	17,747	16,723	15,577	17,199	17,029	17,012	18,104	19,428	20,471
CHOLERA	0	0	0	0	0	0	0	1	0	0
CRYPTOSPORIASIS	15	19	19	27	29	94	23	38	17	14
CYCLOSPORIASIS	0	2	0	3	0	2	1	3	0	0
DENGUE FEVER	0	0	0	0	1	8	1	0	3	1
DIPHTHERIA	0	0	0	0	0	0	0	0	0	0
ESCHERICHIA COLI, shiga-toxin producing (STEC)	17	14	11	7	19	4	8	10	14	9
GIARDIASIS	135	113	104	93	81	65	99	106	122	43
GONORRHEA	7,277	5,731	5,206	5,053	5,218	5,246	4.950	4,823	6,533	6,761
GUILLIAN-BARRE SYNDROME	2	0	0	1	2	1	3	1	0	0
HAEMOPHILUS INFLUENZA [type b]	8 [1]	14 [1]	9 [0]	14 [0]	16 [0]	19 [2]	11 [1]	30 [7]	28 [1]	22 [2]
HEPATITIS A	70	179	39	17	14	9	10	2	13	8
HEPATITIS B, ACUTE	97	51	60	27	21	15	21	9	5	7
HEPATITIS C, ACUTE (Non-A, Non-B until 1998)	4	3	0	2	1	0	0	0	1	0
HISTOPLASMOSIS	2	2	2	0	1	2	0	1	2	0
HUMAN IMMUNODEFICIENCY VIRUS	NR	NR	NR	NR	703	1,384	1,174	911	679	712
LEGIONELLOSIS	10	23	31	19	21	24	26	60	33	64
LEPTOSPIROSIS	1	0	0	0	0	0	0	0	1	0
LISTERIOSIS	19	11	11	2	7	8	5	5	8	2
LYME DISEASE	179	164	182	172	139	172	281	363	238	301
MALARIA	16	19	13	14	15	7	19	16	22	19
MEASLES	0	0	0	0	0	0	0	1	0	2
MENINGITIS, ASEPTIC	112	120	87	95	66	86	79	68	84	104
MENINGITIS, BACTERIAL	21	7*	4*	4*	1*	4*	4*	6*	12*	12*
MENINGOCOCCAL INFECTIONS	15	15	14	8	2	9	5	12	5	4
MUMPS	1	2	1	2	2	1	0	0	54	21
PERTUSSIS	31	98	109	75	50	39	54	65	74	49
PLAGUE	0	0	0	0	0	0	0	0	0	0
POLIOMYELITIS	0	0	0	0	0	0	0	0	0	0
RABIES (Human)	0	0	0	0	0	0	0	0	0	0
RICKETTSIAL DISEASES, including RMSF	4	0	7	3	8	2	5	0	9	4
RUBELLA, including congenital rubella syndrome	0	0	0	0	0	0	0	0	0	0
SALMONELLOSIS, excluding typhoid	324	316	261	305	293	404	420	396	395	301
SHIGELLOSIS	191	696	31	31	14	138	206	1,051	141	41
STREP PNEUMONIAE, INVASIVE	NR	101	94	151	139	162	165	199	154	157
STREPTOCOCCUS, INVASIVE Gp. A [TSS]	16 [1]	43 [3]	24 [3]	27 [0]	37 [0]	34 [0]	75 [0]	49 [1]	66 [0]	73 [0]
SYPHILIS– PRIMARY & SECONDARY	71	98	72	86	125	136	150	218	238	207
SYPHILIS– CONGENITAL	4	3	0	2	0	9	7	4	1	4
SYPHILIS– TOTAL	589	587	470	417	540	500	526	704	667	698
TETANUS	0	0	0	0	0	0	0	0	0	0
TOXIC SHOCK SYNDROME, staphylococcal	1	0	0	0	0	0	0	0	0	0
TUBERCULOSIS	147	120	129	116	149	133	162	98	96	101
TULAREMIA	0	0	0	0	0	0	0	0	0	0
TYPHOID FEVER	1	1	2	1	4	0	6	2	2	3
VARICELLA	N/A**	N/A**	N/A**	614	787	735	349	326	261	262
WEST NILE VIRUS	6	24	1	0	1	0	8	0	13	1
YELLOW FEVER	0	0	0	0	0	0	0	0	0	0

NR= Not Reportable, NA= Not Available
Excluding Neisseria meningitides, *Haemophilus influenza, Listeria*, and invasive *Streptococcus pneumonia.*

Beginning in 2003, *S. pneumonia* meningitis was counted with other *S. pneumonia* cases.
** Citywide varicella data not available for these years.