

pdph: DIVISION OF DISEASE CONTROL

2010

Annual Report

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Introduction

OVERVIEW

This annual report provides an epidemiologic summary of conditions reported to the Division of Disease Control (DDC) in 2010. 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 DDC website:

<http://www.phila.gov/health/DiseaseControl/DataReports.html>

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://www.cdc.gov/osels/ph_surveillance/nndss/nndsshis.htm

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	215-685-6748
Urgent After-Hours Consultation	215-686-4514
	Ask for Division of Disease Control 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

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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	Diphtheria, tetanus, acellular pertussis vaccine
ED	Emergency Department
EHS	Philadelphia Department of Public Health Environmental Health Services
EIA	Enzyme Immunoassay
GAS	Group A <i>Streptococcus</i>
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 <i>Streptococcus pneumoniae</i>
STEC	Shiga-toxin producing <i>Escherichia coli</i>
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

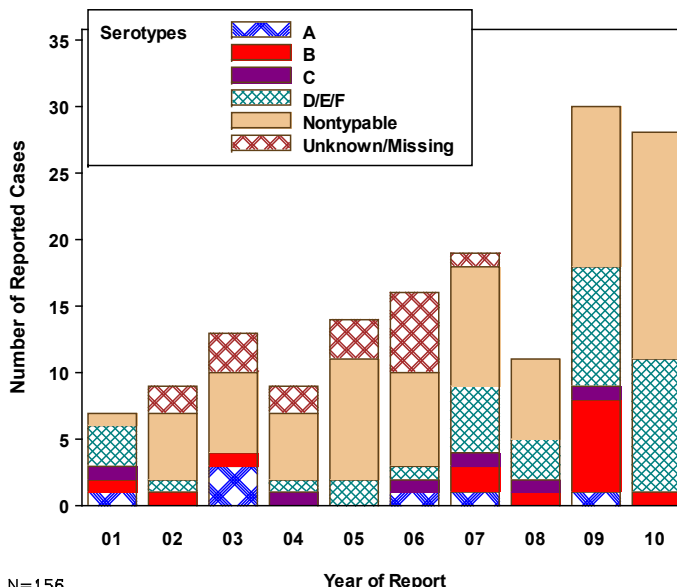
Central Nervous System

Infections and Sepsis

Invasive *Haemophilus influenzae* Disease

Twenty-eight cases of confirmed invasive *Haemophilus influenzae* (Hflu) were reported to PDPH in 2010. Cases were equally distributed by sex (14/28 [50%] male). The median age was 59 years (range: 1 day - 93 years). Twenty-four isolates (86%) were cultured from blood. Hflu was also isolated from lung tissue (1), synovial fluid (1), and CSF (2). Of those with hospitalization and fatality information, 23/25 cases (92%) were hospitalized and 5/26 (19%) were fatal. Serotype information was available for 27 cases, of which 16/27 (59%) were nontypeable, 10/27 (37%) were serotype f, and 1/27 (4%) was serotype b (Hib) -- an unvaccinated child less than two years (Figure 1). An additional three cases were children under the age of 5 years.

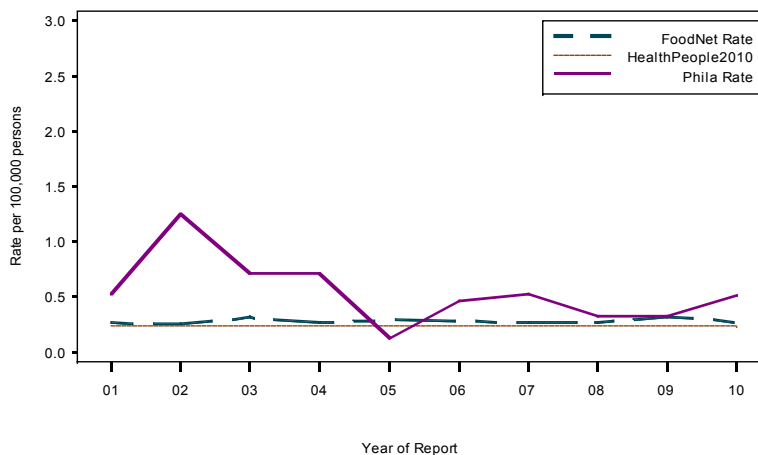
Figure 1. Invasive *Haemophilus influenzae* by Serotype: Philadelphia, 2001-2010



Listeriosis (*Listeria monocytogenes*)

In 2010, there were eight cases of listeriosis in Philadelphia residents, three more cases than in 2009. Seven (88%) of the cases were male. Cases ranged from 5 weeks to 87 years of age (median age 67 years). PDPH did not identify any links between these cases -- they occurred sporadically in time and place, and the DNA fingerprints of the four isolates that underwent pulsed field gel electrophoresis were different. Six of the eight isolates were obtained from blood cultures, and two from CSF. Three of the cases had cancer, one had heart disease, and one had asthma. One case reported travel to South Korea during the incubation period. Seven of the eight cases were hospitalized, but none were fatal.

Figure 2. Rates of Lab-Confirmed Listeriosis by Year of Report: Philadelphia, 2001 to 2010



Meningococcal Infection (*Neisseria meningitidis*)

Five cases of invasive meningococcal disease were reported in 2010. The median age of cases was 25 years (range: 4-75 years) and 4/5 (80%) of cases were male. Although all cases were hospitalized, no cases resulted in fatality. *N. meningitidis* was isolated from cerebrospinal fluid (2) and blood (3). Serogroup information was available for 4 of the cases – 1 was typed B, 2 were typed Y, and 1 was typed C (Table 1). The three vaccine-preventable cases (types C and Y) were neither age-eligible for vaccine nor at increased risk for infection.

Figure 3. Invasive Meningococcal Disease by Age Group: Philadelphia, 2001-2010

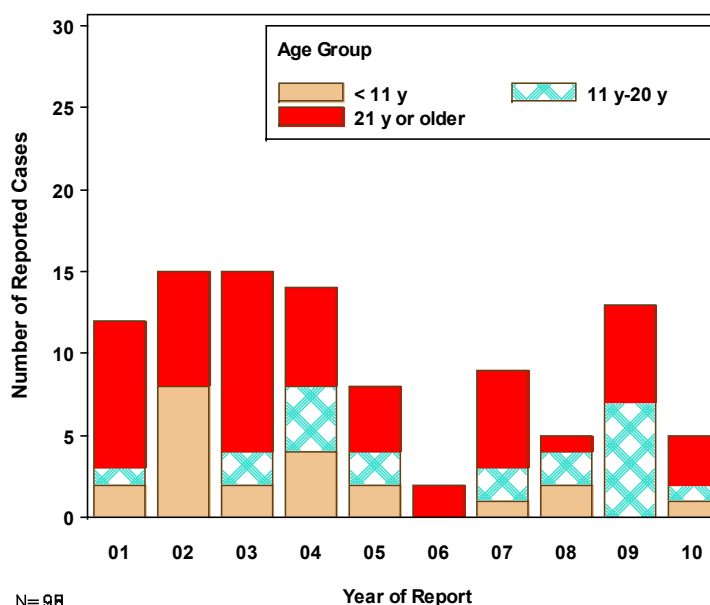


Table 1. Meningococcal Serogroups: Philadelphia, 2001 to 2010

Serogroup	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total N (%)
B	1	5	3	1	1	0	0	1	8	1	21 (23%)
C	2	2	5	3	0	0	4	0	1	1	18 (20%)
W	0	0	1	0	0	1	0	0	1	0	3 (3%)
Y	5	7	4	6	4	0	2	2	2	2	34 (37%)
Z	0	0	0	1	0	0	1	0	0	0	2 (2%)
Not grouped	1	1	2	1	3	1	2	2	0	1	14 (15%)
Total	9	15	15	12	8	2	9	5	12	5	92 (100%)

Meningitis, Aseptic

Eighty-four cases of aseptic meningitis among Philadelphia residents were reported and confirmed by DDC in 2010. The median age of these individuals was 24 years (range: 0 - 96 years). Cases were equally distributed by sex. There were two (2%) reported fatalities and 80/84 (95%) cases were hospitalized. Seven cases (8%) had residual nervous system effects at time of interview. Nineteen individuals were tested and found to be negative for WNV. Thirteen individuals tested positive for enterovirus.

Meningitis, Other Bacterial

In 2010, there were twelve cases of bacterial meningitis fitting this category, including one fatality. Median age was 10 years (range: 0-61 years). There were six infant cases. Fifty-eight percent of the cases were female. Group B *Streptococcus* was isolated from the one fatal case and four other cases. *Escherichia coli*, *Staphylococcus epidermis*, and *Streptococcus salivarius*, among others, were isolated from the other cases. Ten (83%) of the cases were hospitalized.

Invasive *Streptococcus pneumoniae* Disease

There were 153 confirmed cases of invasive pneumococcal disease (IPD), as well as one suspect case, in Philadelphia during 2010. Half of the cases were among females (78/154 [51%]), and the median age of infection was 52 years (range: 13 weeks - 97 years). Twenty-four cases (24/154 [16%]) were in children under 5 years of age and 39/154 (25%) were over 65 years of age (Table 3).

Drug Resistant Invasive

S. pneumoniae Infections

In 2010, 34 (23%) of the 145 isolates with susceptibilities were fully or intermediately resistant to at least 1 antimicrobial agent currently approved for use in treating pneumococcal infection.

In 2010, 20 pneumococcal isolates were not susceptible to penicillin (Table 2).

Table 2. Antibiotic Susceptibilities of Invasive *Streptococcus pneumoniae* Isolates: Philadelphia, 2010

Antibiotics	Isolates Tested (No.)	Susceptible Isolates (%)
Penicillin/Oxacillin	143	86
Ceftriaxone	117	96
Penicillin/Oxacillin & Ceftriaxone	115	87
Erythromycin	76	83
Penicillin/Oxacillin & Erythromycin	75	72
Levofloxacin	70	96
TMP/SMX	70	86
Vancomycin	68	100
Clindamycin	56	91

Table 3. Characteristics of Confirmed Invasive Pneumococcal Disease Cases by Age Group, Philadelphia, 2010

Patient Characteristics	Age Groups					
	<5 years N (%)		5-64 years N (%)		≥65 years N (%)	
Number of Reported Cases	24 (16%)		90 (59%)		39 (25%)	
Age (median, range)	1 year (3-55 mos)		49 years (6-64 yrs)		76 years (65-97 yrs)	
Female	13	(54%)	39	(43%)	25	(64%)
Clinical Manifestations						
Bacteremia & pneumonia	11	(46%)	51	(57%)	29	(74%)
Bacteremia	13	(54%)	31	(34%)	8	(21%)
Meningitis	1	(4%)	9	(10%)	2	(5%)
Septic arthritis	0	(0%)	1	(1%)	0	(0%)
Outcomes						
Hospitalized	22	(92%)	84	(94%)	37	(95%)
Fatal	2	(8%)	6	(7%)	3	(8%)
≥1 Reported Underlying Condition**	9	(38%)	56	(62%)	26	(67%)
PCV* Vaccination						
Up-to-date vaccination	18	(75%)	N/A		N/A	
<i>S. pneumoniae</i> Serotypes	19A (6), 19F(1), 17F(1), 25A(1), 3B(1)					
Drug Resistant	5	(21%)	19	(21%)	10	(26%)

*Pneumococcal Containing Vaccine

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

Respiratory *Infections*

Influenza and Respiratory Virus Surveillance (2010-2011 Season)

Influenza-like Illness Surveillance

PDPH maintains an active surveillance system that monitors chief complaints related to emergency department (ED) visits from 21 local hospitals. De-identified data from hospital triage logs are received daily and analyzed for influenza-like illness (ILI) and other syndromes of interest.

PDPH also receives and analyzes de-identified data from several pediatric ambulatory clinics in the Philadelphia area for ILI visits. Figure 4 depicts both surveillance systems, and plots the percentage of ILI by week of visit. From late December of 2010 through early March of 2011, ILI was seen in the Philadelphia area. During this time, nearly 10% of all ED visits and almost 3.5% of pediatric ambulatory clinic office visits were ILI.

Respiratory Virus Surveillance

DDC conducts active, laboratory-based surveillance of circulating respiratory viruses to monitor 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/or PCR.

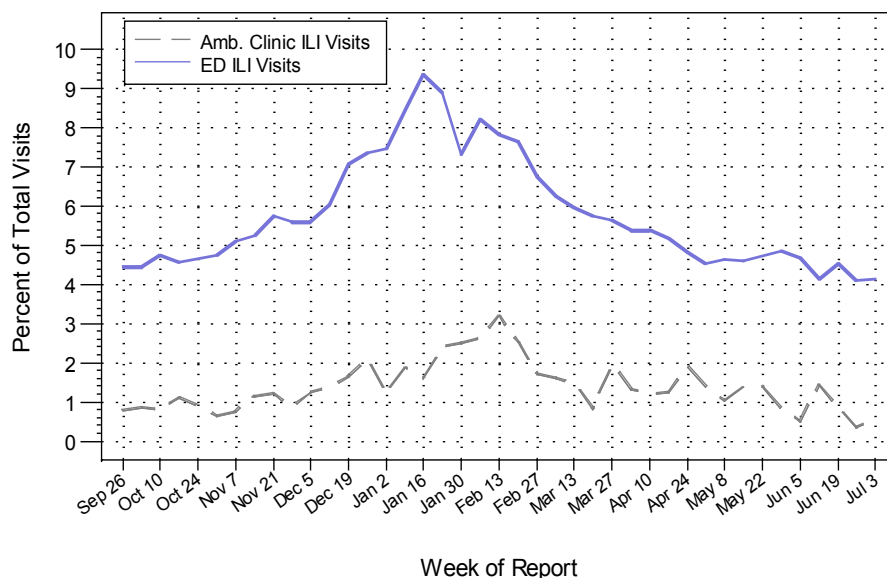
The 2010-2011 respiratory virus season was a unique season, as the onset of RSV activity was much later than normal and nearly peaked within a couple of weeks of the peak of influenza activity. A concurrent epidemic of rhinoviruses in Philadelphia further added to the respiratory morbidity experienced in our area (Figure 5). The influenza season also differed compared to previous ones, as the upswing in activity occurred 2-3 weeks earlier than activity seen historically (excluding the fall wave of H1N1 [Figure 6]).

Vaccination Recommendations

Seasonal Influenza Vaccine for 2010-2011

The routine seasonal influenza vaccine, which included the 2009 influenza A/H1N1 component, 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) remains the most important measure for preventing influenza and influenza-related complications – including death. For the

Figure 4. Philadelphia Emergency Department (ED) and Pediatric Ambulatory Clinic Surveillance for Influenza-like Illness through June 2011



2010-2011 seasonal influenza vaccine, CDC recommended targeting vaccination of traditional high-risk groups, including children aged 6-59 months, adults 50 years or older, immunocompromised or chronically ill individuals, pregnant women, and those living or working in close contact with high-risk persons as well as the vaccination of all children aged 6 months through 18 years. 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. Nearly 27,000 doses of flu vaccine were used by the community-based sites in 2010-11.

Figure 5. Respiratory Agents by Week (Reports from 6 Hospital Laboratories): Philadelphia, 2010-2011 Season

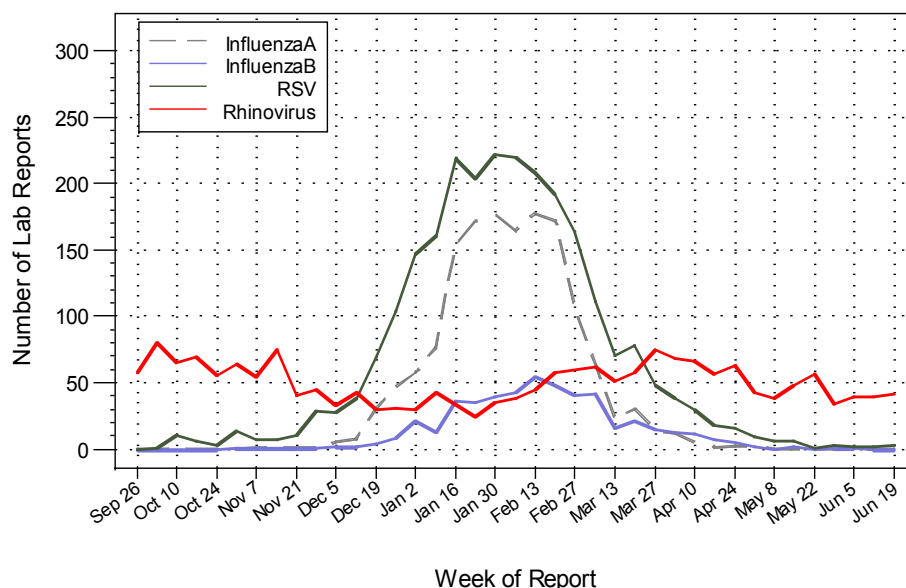
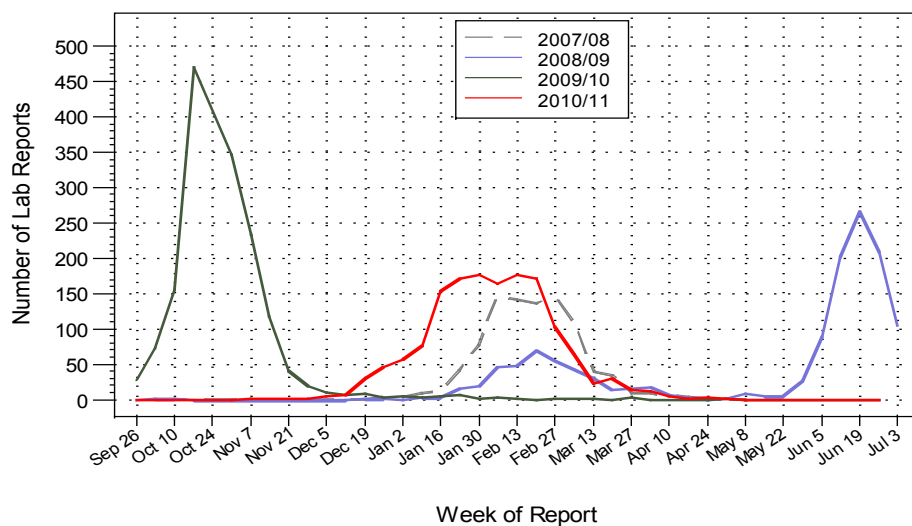
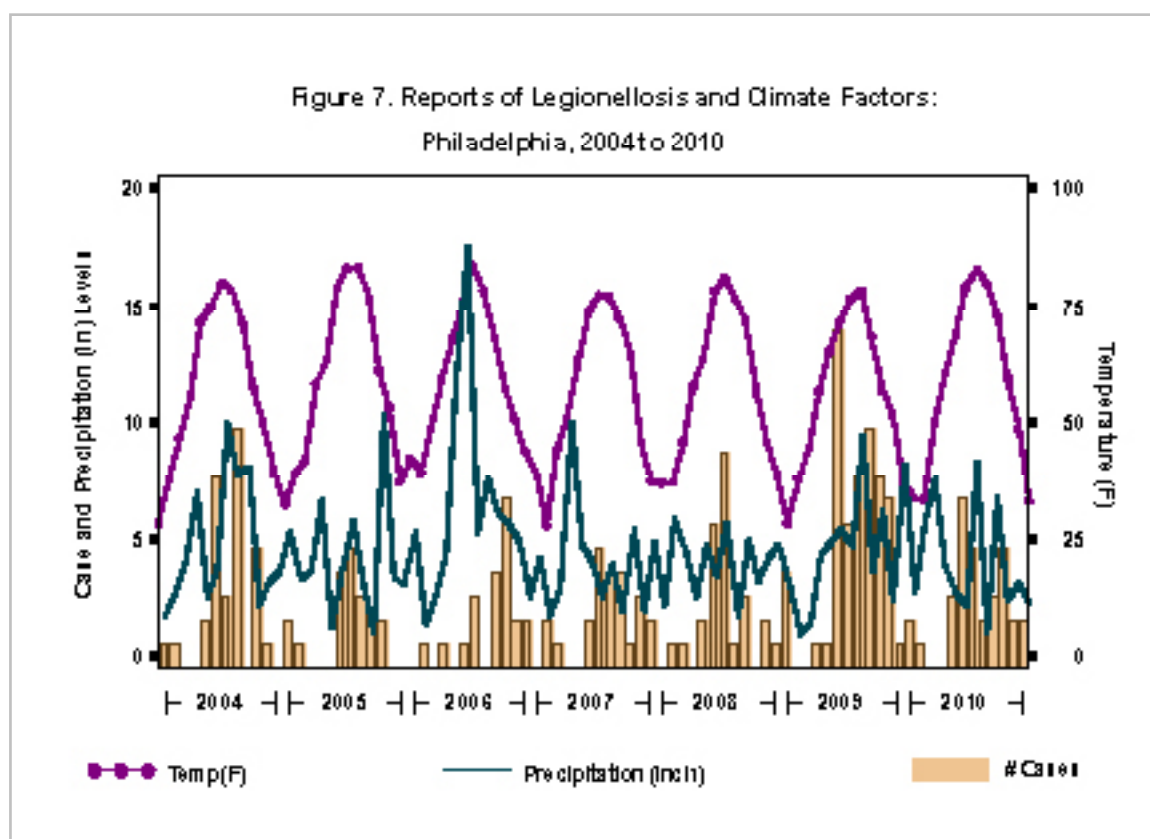


Figure 6. Laboratory Confirmed Influenza A Reports from Select Hospital Labs by Week of Report: Philadelphia, 2007/08 to 2010/11 Influenza Seasons



Legionellosis (*Legionella pneumophila*)

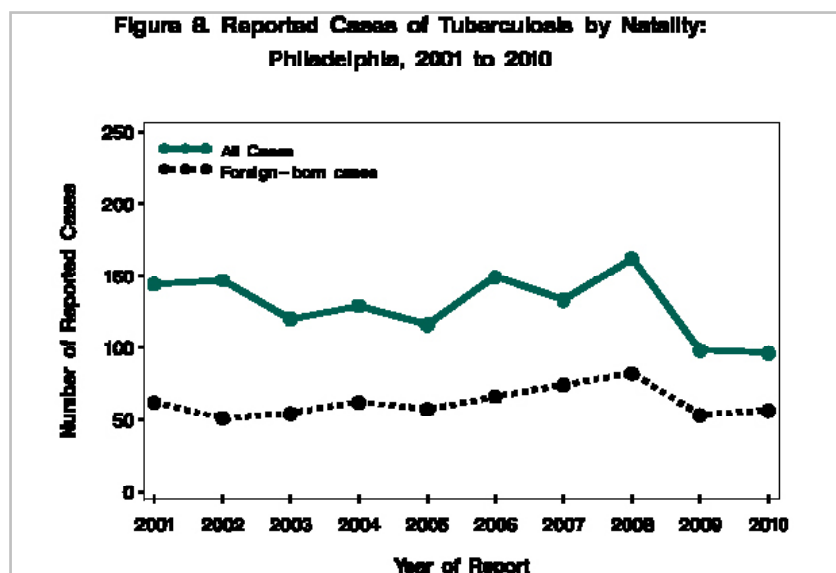
In 2010, 32 confirmed cases of legionellosis or Legionnaires' Disease (LD) were reported in Philadelphia, compared with 60 cases in 2009. Diagnosis was established with urine *Legionella* antigen testing in 29/32 (91%) of the cases and positive culture in 3/32 (9%). Cases occurred sporadically throughout Philadelphia County. Nineteen (19/32 [59%]) cases were male. Ages ranged from 24 to 95 years with a median age of 56 years. Three cases were fatal. Almost 40% (12) of cases were smokers, 11/32 (34%) had diabetes mellitus, and 6/32 (19%) were immunocompromised. Previous studies have shown that cases are more likely to occur if days prior to onset have increased relative humidity (Figure 7).



Tuberculosis (*Mycobacterium tuberculosis*)

TB morbidity has declined steadily in Philadelphia since the mid-1990s, fluctuating between approximately 120 to 170 cases since 2000 and dramatically decreasing in the last two years as indicated in Figure 8. In 2010, Philadelphia reported 96 TB cases -- a decrease of 2% from the 98 cases reported in 2009.

The overall TB case rate for 2010 in Philadelphia was approximately 6.3 cases per 100,000 population. This is above the Healthy People 2010 National Objective of 3.5 TB cases per 100,000 population.



Drug Resistant TB

TB cultures were available and tested for drug susceptibility for 70/96 (73%) of the TB cases reported during 2010. Fifty-nine (59/70 [84%]) were susceptible to all first-line drugs, and 11/70 (16%) exhibited some level of drug resistance (Table 4). Nine isolates were resistant to only one drug (Streptomycin [4], Pyrazinamide [2], INH [2], and Rifampin [1]). One isolate was resistant to more than one drug (PZA and Strep). Notably, one isolate was confirmed as Extensively Drug-Resistant TB (XDR-TB), defined as resistance to INH and Rifampin, resistance to any fluoroquinolone, and resistance to at least one of the second-line injectable drugs (amikacin, capreomycin, or kanamycin). This was the only case of XDR-TB identified in the U.S. during 2010.

Populations at High Risk for TB Infection

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 8. The number of TB cases among the foreign-born increased slightly from 2009 and accounted for over 58% (56/96) of cases in 2010. The 56 foreign-born cases reported in 2010 originated from 23 different countries and all 6 World Health Organization (WHO) regions. The Western Pacific Region -- which includes Cambodia, China, Lao PDR, the Philippines, and Vietnam -- accounted for nearly 34% (19/56) of the foreign-born TB cases.

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 2010, 6 (6%) of the TB confirmed cases were homeless, 3 (3%) resided in LTC at diagnosis, and none were identified in a correctional facility.

In 2010, 82% (78/96) of TB cases had a documented positive or negative HIV test result. Of these, 12 (15%) were positive.

Table 4. Susceptibility Results for TB isolates: Philadelphia, 2010

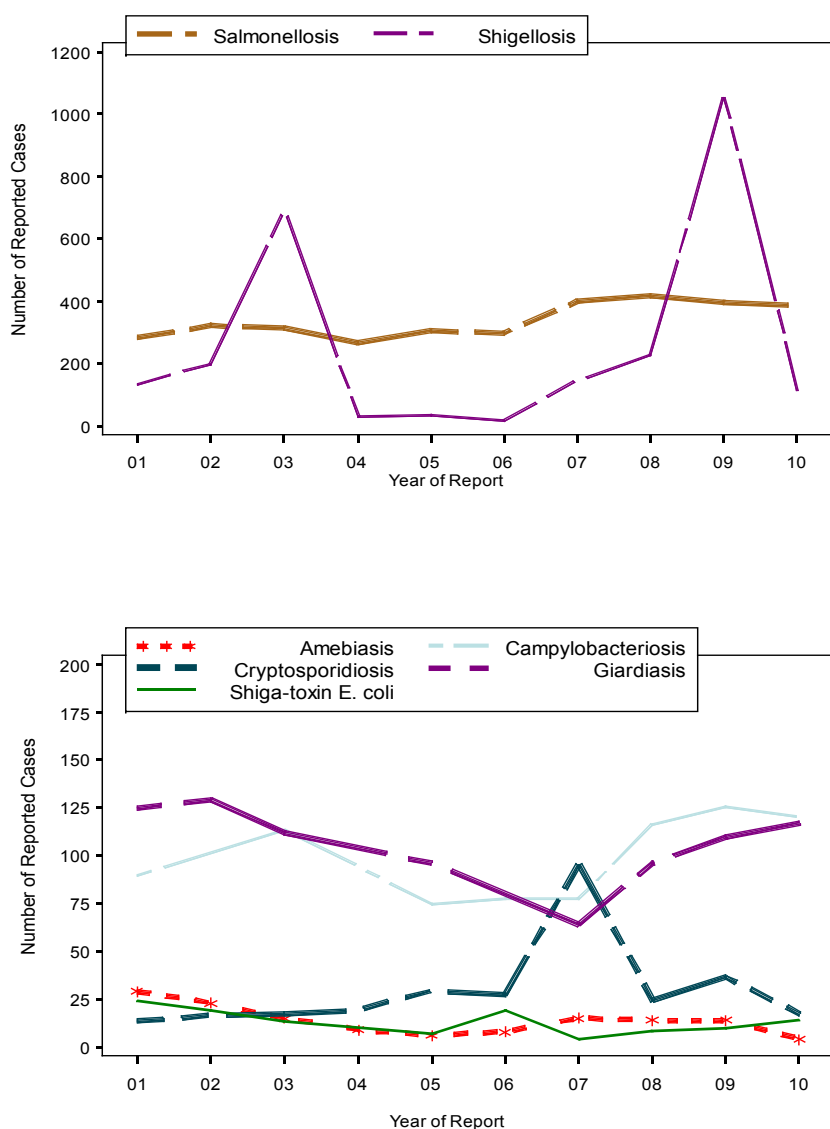
TB Isolates Tested for Drug Resistance	N=70 (73%)
Single drug resistance	N=9
Streptomycin (STM)	4
Isoniazid (INH)	2
Pyrazinamide (PZA)	2
Rifampin (RIF)	1
Drug resistance to more >1 medication	N=2
INH+RIF (MDR-TB)	0
INH + RIF + Fluoroquinolone + one of the injectable drugs (XDR-TB)	1
PZA+ STM	1

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 identification to be attributed to the agent. Generally, the most commonly reported notifiable GI illness in Philadelphia is salmonellosis (Figure 9).

In 2010, DDC responded to several *Shigella* clusters in day-cares. Also during 2010, DDC received reports of 11 lab-confirmed norovirus outbreaks – 10 (91%) in LTCF and one (9%) in a rehabilitation facility.

Figure 9. Reported Cases of Gastrointestinal Diseases: Philadelphia, 2001 to 2010



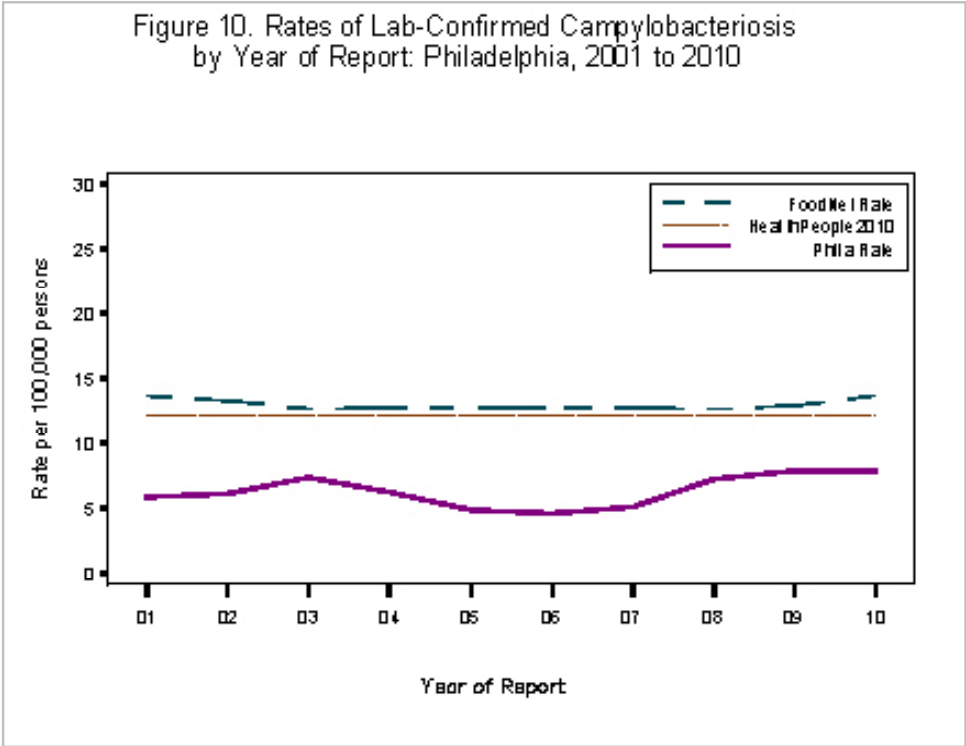
Amebiasis (*Entamoeba histolytica*)

In 2010, 4 confirmed cases of amebiasis were reported, compared to 14 confirmed cases reported in 2009. No outbreaks or clusters of amebiasis were identified during 2010. Of those infected, 2 cases (50%) were male and the median age was 38 years (range: 21-50 years). None of the confirmed cases reported travel during their incubation period. One of the males interviewed reported having sex with men (MSM).

Campylobacteriosis

(*Campylobacter* spp.)

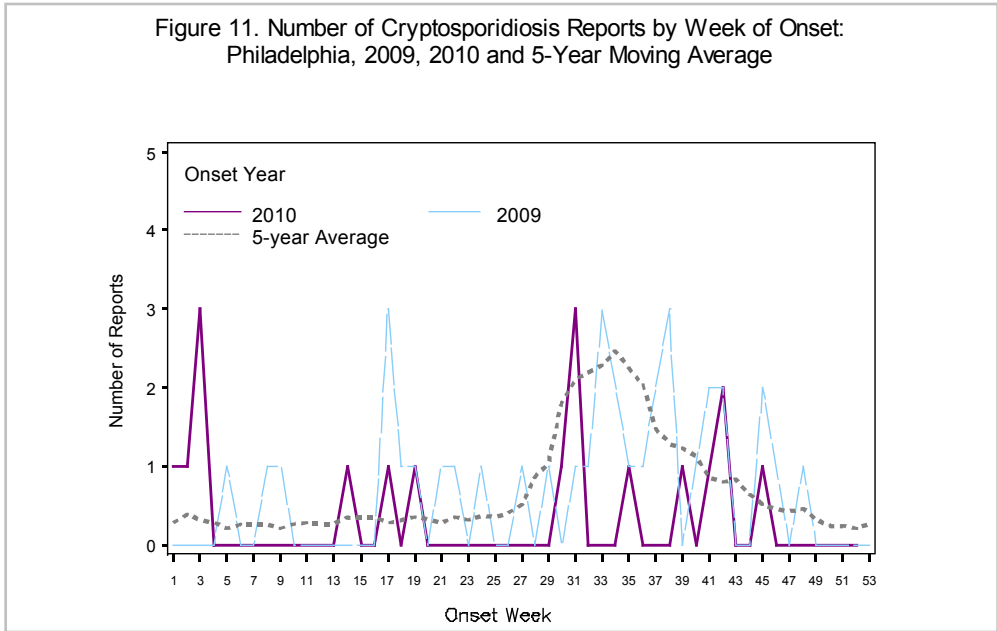
In 2010, a total of 121 cases (120 confirmed cases and 1 probable case) of campylobacteriosis were reported among Philadelphia residents. The one probable case was symptomatic and linked to a confirmed case in the same household (the only household cluster). Fifty-seven percent (69/121) of the 2010 cases were male. The median age was 28.5 years (range: 4 weeks-91 years). Information on symptoms was available for 95 cases – 88 (93%) reported diarrhea, 66 (69%) reported abdominal pain, 52 (55%) reported fever, 34 (36%) reported vomiting, and 39 (41%) reported nausea. Nineteen of the 91 (21%) cases with travel information available reported leaving the US during their incubation period and three cases reported traveling out of state. Forty-one had animal contact, but only 7 persons had contact with an animal other than a cat or dog (3 turtles, 1 snake, 1 frog, 1 lizard, and 1 fish). No campylobacteriosis fatalities were reported.



Of the two isolates with serotype information, both were *Campylobacter jejuni*. Ciprofloxacin susceptibility was available for 21 of 121 *Campylobacter* isolates (17%). Of these, seven (33%) were ciprofloxacin-resistant (Table 5).

Cryptosporidiosis

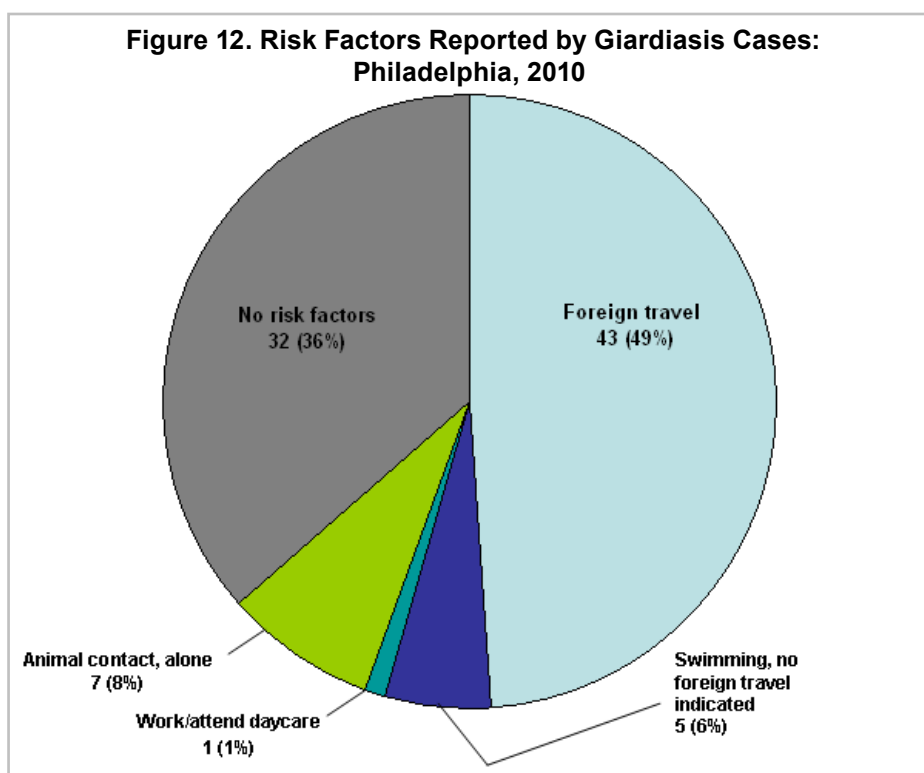
(*Cryptosporidium* spp.)



In 2010, a total of 17 confirmed cases of cryptosporidiosis were reported in Philadelphia, compared to 37 confirmed cases in 2009 – a 54% decrease. The median age of the 2010 cases was 33 years (range: 1-63 years) and 13 (76%) of the cases were male. Among those with available data, risk factors that were reported include an immunocompromising medical condition (4), daycare exposure (1), contact with a sick animal/pet (1), and travel outside of Pennsylvania during the incubation period (1). There were no fatalities, but 4 cryptosporidiosis cases were hospitalized.

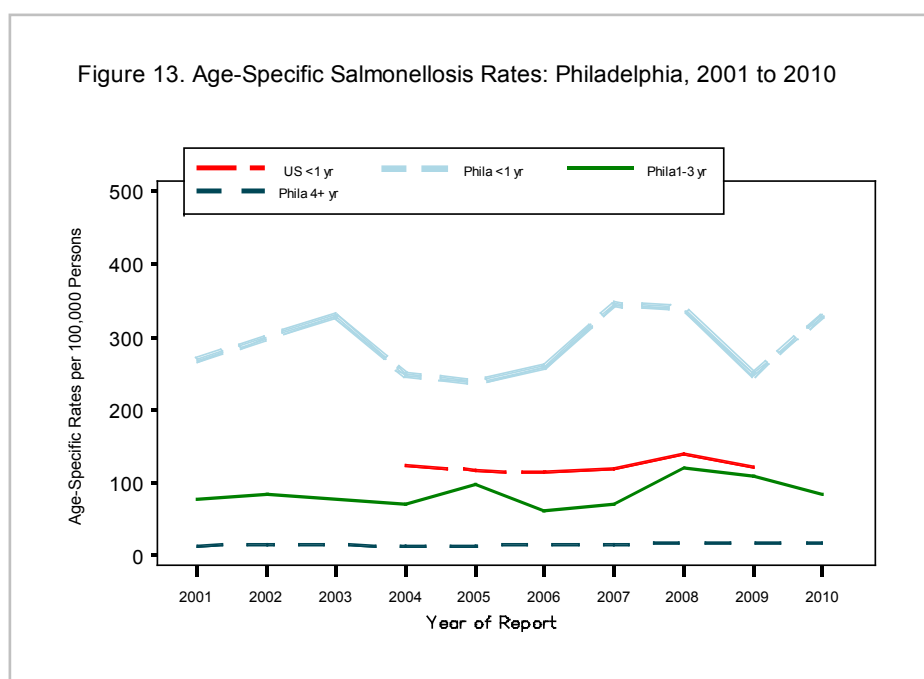
Giardiasis (*Giardia lamblia*)

In 2010, 122 confirmed cases of giardiasis were reported among Philadelphia residents, compared with 106 cases in 2009. Males accounted for 60% of cases. Cases ranged in age from 1 to 69 years with a median age of 16 years. There was one fatality within two and a half weeks of diagnosis of giardiasis, and 17 cases were hospitalized (14%). For the 91 cases with available symptom information, diarrhea was the most commonly reported symptom (57%), followed by abdominal pain (44%), fever (21%), nausea (19%), and vomiting (18%). Of the 88 cases with reported risk factors during their incubation period, 43/88 (49%) traveled or lived in a foreign country -- with Africa and Southeast Asia as the most common regions reported -- and three people traveled out of state. Five cases (5/88 [6%]) reported swimming without foreign travel, seven cases (7/88 [8%]) reported animal contact as their only risk factor, and one case (1/88 [1%]) attended a day-care center (Figure 12).



Salmonellosis (*Salmonella* spp.)

A total of 395 salmonellosis cases were reported in 2010 of which 341 (87%) were laboratory-confirmed and 54 were probable cases identified from epidemiologic links. The incidence rate of salmonellosis has remained steady since 2009 at about 26 cases per 100,000 persons (395/1,526,006). US 2010 salmonellosis rates were lower at 17.6 cases/100,000 persons. Fifty-eight percent of *Salmonella* cases were female. Disease incidence was highest in those under one year of age (67 infant cases). The age-specific rate of infant salmonellosis was much higher in Philadelphia compared with the national rate (340 cases per 100,000 infants versus 138 cases per 100,000 infants) as seen in Figure 13. Twenty-six percent of all cases were hospitalized and there were no fatalities. Of the 341 laboratory-confirmed salmonellosis cases, *S. Enteritidis* and *S. Typhimurium* were the most common serotypes, responsible for 148 (43%) and 40 (12%) cases respectively.

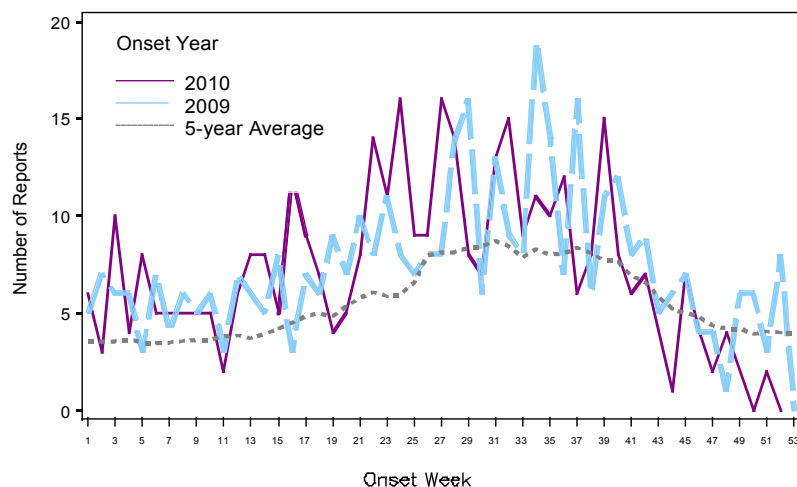


Twenty-eight percent of cases were part of *Salmonella* clusters – including households, specific events, or clusters of cases with the same

DNA fingerprints but no identified source. In 2010, 35 cases (35/395 [9%]) reported turtle contact, which is slightly lower than the percentage of cases (11%) who reported turtle exposure in 2009. There were no reported fatalities.

Antibiotic susceptibility testing was available for 311/341 (91%) of laboratory-confirmed cases. Eight percent (25/308) were ampicillin-resistant, 1% (2/305) were resistant to trimethoprim-sulfamethoxazole, and 4% (12/287) were ciprofloxacin-resistant (Table 5).

Figure 14. Number of Salmonellosis Reports by Week of Onset: Philadelphia, 2009, 2010 and 5-Year Moving Average



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 2010, two cases were reported. The cases were confirmed by the isolation of *S. Typhi* from the stool. Symptoms experienced were fever and diarrhea. The age range was 19-20 years. Both traveled to the Indian Subcontinent. Neither case is known to have received the typhoid vaccine.

Shiga-toxin Producing *Escherichia coli* (STEC)

Of the fourteen STEC cases reported in 2010 (ten reported in 2009), nine were confirmed, two were probable cases that were linked to clusters, and three were suspect cases that were only shiga-toxin positive with no culture performed or reported.

E. coli O157:H7 was isolated from three confirmed cases, and 4 non-O157:H7 serotypes were identified: *E. coli* O103:H2 (1), *E. coli* O145 non-motile (1), *E. coli* O26:H11 (1), and *E. coli* O111 non-motile (1). Nine (64%) cases were female and the median age was 17.5 years. Of the fourteen (100%) cases for which symptom and risk factor information were available, all fourteen reported experiencing diarrhea (bloody diarrhea [4]), fever (2), and abdominal cramps (9). No one was diagnosed with hemolytic uremic syndrome. No deaths were associated with STEC infections; however, five cases (36%) were hospitalized. Potential risk exposures during the incubation period included consumption of ground beef (4), recreational water use (2), consumption of dairy products (3), and travel to a foreign country (2). One case was associated with a national outbreak involving romaine lettuce.

Shigellosis (*Shigella* spp.)

During 2010, PDPH received 141 reports of shigellosis, of which 94 (67%) were culture-confirmed. Community-wide transmission of shigellosis peaked in 2009, and has plummeted since then. There were nearly 90% fewer cases in 2010 than 2009. Lab tests revealed 73/94 (78%) to be *S. sonnei* and 12/94 (13%) were identified as *S. flexneri*. Approximately 41% (31/75) of *Shigella* isolates were resistant to ampicillin and 36% (28/77) showed complete resistance to trimethoprim-sulfamethoxazole. Females and males were almost equally affected (51% versus 49%, respectively) and the median age was about 8 years old. Approximately 70% (100/141) of cases were linked to either a household (72) or daycare (28) outbreak. Five cases reported travel during their incubation period (Nigeria, Paris, Ghana, Egypt, and Spain). No fatalities were reported.

Figure 15. Number of Shigellosis Reports by Week of Onset
Philadelphia, 2009, 2010 and 5-Year Moving Average

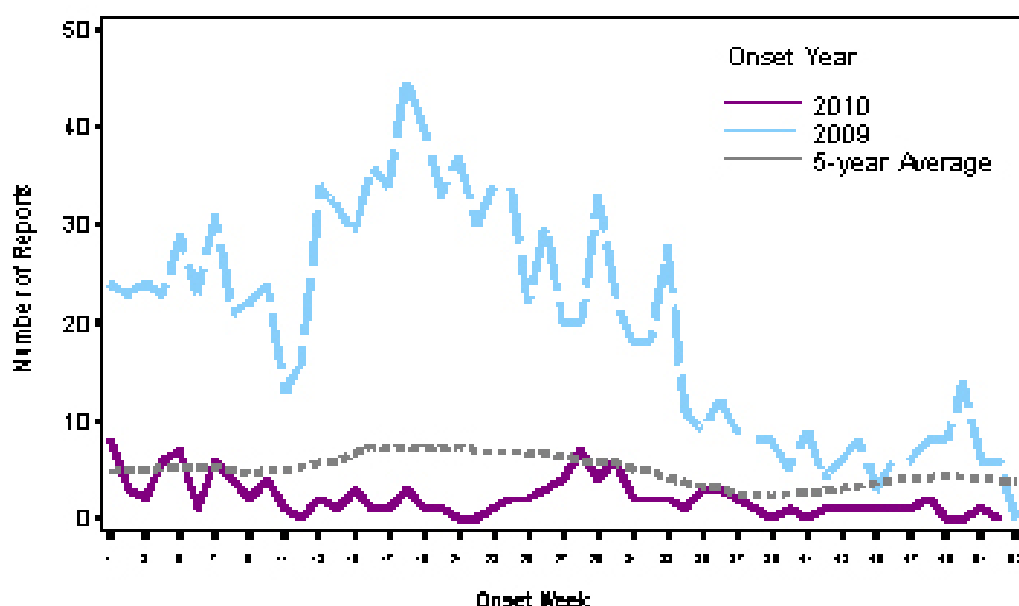


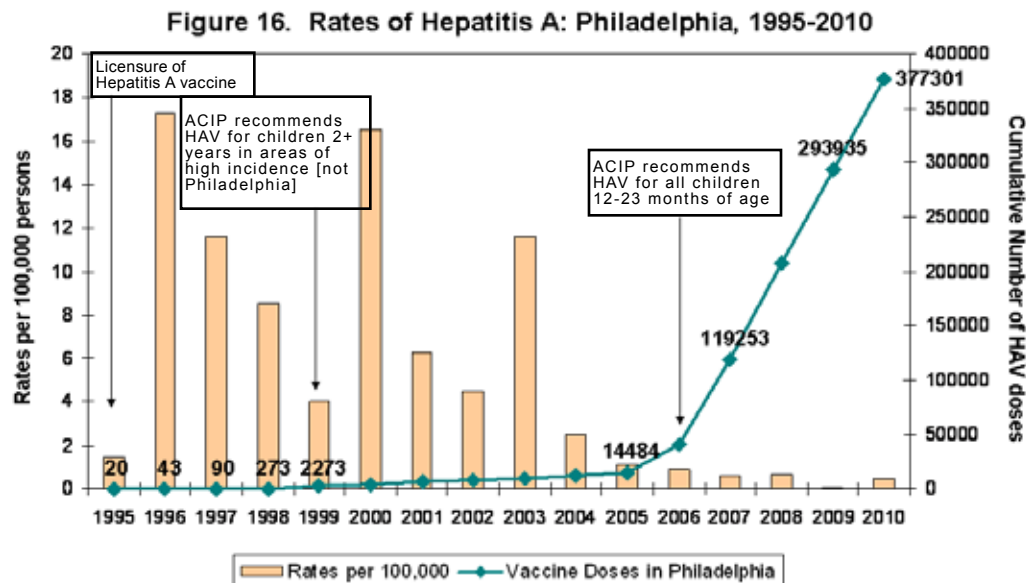
Table 5. Antibiotic Resistance of Selected Enteric Pathogens: Philadelphia, 2010

Pathogen	Antibiotics Tested	Total Tested	Resistant N (%)	Intermediate N (%)
<i>Campylobacter</i>				
	Ampicillin	1	0 (0%)	0 (0%)
	Ciprofloxacin	21	7 (33%)	0 (0%)
	Erythromycin	19	1 (5%)	0 (0%)
	Trimethoprim-Sulfamethoxazole	1	0 (0%)	0 (0%)
<i>Salmonella</i>				
	Ampicillin	308	23 (8%)	2 (1%)
	Ceftriaxone	97	0 (0%)	2 (2%)
	Ciprofloxacin	287	8 (3%)	4 (1%)
	Erythromycin	2	0 (0%)	1 (50%)
	Trimethoprim-Sulfamethoxazole	305	2 (1%)	0 (0%)
<i>Shigella</i>				
	Ampicillin	75	31 (41%)	0 (0%)
	Ceftriaxone	15	0 (0%)	1 (7%)
	Ciprofloxacin	70	2 (3%)	0 (0%)
	Trimethoprim-Sulfamethoxazole	77	28 (36%)	1 (1%)

Viral Hepatitis *Infections*

Hepatitis A

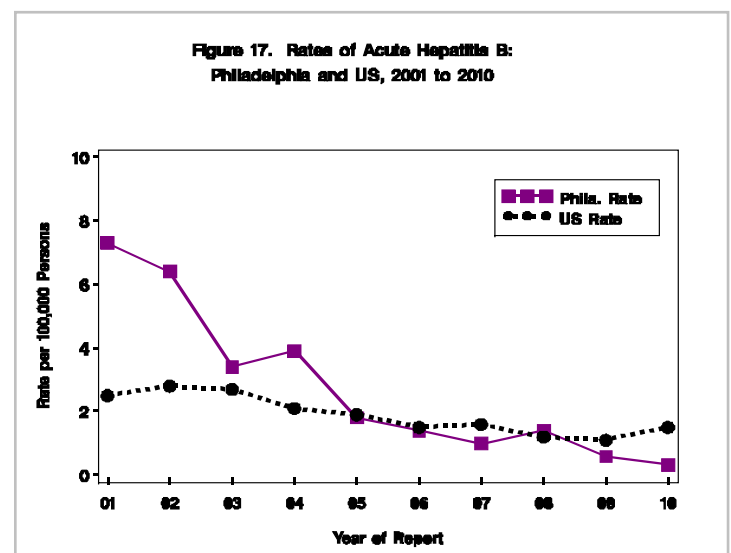
In 2005, ACIP recommended that all children aged 12-23 months should receive the hepatitis A vaccine (HAV). Hepatitis A rates in Philadelphia have been decreasing dramatically since 2003 (Figure 16). In 2010, DDC investigated 88 reports of suspect hepatitis A infections, or positive IgM hepatitis A virus tests. Of these, 8 were found to be confirmed acute hepatitis A cases. The median age was 23 years (range: 11 months-70 years). Reported symptoms were consistent with hepatitis A infections (e.g. jaundice, nausea, vomiting, fatigue and abdominal pain). There were no fatalities. Two cases reported foreign travel within their incubation period -- one case reported travel to Africa, while the other reported travel to South America and Mexico. No other common hepatitis A risk factors such as consumption of raw shellfish or recent needle exposure were reported.



Acute and Chronic Hepatitis B

Acute Hepatitis B

In 2010, there were 5 confirmed case reports of acute hepatitis B virus infection in Philadelphia. This represents a dramatic decrease over the past decade (Figure 17) from a peak of 134 cases reported in 2000. The median age of acute HBV cases was 30 years (range: 25-46 years). Four cases (80%) were male. All five of the individuals had evidence of jaundice and elevated liver enzymes. Two out of the five individuals (40%) were known to be hospitalized. The only risk factor reported, aside from travel, was street drug use. None of the individuals were known to be vaccinated.



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 2010, PDPH received 1,488 reports of potential chronic hepatitis B infections, of which 1,020 were newly reported cases and 468 were newly confirmed chronic hepatitis B infections. Of the newly reported probable chronic case reports with age or sex information, 564/987 (57%) were males and the median age was 41 years (range: 11 months-90 years). Of the newly reported confirmed chronic case reports with age or sex information, 262/458 (57%) were males and the median age was 44 years (range: 2-88 years).

Perinatal Hepatitis B

In 2009, the most recent year with follow-up completed, 173 live infants were born to women with chronic HBV who reside in Philadelphia (Table 6), which is 7% higher than in 2008. In 2009, 66/173 (38%) of women with chronic HBV originated from Asian countries. Ninety-nine percent (171/173) of infants received the birth dose of HBV vaccine and 97% (168/173) of infants received HBIG within one calendar day of birth. Eighty-five percent (147/173) of the infants were known to receive HBIG and three doses of vaccine by 8 months of age and 90% (156/173) received all immunoprophylaxis (HBIG and three vaccine doses) by 1 year of age. Complete serological testing was not possible for one infant whose family refused serology, six infants transferred out of jurisdiction unassigned, five infants were not located and twelve infants moved out of the United States. Of the 149 infants with serological results, 148 infants (148/149 [99%]) were found to be immune and one (1%) was still susceptible. Repeat vaccination with the HBV vaccine series was performed on this susceptible infant. During home visits, 182 household contacts of HBsAg+ mothers were identified, educated, and offered free serological testing. Of the 115 contacts tested, 10/115 (9%) were positive for HBV infection, 99/115 (86%) were immune, and 6/115 (5%) were susceptible. Four of the six (67%) susceptible household contacts were vaccinated by DDC staff.

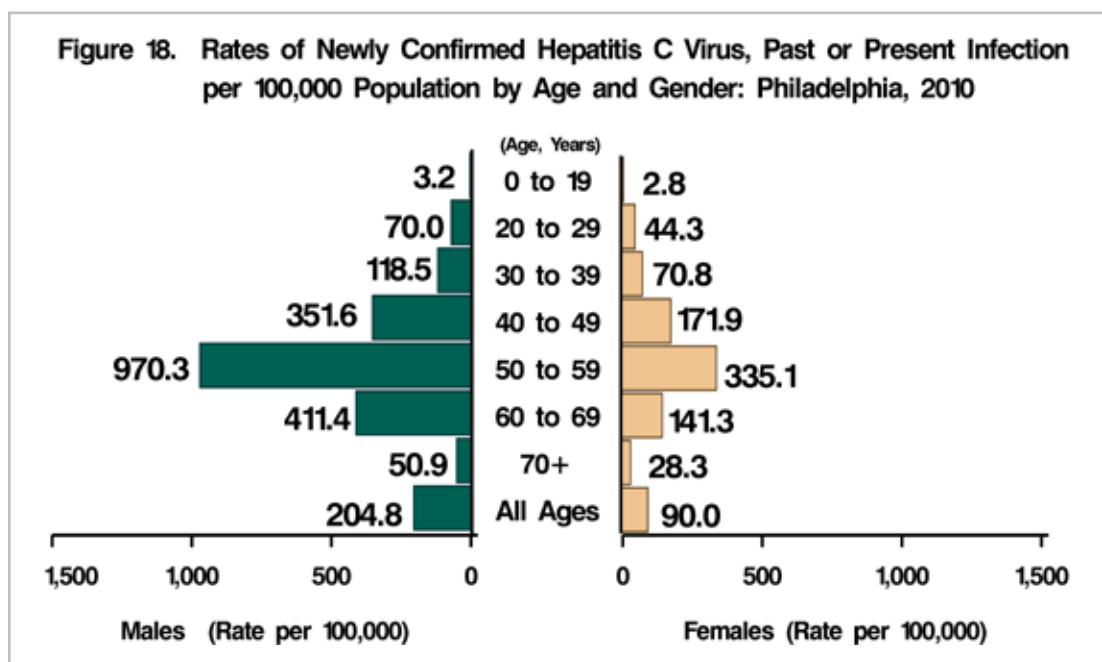
Table 6. Comparison of Perinatal Hepatitis B, Philadelphia 2005-2009

	2005	2006	2007	2008	2009
Total Mother-Child Pairs Followed	138	119	110	162	173
Total Children Receiving HBIG within One Calendar Day of Birth	138 (100%)	118 (99%)	110 (100%)	162 (100%)	168 (97%)
Total Children Receiving Birth HBV within One Calendar Day of Birth	138 (100%)	119 (100%)	110 (100%)	162 (100%)	171 (99%)
Total Children Receiving 3 HBV Vaccines in 1 Year	138 (100%)	115 (97%)	109 (99%)	153 (94%)	156 (90%)
Children (9-18 mos.) HBV+ at Screening	1 (1%)	2 (2%)	1 (1%)	0 (0%)	0 (0%)
Household Contacts Identified and Educated	188	197	187	167	182
Household Contacts Tested	153	151	144	117	115
Household Contacts Susceptible	21	16	15	17	6
Susceptible Household Contacts Vaccinated	17	11	9	9	4

Complete 2010 PHBPP results will not be available until 2012. The PHBPP identified 183 pregnant women with chronic HBV in the 2010 report year, and learned of 171 infants born to mothers with chronic HBV infections in 2010. Two mother-child dyads transferred out of the program and one infant died, leaving 168 infant cases in follow-up. As of September 2011, 166 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 2010, DDC added 5,274 reports to the HCV registry, which is 9% higher than in 2009. There were no acute HCV infections reported during 2010. Of those individuals with test results reported in 2010, 2,224 (42%) met the case definition for a confirmed case, 65 (1%) were considered probable (positive antibody test and elevated liver enzymes, but lacking additional confirmatory testing), and 2,985 (56%) had only HCV antibody tests. Of the confirmed reports with information on sex, 1,444 (65%) were male. Of the confirmed reports with age, median age was 52 years (range: 11 months - 88 years).



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. Lyme IgM immunoblot are not reliable to determine late-stage Lyme disease. 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 2010, clinical laboratories reported positive Lyme disease serologic tests on 789 unique individuals. Upon investigation, 238 reports fit the CDC case definition, 126 (53%) were confirmed cases, 13 (5%) were probable cases, and 99 (42%) were suspect cases. The median age among all cases was 39 years (range: 6 weeks to 87 years) and 134 cases (56%) were male.

Among the 126 confirmed cases, (71/114) 62% had EM, arthritis (53/110 [48%]), Bell's palsy (5/102 [5%]), radiculopathy (2/100 [2%]), and lymphadenopathy (2/100 [2%]). The timing of laboratory tests support the known increases during summer and coincides with increased outdoor activity and potential exposure to *B. burgdorferi*-infected ticks. The highest numbers of cases were from the northeast and northwest areas of the city bordering two of the city's major parks, Wissahickon River Valley and Pennypack (Figure 19).

Malaria (*Plasmodia* spp.)

In 2010, twenty-two confirmed cases of malaria were reported to PDPH. Of the 22 cases reported, 15 (68%) were male. The median age was 36 years (range: 6-66 years). The most common parasite was *Plasmodium falciparum* (9), followed by *P. ovale* (2), *P. vivax* (2), and nine were unknown. Fifteen of the confirmed cases reported travel to malaria-endemic countries prior to the onset of symptoms (to West African countries [3], Nigeria [4], Sierra Leone [3], Africa unspecified [3], Pakistan [2], and Liberia [3], while the remaining case reported traveling only to Florida). Of the 19 cases with prophylaxis information, 3 (16%) reported no prophylaxis prior to travel. In the last 10 years, more than 60% (96/154) of cases reported travel to West Africa (Figure 20).

Figure 19. Rates of Lyme Disease by ZIP code: Philadelphia, 2010

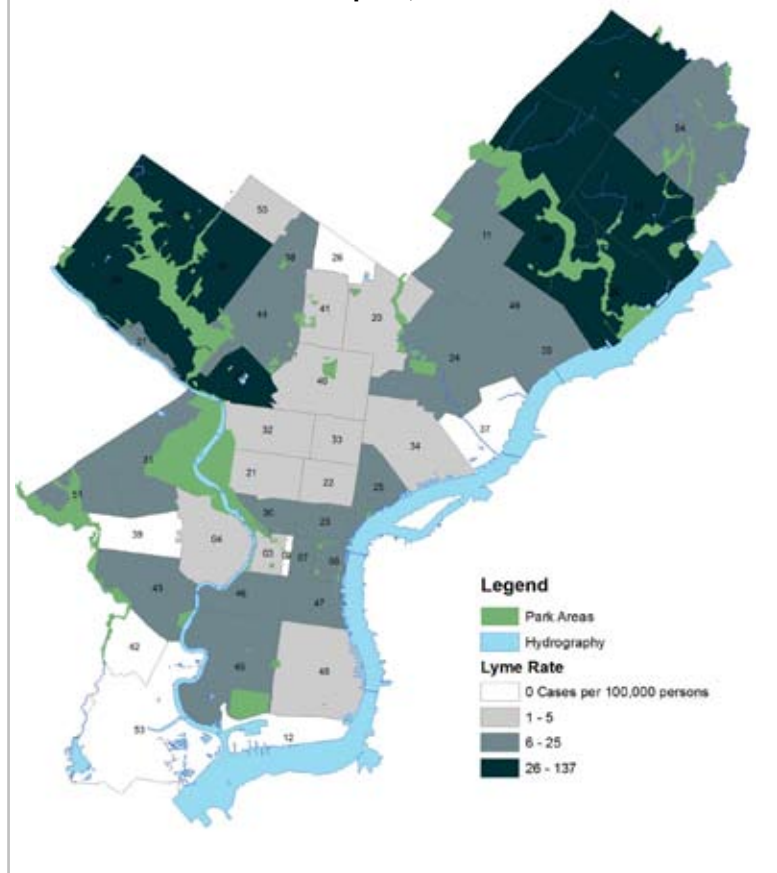
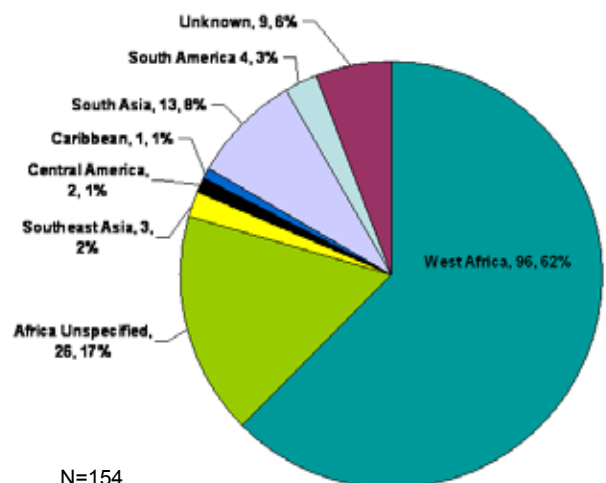


Figure 20. Countries Traveled by Malaria Cases: Philadelphia, 2001-2010



West Nile Virus

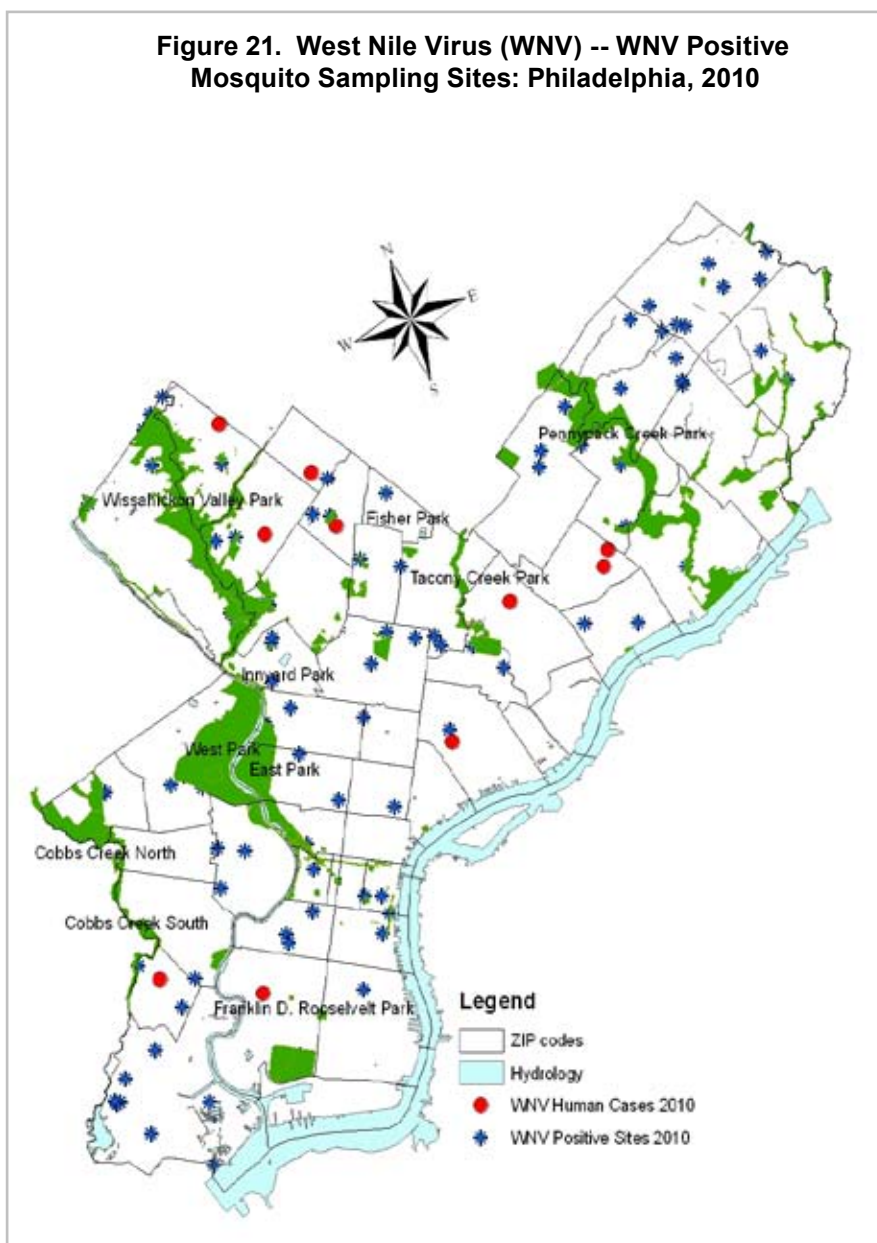
WNV prevention necessitates a close partnership between DDC and the PDPH Environmental Health Services (EHS) Vector Control Program. EHS performs surveillance for WNV in mosquitoes, as well as targeted treatment of mosquito pools, which is the primary means of reducing WNV transmission. From May 17 to September 13, 2010, the EHS program treated 33,141 catch basins (storm-water sewers) with larvicide in order to kill mosquito larvae. EHS also conducted 44 adult-focused treatments including barrier treatments for control and ultra low volume spray events between June and October 2010. During this period, 334 sampled mosquito pools in locations throughout the city tested positive for WNV, indicating that the virus was still circulating within Philadelphia.

The current case definition for WNV infection includes both neuroinvasive and non-neuroinvasive (e.g. WNV fever) disease. In 2010, there were 629 neuroinvasive and 392 non-neuroinvasive WNV reports nationally (provisional data).

Thirteen cases of WNV infection were reported to PDPH in 2010. All thirteen cases (100%) exhibited signs of neuroinvasive disease (e.g. stiff neck, altered mental status, neurological deficits). PA BOL detected WNV antibodies in CSF (6) and blood (7). The median age of cases was 52 years (range: 38-70 years). Residual effects from the infection were noted between 4 to 47 days after test date. Travel during incubation period was reported to Atlantic City, NJ (1) and New Orleans (1). Twelve persons (92%) were hospitalized and there was one fatality due to complications from the infection.

DDC and EHS collaborate when WNV infection is identified in humans. EHS surveys the residential area where the case lives, sets mosquito traps, tests mosquitos for WNV, and applies insecticide. Figure 21 shows the sites where WNV-positive mosquito pools were located, as well as WNV human cases, in 2010. Human cases were co-localized with WNV-positive mosquito pools in some instances.

Figure 21. West Nile Virus (WNV) -- WNV Positive Mosquito Sampling Sites: Philadelphia, 2010



Immunizations and *Vaccine-Preventable Diseases*

Calendar year 2010 introduced improvements in technology and data capture, enhanced funding for vaccines, and further commitment to adult vaccination programs.

KIDS Immunization Registry

The Kids Immunization Database/Tracking System (KIDS) is a web-based Immunization Information System (IIS) that has served as a centralized repository for immunization records of Philadelphia's children for 20 years. In 2010, the KIDS IIS began collecting adult immunization records from private providers, expanding on the KIDS capture of pandemic H1N1 influenza doses administered during the 2009-10 influenza season. KIDS is now a true lifetime IIS.

In 2010, several grants were awarded to the Immunization Program to expand the capacity and upgrade the technology of the KIDS IIS. KIDS was one of 20 IIS nationwide that were awarded CDC funding via the "American Recovery and Reinvestment Act" (ARRA) to expand and improve IIS immunization data capture from providers. Starting in 2010, the Immunization Program began the process of implementing data exchange via nationally standardized HL7 interfaces. These interfaces will ensure secure, efficient and reliable data sharing between KIDS and providers.

Childhood Vaccines

Through the Federal Vaccines for Children (VFC) program, the Immunization Program provides over \$25 million dollars worth of vaccines at no-cost to nearly 270 health care providers in Philadelphia annually. In 2010, 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 for all Philadelphia public schools. In 2010, the Immunization Program also operationalized the CDC expanded influenza vaccine recommendations to include universal coverage, i.e., encouraging all persons older than 6 months of age to receive an annual influenza vaccination.

Adult Vaccines

A number of vaccines are recommended for adults as well, with indications determined by health condition, age, lifestyle, 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 2009, PDPH was able to expand the VFAAR program by offering adult vaccines through the District Health Centers. In 2010, the federal government, through ARRA, awarded Philadelphia an additional \$1 million dollars for the purchase of vaccines for Philadelphia's adults. These funds were used to purchase adult vaccines for use in clinics and city health centers.

For more information on the Immunization Program, please visit our website for more information:

<https://kids.phila.gov/>

Pertussis (*Bordetella pertussis*)

The 122 total pertussis reports investigated by PDPH in 2010 resulted in 45 confirmed and 29 probable cases, yielding a rate of 4.8 cases per 100,000 population. The highest rate was among infants (Figure 22). Forty-six (46/74 [62%]) of all cases were female. Symptom information was available for all 74 cases. The most commonly reported symptoms included paroxysmal cough (63/74 [85%]), whoop (26/74 [35%]), post-tussive vomiting (46/74 [62%]), and apnea (21/74 [28%]). Seventy (70/74 [95%]) cases had documented cough lasting ≥ 2 weeks. Sixteen (16/74 [22%]) cases were hospitalized, 12 of which were < 1 year old. One case was fatal in a 3-week-old infant. Among the confirmed cases, 31/45 (69%) 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.

Eighteen clusters were identified in 2010. All involved disease transmission in a household. On average, each household cluster involved 2 individuals (range: 2-4 individuals).

In the 24 cases under 5 years of age (20 confirmed and 4 probable), vaccination was not always appropriate for the child's age (Table 7). Of the 28 cases between 5-19 years with vaccination information, 17 (61%) were up-to-date. Sufficient vaccination information was not available to determine the number of cases 20 years and older that were appropriately vaccinated.

Measles

There were no confirmed cases of measles in Philadelphia in 2010. There were 8 reports of individuals with suspected measles investigated; however, all were found not to have the disease.

The most recent cases of measles in Philadelphia prior to 2010 were three travel-related cases (India in 2009, Mongolia in 2001, and Nigeria in 1998) and seven cases in 1996, six of whom were associated with a homeless shelter.

Rubella

Philadelphia had no reported cases of rubella in 2010. The last two cases of rubella infection recorded for Philadelphia occurred in 1998 and 1996.

Figure 22. Rates of Pertussis per 100,000 Population by Age and Gender: Philadelphia, 2010

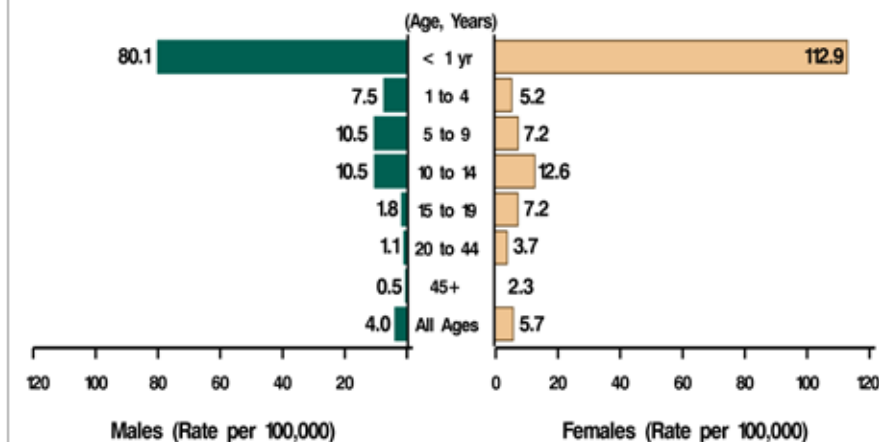


Table 7. Doses of Pertussis-Containing Vaccine Given to Pertussis Cases by Age

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

Bolded red numbers represent number of children with age-appropriate vaccine doses

Mumps

In 2010, DDC investigated 54 reports of mumps infections. Per CDC mumps case definition, cases must present with parotitis, or other clinically compatible symptoms, and the following criteria:

- Confirmed cases must test positive for mumps and/or have association with another person(s) with confirmed mumps infection
- Suspected mumps cases have no confirmatory laboratory testing

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 fifty-one (94%) confirmed and 3 suspect cases. These cases fit into one of four distinct clusters. Clusters were defined by at least one confirmed mumps case and an epidemiological link:

- Cluster A: Five students residing in the same university dormitory
- Cluster B: Five students from the same university with onset within 2 months, but no other commonalities
- Cluster C: Two cases associated with a national outbreak
- Cluster D: Thirty-nine cases at a Philadelphia religious school

Cluster details can be found in Table 8.

Clusters A-B

Cases within Cluster A had few epidemiological links with the exception of residing in a large university dormitory. A notice was posted on the University's Student Health internet page to make the university community aware of the increase in mumps, signs and symptoms, and recommendations for treatment and exclusion. For both cluster A and B, cases were excluded from classes and group settings for a period of five days after symptom onset. Both clusters occurred in a highly vaccinated student population.

Cluster C

The two cases were identified as part of a larger outbreak of mumps within the traditional Orthodox Jewish community. Upon identification of Philadelphia cases linked to this outbreak, a health advisory was sent via the Philadelphia Health Alert Network, meetings were held with administrators and school nurses of two schools serving the community in Philadelphia, and immunization records were reviewed at these schools. The majority of students and faculty at the schools were up-to-date with MMR vaccine.

Cluster D

Prior to symptom onset, the index case had visited a school outside of Philadelphia with a known mumps outbreak. Following the index case's return to the Philadelphia religious school and onset of parotitis, a physician reported 5 additional suspected mumps cases at the school within a single mumps incubation period. Initial cases were tested to confirm mumps transmission in the school. In order to help mitigate disease transmission, the following activities were implemented: daily enhanced surveillance, isolation of symptomatic students, and cancellation of group activities (e.g. tutoring) outside of the school. In addition, PDPH offered a MMR vaccination clinic for all persons affiliated with the school. A total of 140 doses were given to students; 125/140 (89%) received a third dose. Within two incubation periods of the vaccine clinic, the outbreak subsided and no new cases were identified.

Table 8: Characteristics of Mumps Cases Associated with Clusters in 2010

Characteristics	Case Status N	Age (Years)				Symptoms N (%)	Lab Evidence of Infection		MMR Vaccination Status	
	Total Confirmed	0-4	5-18	19-24	25+	Parotitis	Yes N (%)	No N (%)	Up-to-Date (2 doses)	Unknown
Cluster A	5	0	1	4	0	5 (100)	1 (20)	4 (80)	5	0
Cluster B	5	0	1	3	1	5 (100)	2 (40)	3 (60)	5	0
Cluster C	2	0	0	1	1	2 (100)	0 (0)	2 (100)	1	1
Cluster D	39	0	24	15	0	28 (72)	11 (28)	28 (72)	38	1

Varicella-Zoster Virus

Varicella Vaccine Coverage

According to the KIDS Immunization Registry, varicella vaccination coverage rates ranged from 69% to 87% for children 1 to 12 years of age in Philadelphia during 2010 (Figure 23). In Fall 2010, school entry regulations in Philadelphia required 2 doses of varicella vaccine for all children entering kindergarten, 1st grade, and 6th grade. These requirements are essential for maintaining high single-dose varicella vaccination coverage rates and increasing 2-dose coverage rates among children in Philadelphia.

Citywide Passive Varicella Surveillance

During 2010, 261 varicella cases (confirmed and probable) were reported through passive surveillance from the city outside of West Philadelphia (active surveillance area), marking an 18% decrease from 2009 (326 cases). Similar to trends from the West Philadelphia active surveillance area, the continued citywide declines may be attributed to increasing 2-dose varicella vaccination coverage. Median age for the reports was 7 years (range: 4 months–79 years). Five of the varicella cases reported in 2010 were hospitalized: all were older cases (≥ 21 years) who were unvaccinated or had an uncertain vaccination status. Fifty percent (N=130) of the reported varicella cases had been vaccinated, including 45 children aged 4 to 16 years who developed breakthrough infections after receiving a second dose of vaccine. As expected, vaccinated cases occurred in age groups with high vaccine coverage, particularly children and adolescents aged 1 to 19 years (Figure 24).

In Fall 2010, VASP was notified of 2 varicella outbreaks at a daycare and school serving the same community; both had pockets of under-immunized children. These were the first varicella outbreaks reported in a daycare setting since 2004 and a school setting since 2008. The index case for the daycare outbreak was an unvaccinated 15-month old who attended daycare with rash due to a missed varicella diagnosis. Subsequently, 5 other attendees and 1 staff member developed varicella (4 unvaccinated, 1 previously vaccinated, and 1 receiving a routine dose after exposure). The index case for the school outbreak had herpes zoster and was followed by 4 varicella cases among unvaccinated students, of whom

Figure 23. Varicella Vaccination Coverage Among Children by Age and Dosage: Philadelphia, 2010

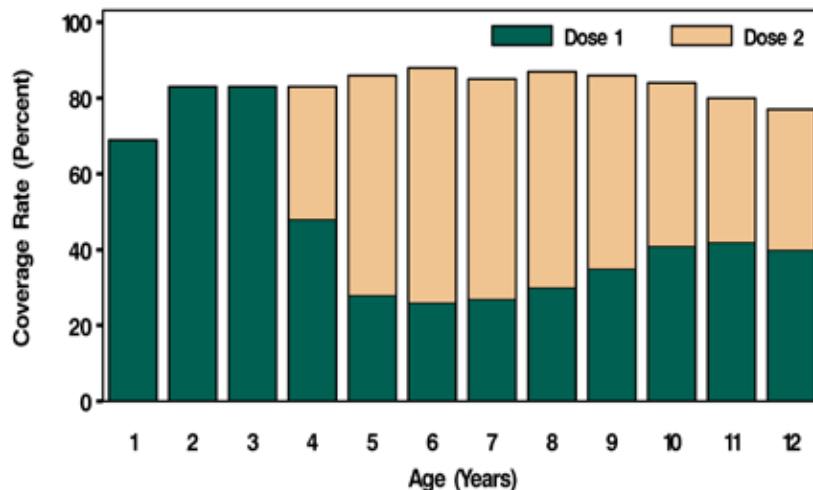
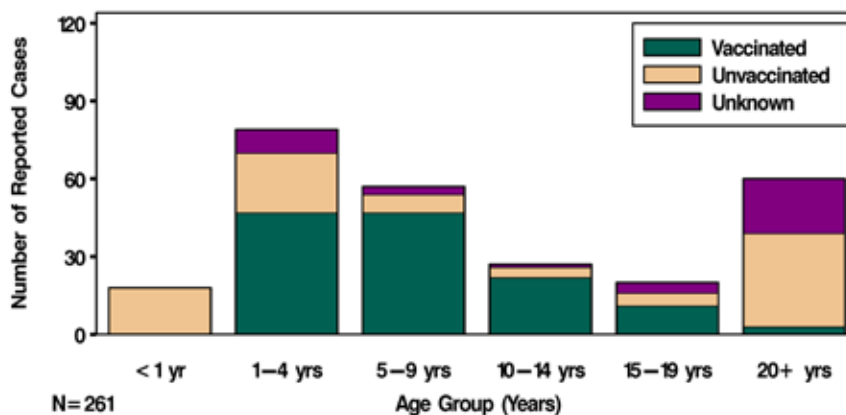


Figure 24. Citywide Varicella Reports by Age Group and Varicella Vaccination Status: Philadelphia, 2010



3 were siblings from the same household. The outbreaks occurred within 8 weeks of each other, and no specific links were identified.

Varicella Active Surveillance in West Philadelphia

Through an active surveillance network maintained in West Philadelphia (VASP), 34 confirmed varicella cases were reported during 2010. Varicella disease remained markedly lower than in the early vaccination era – a 97% reduction from 1995 (Figure 25). In 2010, 16/34 (47%) varicella cases were breakthrough varicella infections in previously vaccinated individuals with 9 breakthrough cases occurring among 2-dose recipients. One unvaccinated adult case was hospitalized as a result of varicella illness.

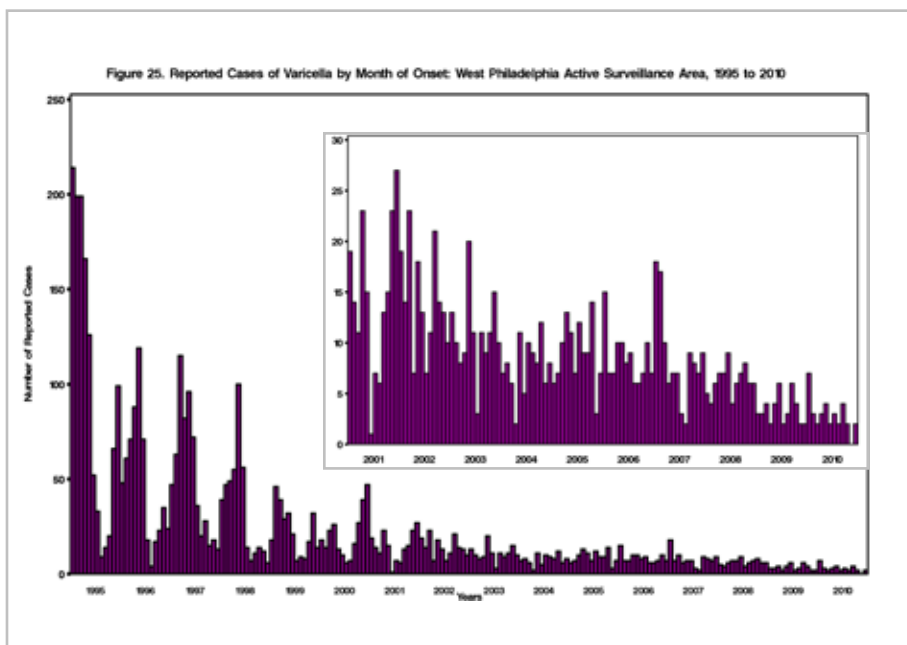
Herpes Zoster Active Surveillance in West Philadelphia

Herpes Zoster Surveillance Among Children and Adolescents

During 2010, VASP received 19 confirmed HZ cases among West Philadelphia residents <20 years of age (median age 14 years [range: 13 months to 19 years]). One HZ case <20 years of age was hospitalized in 2010.

Adult Herpes Zoster Surveillance (>50 years old)

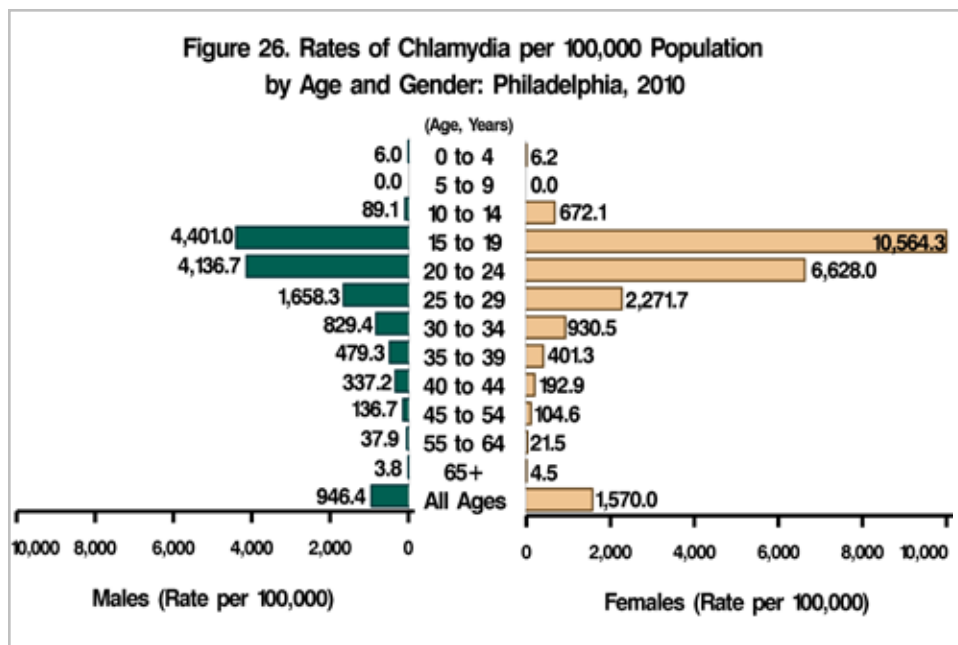
In 2010, VASP received 158 confirmed HZ cases among West Philadelphia residents 50 years of age and older, which was a slight decrease (3%) from 2009. In 2010, 23 (15%) HZ cases were classified as having post-herpetic neuralgia (PHN) or persistent pain at the location of the VZV reactivation after the HZ rash had resolved. Of the 158 adult HZ cases occurring during 2010, 15 (9%) were hospitalized, and none of the HZ-related hospitalizations resulted in death.



Sexually Transmitted *Diseases*

Chlamydia trachomatis

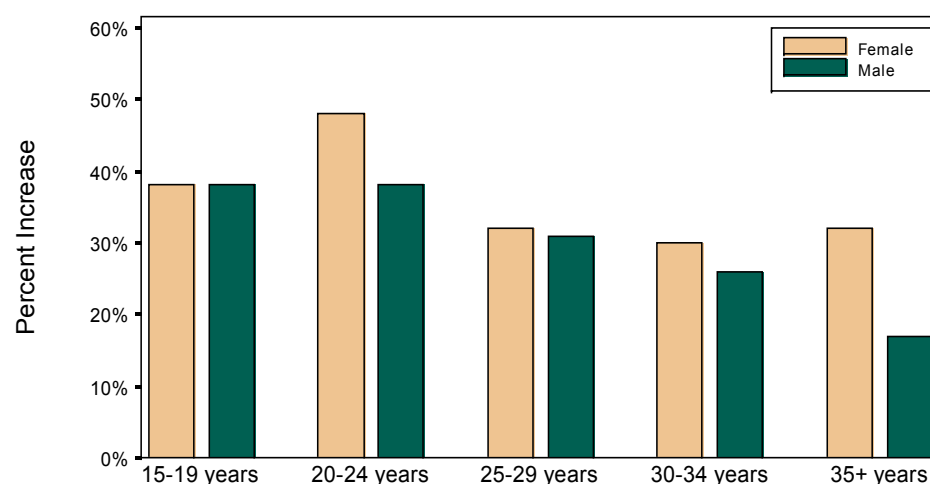
In 2010, there were 19,428 positive *Chlamydia trachomatis* results reported to PDPH, including 13,032 (67%) performed as part of the PDPH Citywide STD Screening Program. Rates of reported chlamydial infection in 2010 continue to be much higher in women than in men and are highest in 15-19 year olds, as can be seen in Figure 26. Positive chlamydia results among males increased 9% between 2009 and 2010 (6,673 cases in 2010 compared to 6,124 cases in 2009). At the same time, chlamydial infection among women increased 6% (12,755 cases in 2010 compared to 11,980 cases in 2009).



Gonorrhea (*Neisseria gonorrhoeae*)

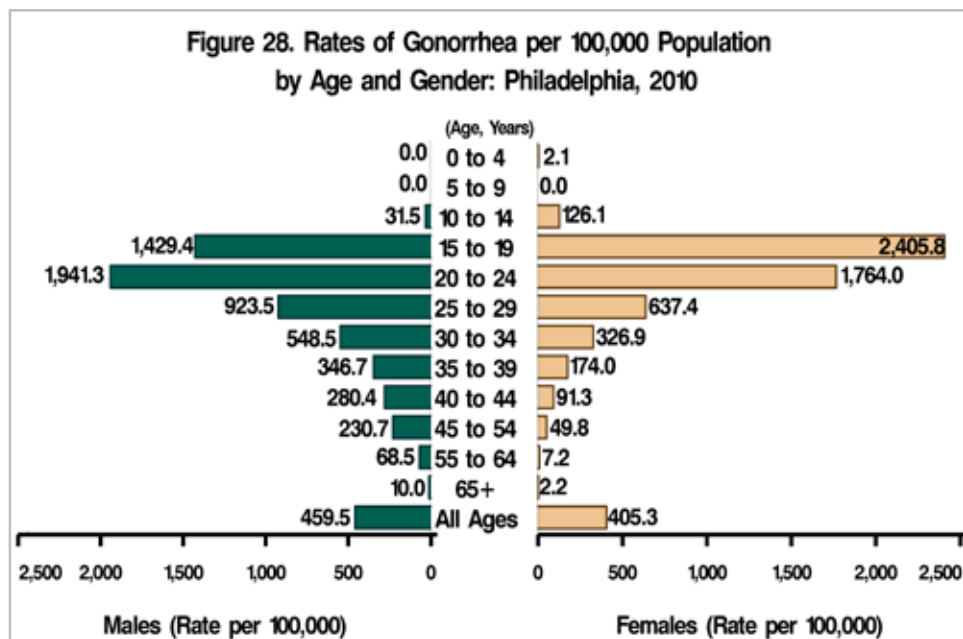
In 2010, 6,533 cases of gonorrhea were reported in Philadelphia, a 36% (+1,710 cases) increase from 2009. This increase is among all ages and sexes, suggesting a true increase in disease (Figure 27). No particular risk behaviors associated with the increase were identified. Every year, PDPH submits 300 *N. gonorrhoeae* isolates from male STD clinic attendees to the CDC Gonococcal Isolate Surveillance Project (GISP) for antibiotic susceptibility testing. Of the 296 isolates submitted in 2010, 41 (14%) 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, there is still no known gonococcal resistance to ceftriaxone, the primary recommended treatment for *N. gonorrhoeae* infections at all anatomical sites. However, national criteria for resistance to ceftriaxone

Figure 27. Percentage Increase of Reported Gonorrhea Cases between 2009 and 2010 by Age and Gender, Philadelphia



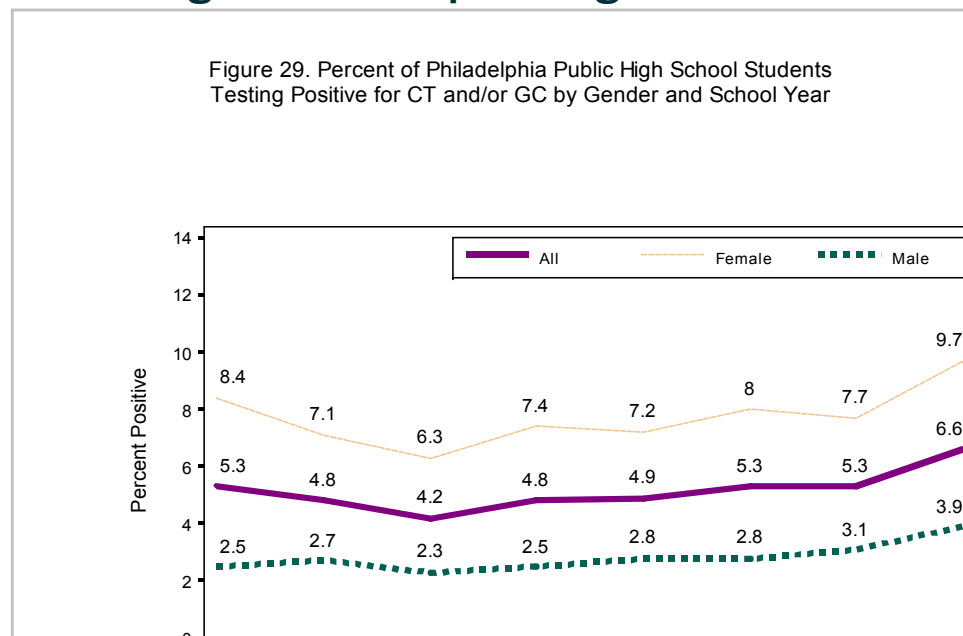
Sexually Transmitted Diseases

have not been established for this organism. In addition, recent evidence suggests that effective treatment of pharyngeal gonorrhea requires higher doses of ceftriaxone. In accordance with recent CDC guidelines, PDPH has begun using 250 mg of ceftriaxone intramuscularly PLUS 1g azithromycin for first-line treatment of gonorrhea. Cefixime (400 mg) PLUS 1g azithromycin is now recommended as the oral treatment for uncomplicated gonococcal infections of the urethra, cervix, and rectum, but is not recommended for pharyngeal infection.



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 and select charter schools. After screening for 9 consecutive school years, 141,961 screening tests have been completed on 97,996 students, resulting in 7,498 positive tests for either or both of these diseases. Treatment has been confirmed for 7,363/7,498 (98%) of the students with positive results. Additional school screening is offered within the Health Resource Centers in certain public high schools. During the 2010-2011 school year, the three programs – public school screening, charter school screening, and HRC testing – identified 936 students infected with chlamydia, gonorrhea, or both, and to date 871 (93.1%) students have documented treatment for these infections.



Public High School Screening Program

During the 2010-2011 school year, 539 (10.1%) of the 5,316 females and 295 (4.5%) of the 6,581 males screened were positive for chlamydia only, gonorrhea only, or both infections (Figure 29). This is the highest percent ever of students testing positive in a school year; however, this increase may be due to a change in the educational component of the program, which particularly emphasized ever having sex, including oral sex, as risk factors for STDs. Of the 497 male and female high school students eligible for rescreening, 286 (57.5%) were rescreened within 3 months after their infection, and 35 (12%) were again positive.

Syphilis (*Treponema pallidum*)

P & S Syphilis Surveillance in Philadelphia

In Philadelphia, infectious syphilis rates have continued to increase. In 2010, 238 cases of primary and secondary (P&S) syphilis were reported to PDPH, a 9% increase from 2009. Seventy-three 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 30]). Of the 212 P&S cases among males in 2010, most (155 [73%]) were men who reported having sex with men (MSM). Among the 155 MSM with P&S syphilis, 147 disclosed their HIV status - 82 (56%) were HIV positive. Cases among females remained similar in 2010 (N=26) compared to 2009 (N=27); 22 of these cases were reported in females of childbearing age (15-40 years).

Early Latent Syphilis Surveillance in Philadelphia

There were 223 cases of early latent syphilis reported in 2010, a 13% decrease from 2009. Most early latent cases were male (81%),

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 32). In 2010, there was 1 congenital syphilis case report. In the first 6 months of 2011, 3 case reports meeting the surveillance case definition for congenital syphilis have 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 30. Rates of Primary and Secondary Syphilis per 100,000 Population by Age and Gender: Philadelphia, 2010

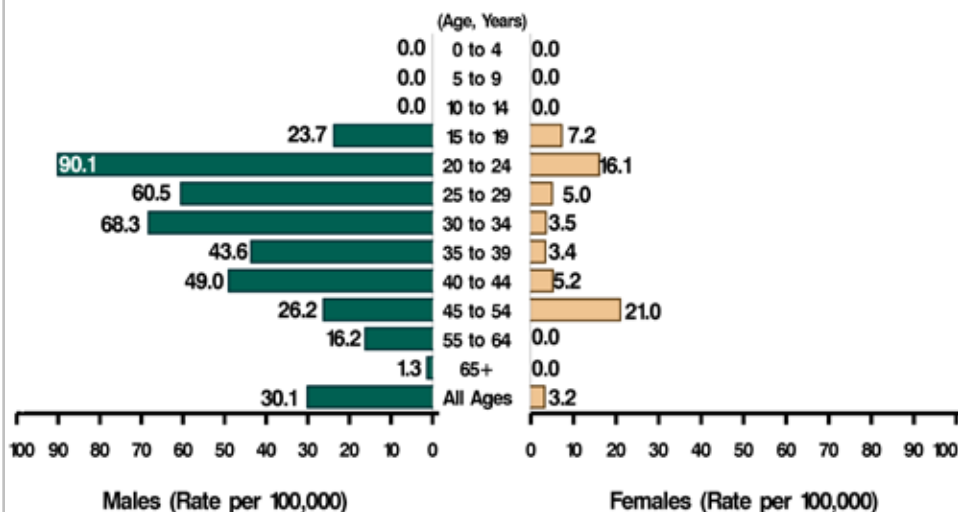


Figure 31. Rates of Early Latent Syphilis per 100,000 Population by Age and Gender: Philadelphia, 2010

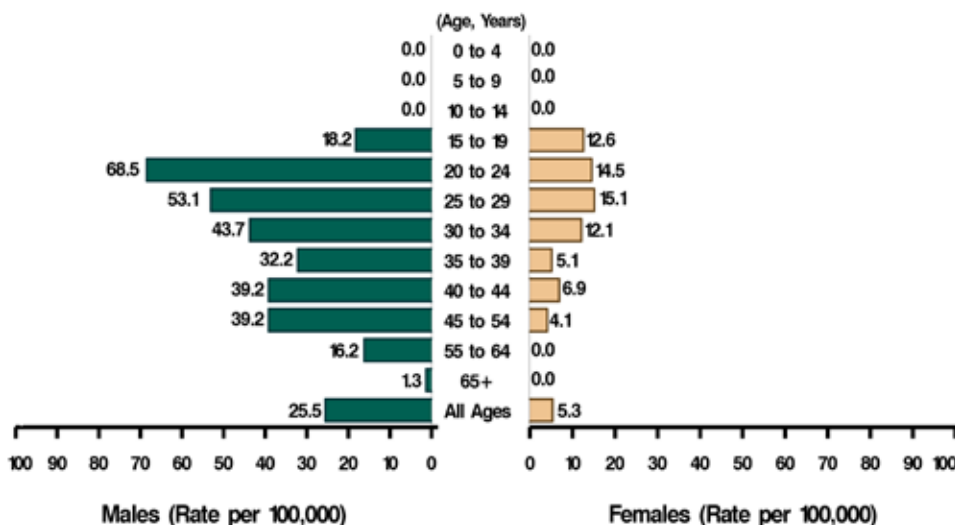
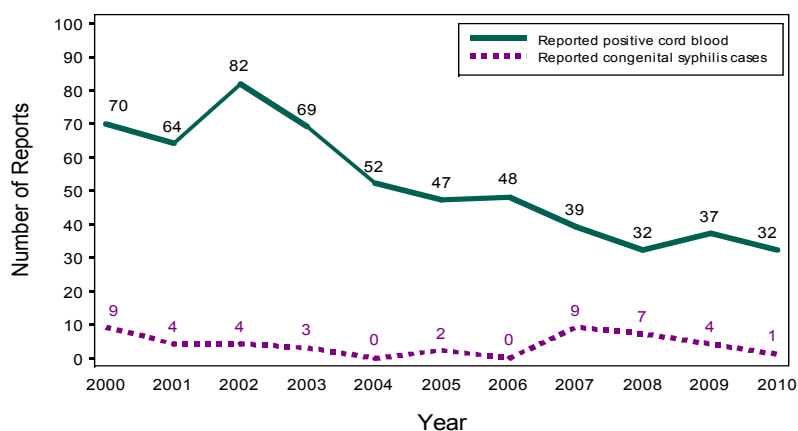


Figure 32. Reported Cases of Congenital Syphilis and Positive Cord Blood Tests: Philadelphia, 2000 to 2010



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

HIV Surveillance in Philadelphia

Name-based reporting of HIV diagnoses was implemented in October 2005. In 2010, 679 cases of HIV (non-AIDS) were reported to the AIDS Activities Coordination Office (AACO); however, due to continued reporting of prevalent cases this likely overestimates the true number of new infections in Philadelphia. Newly reported HIV (non-AIDS) cases are predominantly male (73%), African American (70%), and are thought to be related to heterosexual contact (42%).

AIDS Surveillance in Philadelphia

In 2010, 173 cases of AIDS were reported to the AACO Surveillance Unit. AIDS in Philadelphia disproportionately

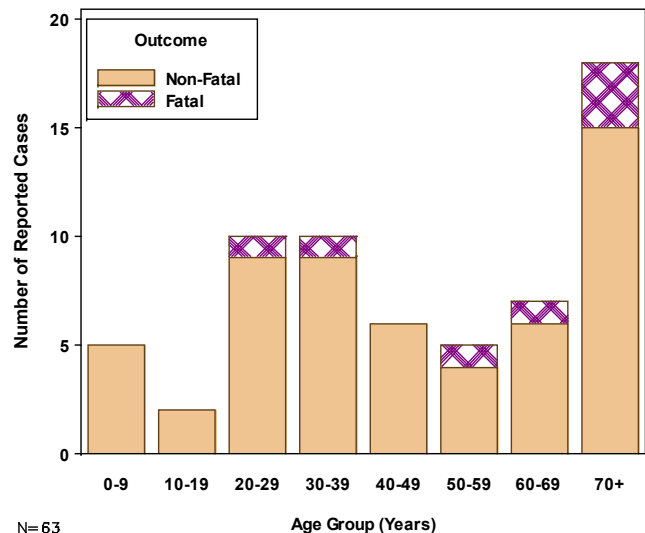
affects African Americans (75%) as compared to Whites (9%) and Hispanics (14%). More than three-fourths of cases (78%) were among males, and 60 (35%) were among persons 40-49 years of age. Heterosexual contact was the dominant mode of transmission (44%), compared to MSM contact (32%) and injection drug use (16%). For additional information about HIV/AIDS in Philadelphia, please visit the AACO website:

<http://www.phila.gov/Health/AACO/>

Invasive Group A *Streptococcus* (GAS)

In Philadelphia during 2010, there were 64 confirmed cases of invasive GAS. GAS was isolated from blood in 98% (63/64) of cases. Almost two-thirds of the cases were female (41/64 [64%]) and the median age was 48 years (range: 6 weeks-91 years). Eight individuals died.

Figure 33. Invasive Group A *Streptococcus* by Age Group and Outcome: Philadelphia, 2010



Animal Exposures and Animal Rabies Testing

In 2010, DDC received 1,357 reports of Philadelphia residents exposed to an animal primarily through a bite or scratch. The majority of exposures were bites (1,336/1,357 [98%]). Dogs, cats, and bats accounted for 1,025/1,357 (76%), 281/1,357 (21%), and 8% of all reported exposures, respectively. For 960/1,357 (71%) exposures, the animal's owner was located, and of those exposures, 198/960 (21%) were the result of animals within the victim's household. Exposures were equally distributed by gender. Of the 1,300 (96%) reports with the victim's age included, the median age was 24 years, with the majority of victims between the ages of 10 and 43 years.

Management of animal exposures and animal rabies testing requires a strong partnership with the PDPH Environmental Health Services Vector Control Unit and the PDPH Public Health Laboratory (PHL). The Vector Control Unit conducts field investigations to observe domestic animals following 10-day quarantine periods and also reviews rabies vaccination statuses of animals involved in human exposures. The PHL performs rabies testing, and in 2010 tested 177 animals by direct fluorescent antibody staining of brain tissue. Of those animals tested at PHL, one cat tested positive for rabies. Additionally, the Pennsylvania Department of Health tested one positive dog and raccoon. All human exposures associated with the positive dog and cat were recommended post-exposure prophylaxis. No human exposures were associated with the positive raccoon.

Public Health *Preparedness*

Bioterrorism & Public Health Preparedness (BT-PHP) Activities: Highlights of 2010

In 2010, the Bioterrorism and Public Health Preparedness Program (BT-PHP) continued to support the response to H1N1 influenza, expanded readiness by building local capacity to urgently manage medical counter-measures, worked with city response partners to receive evacuated trauma patients from Haiti, and launched a faith-based collaboration to promote community preparedness.

Working with city clinics that serve under and uninsured populations, BT-PHP pre-positioned a supply of influenza antiviral medications, improving rapid access at the point of care for patients who presented with influenza illness. A total of 1,200 medication regimens was distributed.

Following the severe earthquake near Port au Prince Haiti on January 12, 2010, BT-PHP worked with city agencies, hospitals, the Philadelphia International Airport, and the National Disaster Medical System (NDMS) to establish a coordinated patient reception and hospital transfer program. Specific elements that BT-PHP provided were a communicable disease screening protocol at the airport, and a detailed electronic patient tracking system. Philadelphia, through NDMS, was on stand-by for 3 weeks to receive potential trauma evacuees, and ultimately was stood down without any patient transfers.

By early summer, BT-PHP expanded its mass prophylaxis response capacity by developing and exercising an emergency warehouse plan to receive pharmaceuticals from the Strategic National Stockpile. Partnering with prisons and nursing homes in Philadelphia, the PDPH-run emergency warehouse exercise distributed 60,000 doses of medications to 41 alternate locations in 2 hours. Accuracy of inventory management was extremely high and has led BT-PHP to aggressively expand its local warehouse model and alternate medication center planning activities.

Community preparedness and recovery is a rising area of readiness for large urban areas. BT-PHP has an Outreach Subprogram dedicated to expanding readiness and resiliency among Philadelphia residents through active collaboration with partner agencies. In 2010, BT-PHP launched a community disaster strengthening initiative with city faith-based organizations. Working with the leadership of several spiritual organizations, BT-PHP is creating a collaboration to reach local communities by educating ministers, pastors, and other spiritual leaders to build health promotion awareness, mental health support, and disaster recovery resiliency.

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)					Telephone (H) _____
					(W) _____
					(C) _____
DOB (Mo., Day, Yr.)	Age	Sex <input type="checkbox"/> M <input type="checkbox"/> 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 if Occurred)		Diagnosis (check one)	Pain (check one)
			<input type="checkbox"/> Clinical <input type="checkbox"/> Lab confirmed	<input type="checkbox"/> Yes <input type="checkbox"/> 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 <input type="checkbox"/> ICP <input type="checkbox"/> ED <input type="checkbox"/> 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 <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> Mail <input type="checkbox"/> Active Surveillance <input type="checkbox"/> Other _____
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Any unusual illness, disease clusters or possible outbreaks should be reported immediately by telephone.
Please fax all completed reports to 215-545-8062, 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: 215-545-8362

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

* Report suspected and confirmed cases within 24 hours

‡ Report to AIDS Activities Coordinating Office at 215-685-4781

All other cases should be reported within 5 days

§ 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 - 2000 to 2010

NR = Not reportable, NA = Not available)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ACQUIRED IMMUNODEFICIENCY SYNDROME	893	914	848	760	508	699	690	504	216	173
AMEBIASIS	30	20	18	9	6	4	19	14	14	4
ANIMAL BITES/EXPOSURES	1,894	1,922	1,612	1,353	1,418	1,457	1,499	1,641	1,578	1,624
ANTHRAX	0	0	0	0	0	0	0	0	0	0
BABESIOSIS	0	0	1	0	0	0	1	0	0	0
BOTULISM	1	3	3	0	1	1	1	1	0	1
BRUCELLOSIS	0	1	0	0	0	0	1	0	0	0
CAMPYLOBACTERIOSIS	90	97	114	96	74	73	80	118	124	121
<i>CHLAMYDIA TRACHOMATIS</i>	13,586	15,234	17,747	16,723	15,577	17,199	17,029	17,012	18,104	19,428
CHOLERA	0	0	0	0	0	0	0	0	1	0
CRYPTOSPORIDIOSIS	13	15	19	19	27	29	94	23	38	17
CYCLOSPORIASIS	1	0	2	0	3	0	2	1	3	0
DENGUE FEVER	0	0	0	0	0	1	8	1	0	3
DIPHTHERIA	0	0	0	0	0	0	0	0	0	0
<i>ESCHERICHIA COLI</i> , shiga-toxin producing (STEC)	42	17	14	11	7	19	4	8	10	14
GIARDIASIS	120	135	113	104	93	81	65	99	106	122
GONORRHEA	8,061	7,277	5,731	5,206	5,053	5,218	5,246	4,950	4,823	6,533
GUILLIAN-BARRE SYNDROME	2	2	0	0	1	2	1	3	1	0
HAEMOPHILUS INFLUENZAE [type b]	7 [1]	8 [1]	14 [1]	9 [0]	14 [0]	16 [0]	19 [2]	11 [1]	30 [7]	28 [1]
HEPATITIS A	98	70	179	39	17	14	9	10	2	13
HEPATITIS B, ACUTE	111	97	51	60	27	21	15	21	9	5
HEPATITIS C, ACUTE (Non-A, Non-B until 1998)	1	4	3	0	2	1	0	0	0	1
HISTOPLASMOSIS	1	2	2	2	0	1	2	0	1	2
HUMAN IMMUNODEFICIENCY VIRUS	NR	NR	NR	NR	NR	703	1,384	1,174	911	679
LEGIONELLOSIS	3	10	23	31	19	21	24	26	60	33
LEPTOSPIROSIS	1	1	0	0	0	0	0	0	0	1
LISTERIOSIS	8	19	11	11	2	7	8	5	5	8
LYME DISEASE	99	179	164	182	172	139	172	281	363	238
MALARIA	16	16	19	13	14	15	7	19	16	22
MEASLES	1	0	0	0	0	0	0	0	1	0
MENINGITIS, ASEPTIC	71	112	120	87	95	66	86	79	68	84
MENINGITIS, BACTERIAL	15	21	7*	4*	4*	1*	4*	4*	6*	12*
MENINGOCOCCAL INFECTIONS	12	15	15	14	8	2	9	5	12	5
MUMPS	1	1	2	1	2	2	1	0	0	54
PERTUSSIS	34	31	98	109	75	50	39	54	65	74
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	2	4	0	7	3	8	2	5	0	9
RUBELLA, including congenital rubella syndrome	0	0	0	0	0	0	0	0	0	0
SALMONELLOSIS, excluding typhoid	287	324	316	261	305	293	404	420	396	395
SHIGELLOSIS	139	191	696	31	31	14	138	206	1,051	141
STREP PNEUMONIAE, INVASIVE	NR	NR	101	94	151	139	162	165	199	154
STREPTOCOCCUS, INVASIVE Gp. A [TSS]	14 [7]	16 [1]	43 [3]	24 [3]	27 [0]	37 [0]	34 [0]	75 [0]	49 [1]	66 [0]
SYPHILIS - PRIMARY & SECONDARY	77	71	98	72	86	125	136	150	218	238
SYPHILIS - CONGENITAL	4	4	3	0	2	0	9	7	4	1
SYPHILIS - TOTAL	639	589	587	470	417	540	500	526	704	667
TETANUS	0	0	0	0	0	0	0	0	0	0
TOXIC SHOCK SYNDROME, staphylococcal	0	1	0	0	0	0	0	0	0	0
TUBERCULOSIS	144	147	120	129	116	149	133	162	98	96
TULAREMIA	0	0	0	0	0	0	0	0	0	0
TYPHOID FEVER	2	1	1	2	1	4	0	6	2	2
VARICELLA	N/A**	N/A**	N/A**	N/A**	614	787	735	349	326	261
WEST NILE VIRUS	2	6	24	1	0	1	0	8	0	13
YELLOW FEVER	0	0	0	0	0	0	0	0	0	0

*excluding *Neisseria meningitidis*, *Haemophilus influenzae*, *Listeria*, and invasive *Streptococcus pneumoniae*.

Beginning in 2003, *S. pneumoniae* meningitis was counted with other *S. pneumoniae* cases.

**Citywide varicella data not available for these years.