



# 2008 ANNUAL REPORT

**Philadelphia Department  
of Public 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*

**Philadelphia Department of Public Health  
500 South Broad Street  
Philadelphia, PA 19146**

Telephone: 215-685-6748

Fax: 215-545-8362

Website: [www.phila.gov/health](http://www.phila.gov/health)



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# Introduction

## OVERVIEW

This annual report provides an epidemiologic summary of conditions reported to the Division of Disease Control (DDC) in 2008. 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). The report is also available on the DDC website:

[http://www.phila.gov/health/units/ddc/DDC\\_Annual\\_Reports.html](http://www.phila.gov/health/units/ddc/DDC_Annual_Reports.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/ncphi/diss/nndss/casedef/case\\_definitions.htm](http://www.cdc.gov/ncphi/diss/nndss/casedef/case_definitions.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:

[www.phila.gov/health/units/ddc/pdf/PDPH\\_Notifiable\\_List\\_2007.pdf](http://www.phila.gov/health/units/ddc/pdf/PDPH_Notifiable_List_2007.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	215-545-8362
Disease Reporting by Mail	PDPH DDC, 500 South Broad Street, Philadelphia, PA 19146

## Annual Report Contributors

Steve Alles	Esther Chernak	Marcelo Fernandez-	Liyuan Ma	Dana Perella
Greta Anschuetz	Barry Dickman	Vina	Robbie Madera	Melinda Salmon
Lenore Asbel	Daniel Dohony	Lauren Hutchens	Aaron Mettey	David Schlossberg
Bruce Barlow	Christina Dogbey	Caroline Johnson	Melanie Napier	Barbara Watson
Kathleen Brady	Michael Eberhart	Felicia Lewis	Aasit Nanavati	Kendra Viner
Colleen Burke	Eric Foster	José Lojo	Claire Newbern	
	Martin Goldberg	Jim Lutz	Ami Patel	

# 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*

### Meningococcal Infection (*Neisseria meningitidis*)

In 2008, five epidemiologically unlinked cases of invasive meningococcal disease were reported to DDC. The median age of cases was 16 years (range: 11-54 years) and 60% were male. No cases resulted in fatality. *N. meningitidis* was isolated from cerebrospinal fluid (1), joint fluid (1), and blood (3). Serogroup information was available for three of the cases – two were typed as Y, one B, and two were not grouped. (Table 1).

Figure 1. Invasive Meningococcal Disease by Age Group and Outcome: Philadelphia, 1995–2008

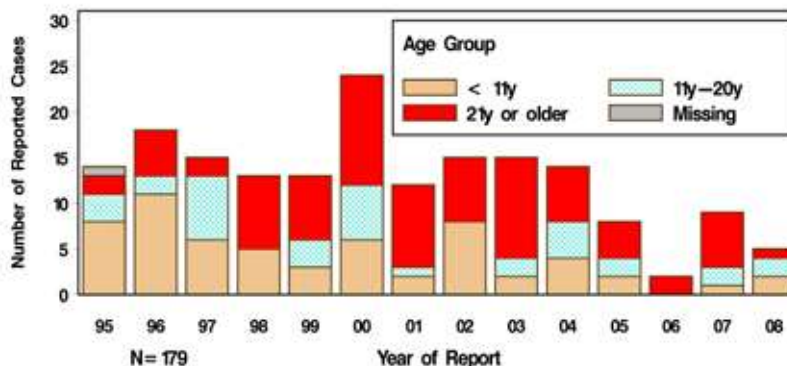


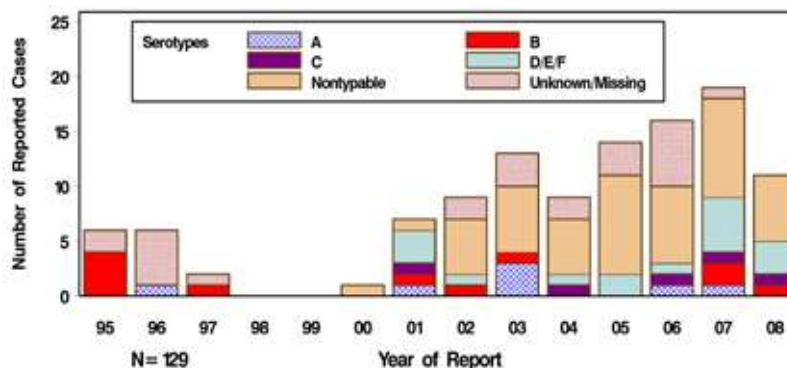
Table 1. Meningococcal Serogroups: Philadelphia, 2000 to 2008

Serogroup	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total n (%)
B	3	1	5	3	1	1	0	0	1	15 (16)
C	7	2	2	5	3	0	0	4	0	23 (24)
W	0	0	0	1	0	0	1	0	0	2 (2)
Y	9	5	7	4	6	4	0	2	2	39 (41)
Z	0	0	0	0	1	0	0	1	0	2 (2)
Not grouped	2	1	1	2	1	3	1	2	2	15 (16)
Total	21	9	15	15	12	8	2	9	5	96 (100)

### Invasive *Haemophilus influenzae* Disease

In 2008, there were 11 confirmed reports of invasive disease caused by *H. influenzae*. Ten (91%) of these *H. influenzae* infections were among females. The median age was 43 years, ranging from 10 weeks-88 years. Of the 11 confirmed cases, five (45%) had primary bacteremia, 5 (45%) experienced pneumonia, and one (9%) had meningitis. All 11 cases were hospitalized and one elderly case was fatal. Serotype information was available for all cases: 6 (55%) were untypeable, 3 (27%) were serotype F, 1 (9%) was serotype B, and 1 (9%) was serotype C. The one *H. influenzae* serotype B infection was an adult female – with no known vaccination history and no known contact with any high-risk individuals.

Figure 2. Invasive *Haemophilus influenzae* by Serotype: Philadelphia, 1995–2008



## Invasive *Streptococcus pneumoniae* Disease

In Philadelphia during 2003, invasive *S. pneumoniae* infections became reportable. There were 165 reports of invasive IPD in Philadelphia during 2008. Slightly more than half of the cases were among females (51%), and the median age of infection was 50 years (range: 6 months-92 years). Sixteen cases (10%) were in children under 5 years of age and 42 (25%) were in the 65 years and older age group, which when considered relative to the population size confirms the increased risk in these two groups (Table 2).

### Drug Resistant Invasive *S. pneumoniae* Infections

Due to high levels of antibiotic resistance among *S. pneumoniae* infections, PDPH collects available susceptibility results. In 2008, 26 (16%) of the 161 isolates with susceptibilities were fully or intermediately resistant to penicillin and/or oxacillin (Table 3). In previous years (2004-2007), the proportion of penicillin/oxacillin-resistant *S. pneumoniae* (SPDR) isolates was between 22% and 24%.

**Table 2. Characteristics of Invasive Pneumococcal Disease Cases by Age Group, Philadelphia, 2008**

Patient Characteristics	Age Groups		
	< 5 years old n (%)	5-64 years n (%)	≥ 65 years n (%)
<b>Number of Reported Cases</b>	16	107	42
<b>Age (median, range)</b>	6 months (6-53 mos)	49 years (6-64 yrs)	76 years (65-93 yrs)
<b>Female</b>	6 (38%)	49 (46%)	29 (69%)
<b>Clinical Manifestation</b>			
Bacteremia & pneumonia	6 (38%)	62 (58%)	19 (45%)
Bacteremia without focus	5 (31%)	31 (29%)	20 (48%)
Meningitis	4 (25%)	14 (13%)	1 (2%)
Septic arthritis	1 (6%)	0	2 (5%)
<b>Outcomes</b>			
Hospitalized	15 (94%)	98 (92%)	41 (98%)
Fatal	2 (13%)	10 (9%)	13 (31%)
<b>≥1 Reported Underlying Condition</b>	5 (31%)	65 (61%)	25 (60%)
<b>PCV * Vaccination</b>			
Up-to-date vaccination	10 (63%)	N/A	N/A
<b><i>S. pneumoniae</i> Serotypes</b>	15A(2), 35B(2), 19A (1)	23A (1)	
<b>Drug Resistant</b>	3 (19%)	16 (15%)	4 (10%)

\*Pneumococcal Containing Vaccine

**Table 3. Antibiotic Susceptibilities of *Streptococcus pneumoniae* Isolates: Philadelphia, 2008**

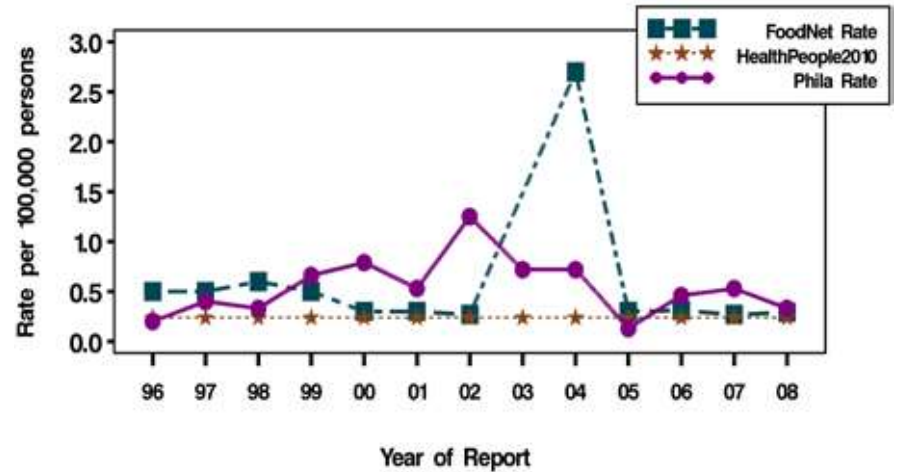
Antibiotics	Isolates Tested (No.)	Suceptible Isolates (%)
Penicillin/Oxacillin	161	84
Ceftriaxone	139	97
Erythromycin	79	84
Clindamycin	46	89
TMP/SMX	78	91
Penicillin/Oxacillin & Erythromycin	79	76
Penicillin/Oxacillin & Ceftriaxone	138	83
Vancomycin	71	100
Levofloxacin	89	99



## Listeriosis (*Listeria monocytogenes*)

In 2008, there were five cases of listeriosis in Philadelphia residents. Three (60%) of the cases were male. All cases were adults older than 50 years (median age: 60 years, range: 51-81 years). PDPH did not identify any links between these cases – they occurred sporadically in time and place, and the DNA fingerprints of the two isolates that underwent pulsed field gel electrophoresis were different. Two of the five isolates were obtained from blood cultures, CSF (2), and joint fluid (1). All of the four individuals who were interviewed had at least one known immunocompromising issues such as chemotherapy, dialysis, or steroid therapy. All four of the cases also had a diagnosis of diabetes. One case was fatal.

Figure 3. Rates of Listeriosis by Year of Report: Philadelphia, 1996 to 2008



## Other Bacterial Meningitis

In 2008, there were four cases of bacterial meningitis fitting this category including one fatality. Three cases were male. *Streptococcus* Group B was isolated from three cases and methicillin-resistant *Staphylococcus aureus* was isolated from the one fatal case.

## Aseptic Meningitis

In 2008, 79 cases of aseptic meningitis among Philadelphia residents were reported and confirmed by DDC. The median age of these individuals was 27 years (range: 0 - 80 years). Cases were nearly equally distributed by sex (58% male). There were no reported fatalities. Seventeen individuals were tested and found to be negative for WNV. For the 10 samples with enterovirus testing, 8 were positive, 1 was negative, and 1 was unknown.

# Respiratory *Infections*

## Influenza and Respiratory Virus Surveillance (2008-2009 Season)

### Vaccination Recommendations

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 2008-2009 season, the CDC targeted a number of high-risk groups for vaccination 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. The 2008-2009 season also was the first season in which routine vaccination for all children aged 6 months through 18 years was recommended.

In cooperation with Philadelphia Corporation for Aging, the Federally Qualified Health Centers, local Nursing Schools, and other volunteer providers, DDC promotes adult influenza and pneumococcal vaccination in Philadelphia with its Community-Based Influenza Vaccination Campaign, targeting adults with no alternative sources of medical care, including the uninsured and underinsured, the homeless, and the frail or infirm. Approximately 13,000 flu shots were administered at over 250 community-based clinics in Philadelphia during the 2008-2009 season. In addition to vaccination, the campaign works to raise awareness and knowledge in the community about these diseases.

### Influenza-like Illness Surveillance

PDPH maintains an active surveillance system that monitors chief complaints related to emergency department (ED) visits from 22 local hospitals. De-identified data from hospital triage logs are received daily and subsequently analyzed for influenza-like illness and other syndromes of interest.

Much like PDPH's emergency department surveillance, de-identified data from several pediatric ambulatory clinics in our area are also received and analyzed in order for the detection of influenza-like illness. These data are categorized by reason of visit and measured temperature to determine the proportion of influenza-like illness (measured fever  $\geq 100^{\circ}$  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 4) below depicts both surveillance systems, and plots the percentage of influenza-like illness by week of visit. In late June (week 25, 2009), both surveillance systems identified increased influenza-like illness activity – concurrent with peaking novel influenza A H1N1 activity.

Figure 4. Philadelphia Emergency Department (ED) and Pediatric Ambulatory Clinic Surveillance for Influenza-like Illness Through MMWR Week 34 (August 2009)

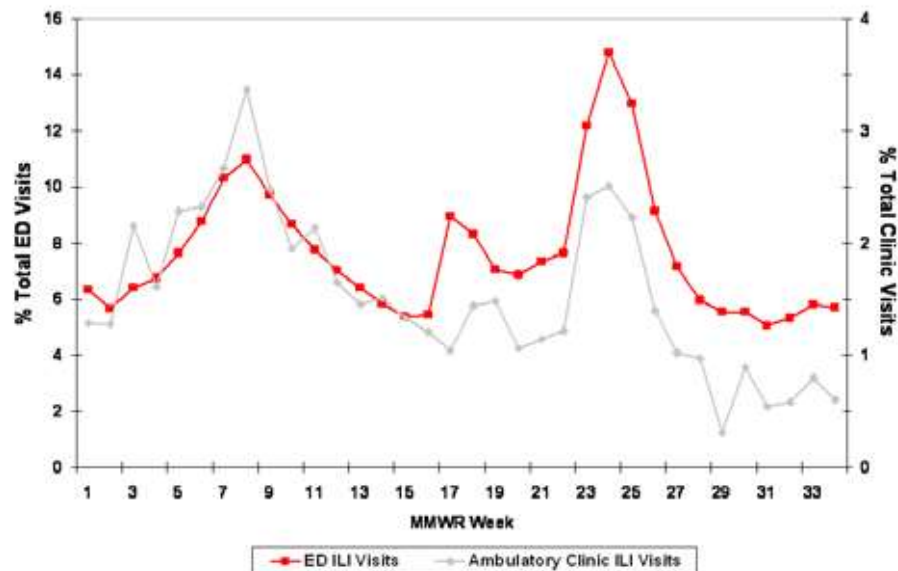
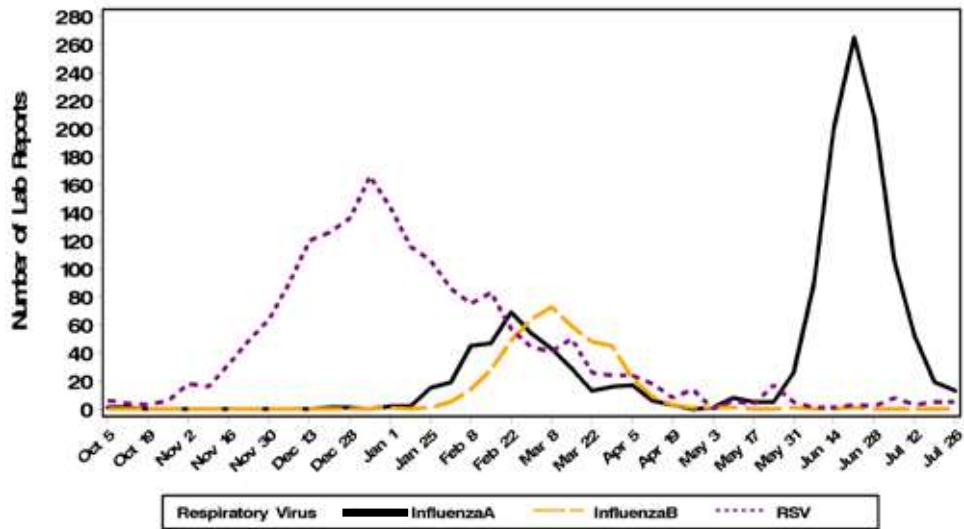


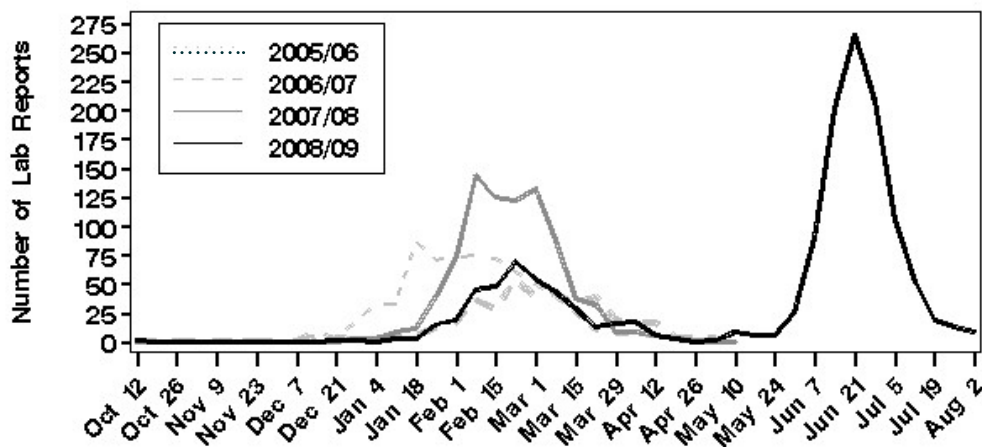
Figure 5. Respiratory Agents by Week (Reports from 7 Hospital Laboratories): Philadelphia, 2008–2009 Season



### Respiratory Virus Surveillance

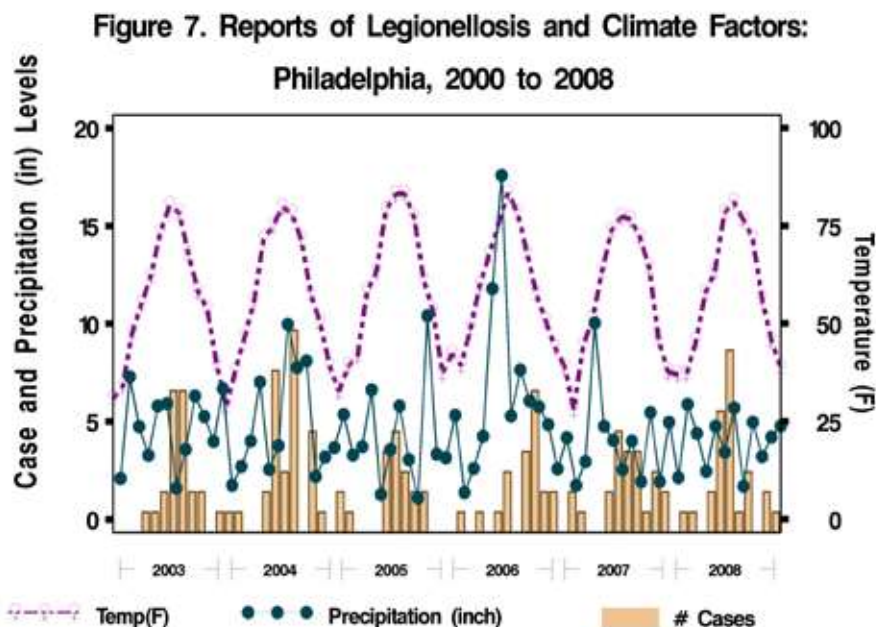
DDC conducts active, laboratory-based surveillance of circulating respiratory viruses to monitor for influenza and other viral respiratory illnesses in Philadelphia. Seven hospital laboratories participate in this surveillance system, providing aggregate weekly counts of influenza. Five of the laboratories also provide data on respiratory syncytial virus (RSV), parainfluenza, and adenovirus. Test methods vary and may include rapid antigen tests, viral culture, and PCR. As shown in Figure 5 the 2008-2009 respiratory virus surveillance season picked up in early November with sharp increases in RSV. Seasonal influenza A began to appear in January and continued to circulate through March. Influenza B followed a couple of weeks later. In early May 2009, novel influenza A H1N1 emerged in the Philadelphia area. Due to a lack of immunity in the local population, novel influenza A H1N1 spread rapidly, surpassing total counts of influenza A seen in previous seasons (Figure 6).

Figure 6. Laboratory Confirmed Influenza A Reports from Select Hospital Labs by Week of Report: Philadelphia, 2005/06 to 2008/09 Influenza Seasons



## Legionellosis (*Legionella pneumophila*)

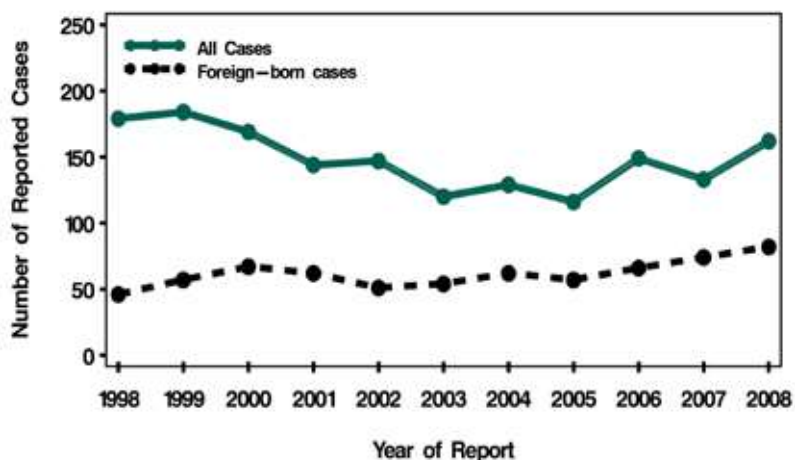
In 2008, 26 confirmed cases of legionellosis or Legionnaire’s Disease (LD) were reported in Philadelphia. Diagnosis was established with urine antigen testing in 25 (96%) of the cases and culture in one (4%) case. Eighteen (69%) cases were male. Ages ranged from 26 to 86 years with a median age of 56 years. Two cases were fatal. Of the 23 cases with risk factor information available, 52% were smokers and 30% had diabetes mellitus. Onset during the summer (June through August) was most common (18 cases) with 17 onsets in June or July. 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*)

Since 2005, the number of confirmed TB case reports in Philadelphia has increased from 116 cases in 2005 to 162 cases in 2008 (Figure 8). The overall TB case rate in 2008 was approximately 10.7 cases per 100,000 population, which exceeds the National Healthy People 2010 Objective of 3.5 per 100,000 population. Of the 162 cases reported in 2008, 109 (67%) were diagnosed with pulmonary TB, 41 (25%) with extra-pulmonary TB, and 12 (7%) with both. Eleven cases, all with pulmonary TB, had previously been diagnosed. Of the 116 individuals with documented HIV test results, 15 (12%) were infected with HIV. Five cases died, although not directly related to the TB infection. Increases in TB are driven by the rise in pediatric cases (from 19 in 2007 to 38 cases in children under 16 years old in 2008) and clinically diagnosed cases (from 33 in 2007 to 73 infected individuals who were not confirmed as culture-positive cases in 2008). Treatment completion rates have steadily increased since the 1990s, when less than half of patients completed treatment, to nearly 92%

**Figure 8. Reported Cases of Tuberculosis by Natality: Philadelphia 1998 to 2008**



among the 132 cases in 2007 completing treatment (most recent data).

### Drug Resistant TB

Isolates were available for 91 (56%) cases reported during 2008, and of these 87 (96%) had susceptibility results reported. No isolates were multi-drug resistant (MDR-TB), defined as resistance to at least isoniazid (INH) and rifampin. Twenty one (24%) of the isolates demonstrated drug resistance (Table 4).

### Populations at High Risk for TB Infection

The proportion of TB cases who are foreign-born has steadily increased in Philadelphia since 2005 (Figure 8). For the past two years over 50% of annual TB cases have been foreign-born. In 2008, 27 (33%) of the 82 foreign-born cases were from Western Pacific countries, including Vietnam, China, and Cambodia. From 2007 to 2008, there was a 144% increase of cases from the Americas outside of the US (from 9 to 22 cases).

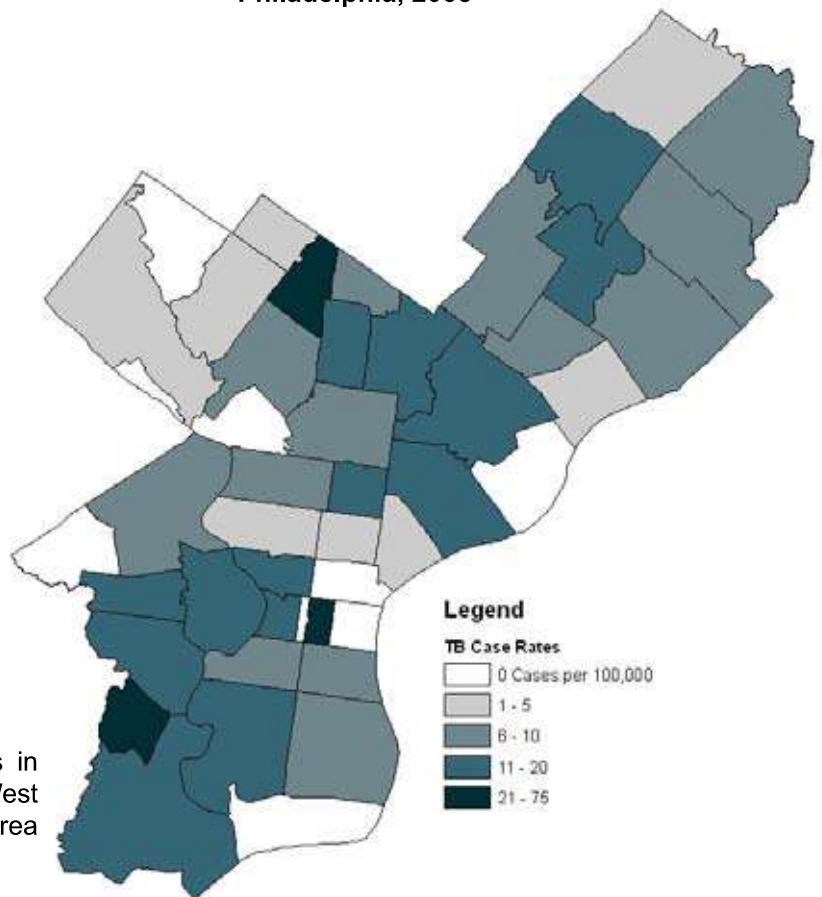
Outreach and targeted testing programs in long term care facilities (LTC), correctional facilities, and throughout the homeless shelter network have led to early detection and prevention of TB cases in these populations. In 2008, 3 (2%) of the TB confirmed cases were homeless, 3 (2%) resided in LTC at diagnosis, and 2 were identified in correctional facilities.

Some of the highest rates of tuberculosis in 2008 were seen in the Germantown, West Philadelphia, Center City east of Broad St. area as shown in Figure 9.

**Table 4. TB Isolates Susceptibility Results: Philadelphia, 2008**

TB Isolates Tested for Drug Resistance		n=87 (96%)
<b>Single drug resistance</b>		<b>n=14</b>
Isoniazid (INH)		6
Pyrazinamide (PZA)		1
Streptomycin (STM)		7
Rifampin (RIF)		0
<b>Drug resistance to more &gt;1 medication</b>		<b>n=7</b>
INH+RIF (MDR-TB)		0
INH+STM		4
INH+Ethionamide		1
INH+STM+Ethambutol		1
STM+PZA		1

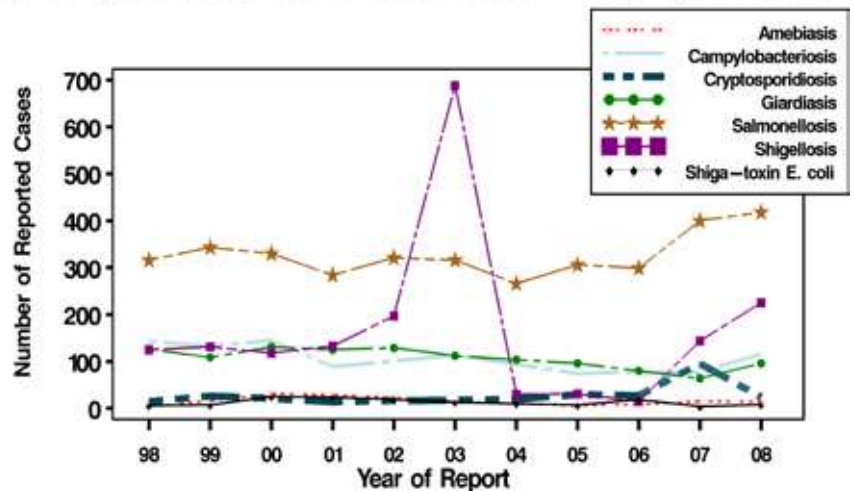
**Figure 9. Tuberculosis Rate by ZIP Code Philadelphia, 2008**



# 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*. Generally, the most commonly reported notifiable GI illness in Philadelphia is *Salmonella* (Figure 10). In 2008 DDC responded to a number of GI outbreaks – most notable of which was a city-wide shigellosis outbreak due to community-wide and household transmission. Also during 2008, DDC received reports of 27 norovirus outbreaks – 22 (81%) in LTC, 3 (11%) in hospitals, 1 (4%) in a childcare facility, and 1 (4%) in a school.

Figure 10. Reported Cases of Gastrointestinal Diseases: Philadelphia, 1998 to 2008



## Amebiasis (*Entamoeba histolytica*)

In 2008, 14 total cases of amebiasis were reported, compared to nineteen cases in 2007. No outbreaks or clusters of amebiasis were identified during 2008. Of those infected, 11 cases (79%) were male. Three (25%) of the 12 cases reported international travel histories during their incubation period (Africa, Spain and Argentina). Four of the six adult males interviewed reported having sex with men (MSM).

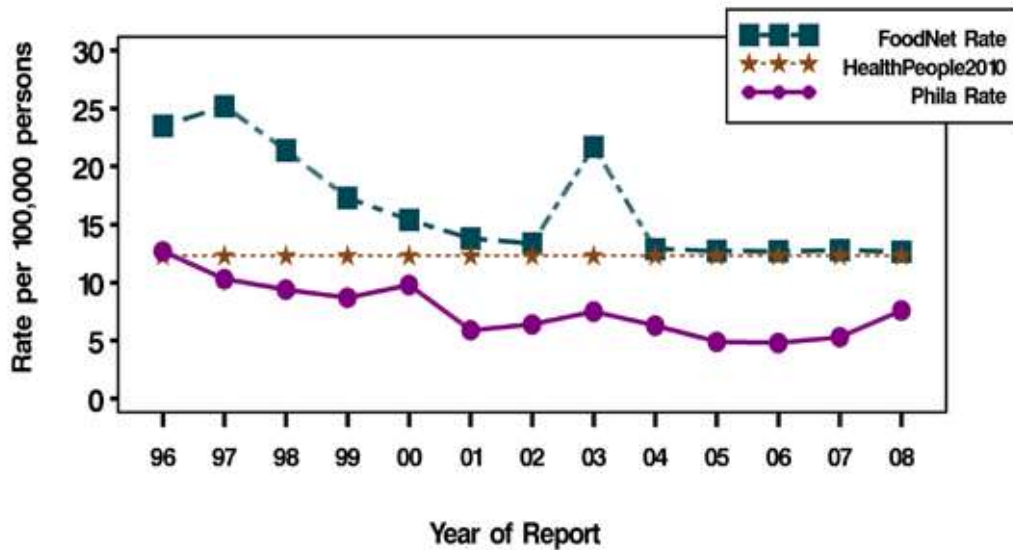
## Campylobacteriosis (*Campylobacter* spp.)

In 2008, a total of 118 cases of campylobacteriosis were reported among Philadelphia residents. Of the 2008 reports, 111 were culture confirmed and seven were classified as probable cases. Five of the probable cases were symptomatic and linked to a confirmed case in the same household. The 2008 cases were nearly equally divided by gender (55% male). The median age was 28 years (range: 0-84 years). Information on symptoms was available for 107 cases – 95% reported diarrhea, 67% abdominal pain, 60% fever, 29% vomiting, and 40% nausea. Twenty-eight (24%) of the 118 of those cases interviewed reported traveling to a foreign country during their incubation period. No campylobacteriosis fatalities were reported.

Of the nine isolates with serotype information, all were *Campylobacter jejuni*. Ciprofloxacin susceptibility was tested and results available for 26 of 111 *Campylobacter* isolates (22%). Of these, 6 (23%) were ciprofloxacin-resistant (Table 6), and of these two traveled (India and Israel) and one had animal exposure (horse).

Philadelphia campylobacteriosis rate is already lower than the CDC's FoodNet campylobacteriosis rate and the Health People 2010 objective (Figure 11).

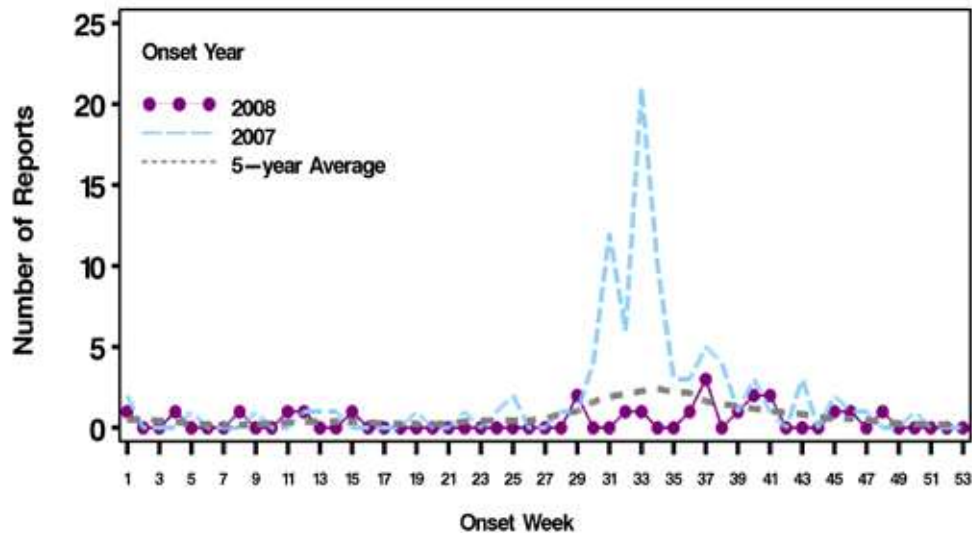
**Figure 11. Rates of Campylobacteriosis by Year of Report: Philadelphia, 1996 to 2008**



## Cryptosporidiosis (*Cryptosporidium* spp.)

In 2008, a total of 23 confirmed cases of cryptosporidiosis were reported in Philadelphia. This is a 74% decrease from the 94 confirmed cases reported in 2007, most of which were associated with a swimming pool outbreak. In Figure 12, the sharp onset of 2007 cases was during weeks 29 through 31 (late July to early August) as compared with the relatively low numbers of cases reported in 2008 over the same time period. Slightly over half of the 2008 cases (57%) were male and the median age was 38 years (range: 0-87 years). Among those with available data, no one reported an immunocompromised medical condition and only 1 traveled outside of Pennsylvania during the incubation period. No fatalities or hospitalizations were associated with cryptosporidiosis cases.

**Figure 12. Number of Cryptosporidiosis Reports by Week of Onset: Philadelphia, 2007, 2008 and 5-Year Moving Average**



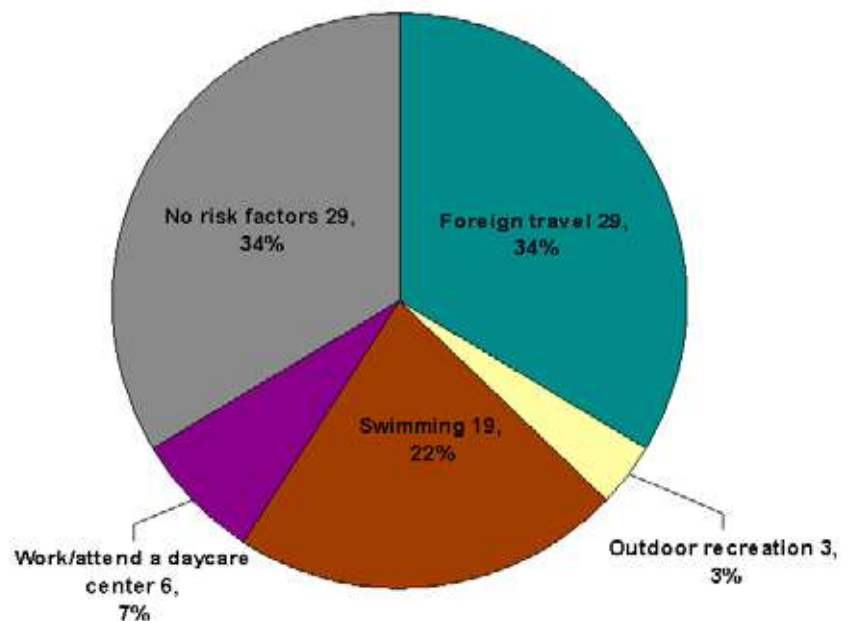
## Shiga-toxin Producing *Escherichia coli* (STEC)

Of the eight STEC cases reported in 2008 (4 reported in 2007), six were confirmed and two were suspect cases that were only shiga-toxin positive with no culture performed or reported. *E. coli* O157:H7 was isolated from two confirmed cases and four were typed as *E. coli* non-O157. Six (75%) cases were female and the median age was 22 years. Of the seven cases for which symptom and risk factor information were available all seven reported experiencing diarrhea, three reported fever, and four had abdominal cramps. Four (50%) cases reported bloody diarrhea, and no one was diagnosed with hemolytic uremic syndrome. No deaths were associated with STEC infections. Regarding potential risk exposures during the incubation period, cases reported consumption of ground beef (2), being on a farm (1), and traveling to a foreign country (1).

## Giardiasis (*Giardia lamblia*)

In 2008, 99 cases of giardiasis were reported among Philadelphia residents compared with 65 cases in 2007. Only four (4%) were probable cases. Males accounted for 60% of cases. Cases ranged in age from 0 to 83 years with a median age of 22 years. There were no fatalities as a result of giardiasis. For the 85 cases with available symptom information, diarrhea was the most commonly reported symptom (75%), followed by abdominal pain (54%), nausea (29%), vomiting (15%), and fever (25%). Of the 85 cases with reported risk factors during their incubation period, 29 cases (34%) traveled or lived in a foreign country with Africa and Southeast Asia as the most common locations reported (Figure 13). Nineteen cases (22%) reported swimming and 6 (7%) attended or worked at day-care centers. A number of the individuals with foreign travel included those screened upon arrival in the US as displaced persons.

**Figure 13. Risk Factors Reported by Giardiasis Cases: Philadelphia, 2008**



## Salmonellosis (*Salmonella* spp.)

A total of 420 salmonellosis cases were reported in the city of Philadelphia of which 378 (90%) were laboratory-confirmed and 42 were probable cases identified from epidemiologic links. The incidence rate of salmonellosis was 27.6 per 100,000 persons compared to 26.6 per 100,000 persons in 2007. Cases were fairly equally divided by sex (51% female). Thirty percent of all cases were hospitalized. Disease incidence was the highest in those under one year of age. Age-specific rates for infants were much higher for Philadelphia as compared with the national rates, 370 versus 115 per 100,000 infants. Of the 378 laboratory-confirmed *Salmonella* cases, *S. enteritidis* and *S. typhimurium* were the most common serotypes, 140 (37%) and 72 (19%) respectively. Antibiotic susceptibility

was available for 365 (97%) of laboratory confirmed cases. Ten percent were ampicillin-resistant, 1% were ciprofloxacin-resistant, and few isolates were resistant to TMP/SFX 1% (Table 7).

About a quarter of cases were part of *Salmonella* clusters – including households, specific events, or clusters of cases with the same DNA fingerprints but no identified source (Table 5). Three outbreaks were traced back to a defined transmission setting. The highlights for salmonellosis trends in 2008 include an increase in the number of confirmed cases reporting contact with a turtle —almost 15% (58) which was higher than any other year since 2002.



### Sporadic (Non-Outbreak Associated) Cases

Sporadic cases were not linked to a known point source besides household transmission. Of those with risk factors 11 (3%) reported foreign travel during the incubation period. Two individuals (1 infant and 1 adult) died within at least 2 days of a positive *Salmonella* culture from a normally sterile site

### Salmonellosis Outbreaks: Restaurant, Daycares and Turtles

During 2008, DDC investigated one restaurant outbreak and two daycare outbreaks of *S. typhimurium*. Cases increased around the first week of July (onset week 27) as seen in Figure 14. Thereafter the number of cases rose dramatically. Details about each category of cases are in Table 5.

The restaurant was the source of 3 confirmed *S. typhimurium* cases in spring 2008. All 3 persons ate food prepared at the restaurant. A genetically identical *Salmonella* isolate was cultured from a food preparation worker at the restaurant who was not a Philadelphia resident and not included in Philadelphia case counts.

The PFGE patterns of daycare outbreak cases were very similar—differing by a single band—are considered the *Salmonella* daycare PFGE patterns. Four cases linked to the daycares had contact with a small illegal (carapace <4 cm) turtle. One of the daycare PFGE patterns from a case matched aquarium water of the case's turtle.

The CDC launched national investigation to assess *S. typhimurium* and turtle exposure. The investigation included 24 cases in Pennsylvania, 21 of which were from Philadelphia. DDC participated in a case-control study as a part of a multi-state outbreak investigation (MMWR 59 (07): 191-196). In October 2008, DDC issued a press release warning residents about the risks of *Salmonella* spp. when handling turtles. ACD and EHS worked together to shut down turtle dealers in the city by collecting information regarding where turtle was purchased.

Figure 14. Number of Salmonellosis Reports by Week of Onset: Philadelphia, 2007, 2008 and 5-Year Moving Average

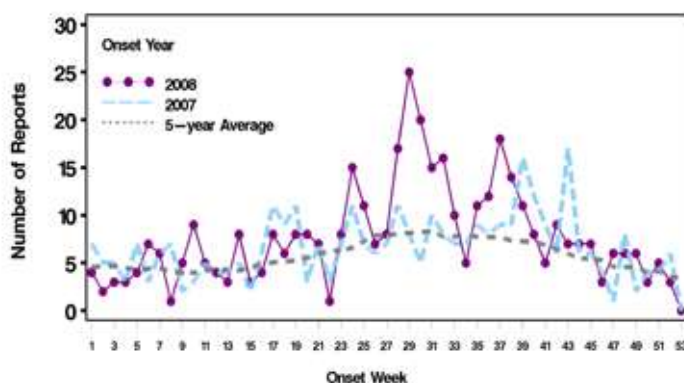


Table 5: Characteristics of *Salmonella* spp. Outbreaks: Philadelphia, 2008

	Patient Characteristics					Confirmed Cases			<i>Salmonella</i> spp. Characteristics	
	Confirmed	Probable	Total	Median age (range)	Hospitalized	Fatal	Turtle Exposure	CDC Study	Serotypes	Major PFGE Pattern
<b>Sporadic</b>	363 (91%)	38 (9%)	401	8 (0-97)	118 (29%)	2 (0%)	54 (15%)	11 (3%)	multiple	multiple
<b>Restaurant</b>	3 (100%)	- (0%)	3	27 (21-50)	1 (33%)	- (0%)	- (0%)	- (0%)	<i>S. Typhimurium</i>	XbaI#JPXX01.0004 (3)
<b>Daycare A</b>	2 (67%)	1 (33%)	3	2 (0-12)	- (0%)	- (0%)	1 (50%)	1 (50%)	<i>S. Typhimurium</i>	XbaI#JPXX01.0006 (2)
<b>Daycare B</b>	10 (77%)	3 (23%)	13	2 (2-5)	3 (23%)	- (0%)	3 (30%)	9 (90%)	<i>S. Typhimurium</i>	XbaI#JPXX01.0416 (9)

## 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 2008, 6 cases were reported. All cases were confirmed by the isolation of *S. Typhi* from the blood (4), urine (1), or stool (1). Symptoms experienced by cases include fever (100%) and diarrhea (50%). Median age was 24 years old (range: 21-77 years) and 4 were females. All but one had travelled to countries outside the US within the incubation period: India (4), Indonesia (1), and Nigeria (1). The one case without recent travel was reported to PDPH with Typhoid fever 5 years prior as a middle-aged adult and was determined to be a chronic carrier. Chronic carrier state occurs in 2%-5% of cases infected during middle age.

## Shigellosis (*Shigella* spp.)

During 2008, PDPH received 206 reports of shigellosis, of which 150 (73%) were culture-confirmed. One hundred ninety-seven cases were grouped into 3 categories: sporadic, daycare-associated, and community-wide. Categories were determined by PFGE pattern and/or epidemiological linkage during 2008. The remaining 9 cases belonged to a late-2007 school-associated outbreak but were reported in January 2008. These cases are not discussed further. No fatalities were reported. The impact of the outbreaks can be seen in Figure 15 when there was a sharp increase in cases during onset week 25 (mid-June) to the end of the year.

### Sporadic (Non-outbreak Associated) Cases

Eighteen cases were considered sporadic since they were not epidemiologically-linked or genetically-linked to other cases. Four cases reported travel during their incubation period (Caribbean, Honduras, El Salvador, and Mexico).

### Daycare-associated (DCA) and Ongoing Community-wide Transmission of Shigellosis

Twenty-one cases were reported in children who attended a single daycare during June and July. All were *S. sonnei* infections and had one of 2 DNA fingerprints. The predominant strain had been circulating in the community since June 2008 but only in sporadic cases. Seven cases were epi-linked to daycare attendees.

Recommendations were made to parents and daycares to keep ill children (and siblings of confirmed cases) home and practice good hand hygiene. By the beginning of August, cases that were linked to the daycare had dropped to zero.

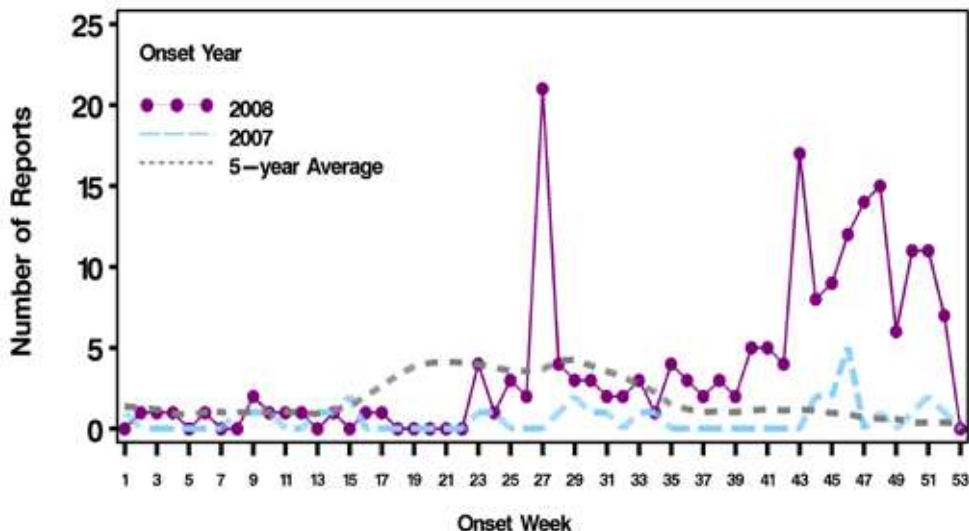
After the DCA outbreak, shigellosis cases began to increase with the same DNA fingerprint as the DCA outbreak but with no links to that outbreak or any common source (community-wide transmission). Each month had an increase in the number of cases with this strain. By December due to the high volume of cases, PFGE laboratories ceased PFGE analysis on shigellosis cases.

Unlike the last daycare outbreak of shigellosis in 2003, in which 2 daycares were the major source of transmission, after August 2008 there was no one daycare with more than 2 cases. Due to extensive household follow-up, DDC identified many probable cases. Almost 50% of households linked to the outbreak had 2 or more symptomatic cases.

As the outbreak progressed from DCA to community-wide, TMP/SFX resistance increase from 0% to 20% (Table 6). This is mostly likely due to recommendations that the isolate was considered ampicillin-resistant and TMP/SFX-sensitive.

Such a widespread and diffuse outbreak made it difficult to tailor prevention strategies. PDPH released public health announcements, health alerts, and press releases to notify health care providers and the public of the outbreak.

Figure 15. Number of Shigellosis Reports by Week of Onset: Philadelphia, 2007, 2008 and 5-Year Moving Average



**Table 6: Characteristics of *Shigella* spp. Outbreaks: Philadelphia, 2008\***

	Patient Characteristics						<i>Shigella</i> spp. Characteristics				
	Confirmed	Probable	Total	Median age in years (range)	Diarrhea	Hospitalized	Serotypes	Major XBAI PFGE Pattern	Antibiotic Resistance*		
									Ampicillin**	TMP/SFX	n
<b>Sporadic</b>	17 (94%)	1 (6%)	18	37 (1 y-80 y)	14 (78%)	4 (22%)	<i>S. flexneri</i> (11) <i>S. sonnei</i> (6)	multiple	8 (47%)	5 (29%)	17
<b>Daycare Associated</b>	22 (79%)	6 (21%)	28	4 (6 mo-38 y)	26 (93%)	1 (4%)	<i>S. sonnei</i> (22)	J16X01.1166 (11) J16X01.1148 (6)	17 (94%)	0 (0%)	18
<b>Community-Wide</b>	106 (70%)	45 (30%)	151	6 (1 mo-88 y)	134 (89%)	10 (7%)	<i>S. sonnei</i> (106)	J16X01.1166 (62) J16X01.1148 (17)	73 (71%)	21 (20%)	103

\*Cases belonging from the school-associated outbreak in 2007 are not included in this table

\*\*Includes full and intermediate antibiotic resistance.

**Table 7. Antibiotic Resistance of Selected Enteric Pathogens: Philadelphia, 2008**

Pathogen	Antibiotics Tested	Total Tested	Resistant n (%)	Intermediate n (%)
<i>Campylobacter</i>				
	Ciprofloxacin	26	6 (23)	0 (0)
	Erythromycin	24	0 (0)	0 (0)
<i>Salmonella</i>				
	Ampicillin	354	34 (10)	0 (0)
	Ceftriaxone	114	0 (0)	0 (0)
	Ciprofloxacin	321	2 (1)	0 (0)
	Trimethoprim-Sulfamethoxazole	348	4 (1)	0 (0)
<i>Shigella</i>				
	Ampicillin	137	100 (74)	1 (1)
	Ceftriaxone	55	0 (0)	2 (4)
	Ciprofloxacin	129	0 (0)	0 (0)
	Trimethoprim-Sulfamethoxazole	140	28 (20)	1 (1)

# Viral Hepatitis *Infections*

## Hepatitis A

In 2008, DDC investigated over 100 reports of suspect hepatitis A infections. Of these, 10 were found to be confirmed acute hepatitis A cases. Seven (70%) confirmed cases were male. Cases ranged in age from 9 to 63 years, with a median age of 24 years. Eight cases (80%) were jaundiced or had nausea or vomiting. Other symptoms include loss of appetite (6), elevated alanine aminotransferase levels (6), fatigue (5), and diarrhea (1). There was one hospitalization and no fatalities. Two household clusters of hepatitis A were identified - each with two confirmed cases. Three cases reported foreign travel within their incubation period. No other common hepatitis A risk factors, such as consumption of raw shellfish or recent needle exposure, were reported by the other cases.

## Acute and Chronic Hepatitis B

### Acute Hepatitis B

In 2008, there were 21 confirmed case reports of acute HBV infection in Philadelphia. This represents a dramatic decrease over the past decade (Figure 16) when at the height there were 171 cases reported (1997). The median age of acute HBV cases was 37 years (range: 22-74 years). None of the infected individuals confirmed a history of HBV vaccination (6 denied, 15 did not know). Fourteen (67%) cases were male. Twenty of the individuals had evidence of jaundice (the other case was unknown). Fourteen of the individuals were known to be hospitalized. Six (29%) reported use of street drugs. Less than 5 individuals reported either one or more of the following risk factors: greater than 1 sex partner, man who has sex with men, or travel outside the United States.

the following section). Further expansion of outreach and education regarding HBV transmission, and testing and vaccination of contacts at risk are targets for the coming years.

During 2008, PDPH received 1,749 reports of potential chronic hepatitis B infections, of which 1,038 were newly reported cases and 711 were newly confirmed chronic hepatitis B infections. Of the newly reported (probable) chronic case reports with age or sex information, 54% were males and the median age was 40 years (range: 0-94 years).

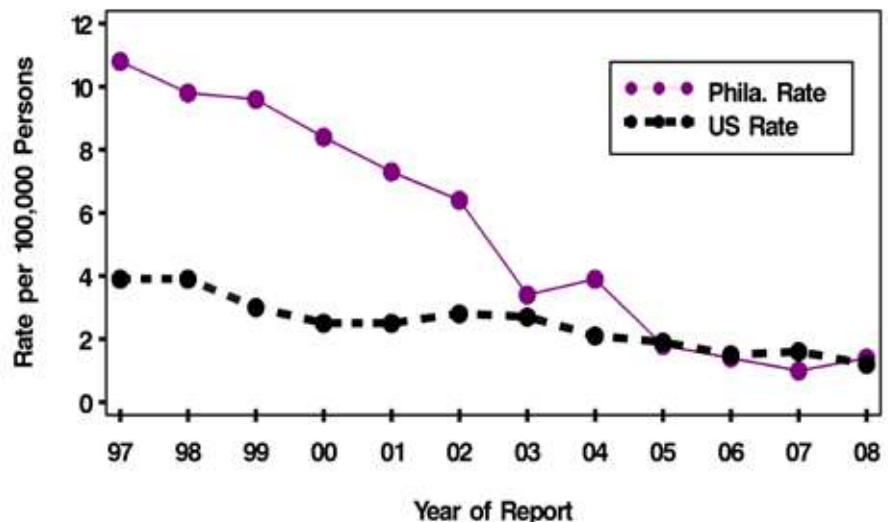
### Chronic Hepatitis B

#### CHANGE IN CDC CASE

**DEFINITION:** In 2007, the CDC expanded the chronic hepatitis B case definition to allow for probable case identification based on initial laboratory results (HBV DNA, envelope antigen [HBeAG], or surface antigen [HbsAg] detection). Chronic hepatitis B cases can be confirmed with a second positive laboratory test six months after the initial test.

The identification of women of childbearing age with chronic active hepatitis B to screen for potential perinatal hepatitis B is the main priority for non-acute hepatitis B for PDPH (described in

Figure 16. Rates of Acute Hepatitis B: Philadelphia and US, 1998 to 2008



## Perinatal Hepatitis B

In 2007, the most recent completed year, 110 live infants were born to women with chronic HBV who reside in Philadelphia (Table 8), which is 8% lower compared to 2006 (119 reports). In 2007, 44% of women with chronic HBV originated from Asian countries. All identified infants received the birth dose of HBV vaccine and HBIG within one calendar day of birth. More than 98% of the infants received HBIG and three doses of vaccine by 8 months of age and 99% received all immunoprophylaxis (HBIG and three vaccine doses) by 1 year of age. Complete serological testing was not possible for two infants who were unable to be located, two infants who moved out of state, and five whose families left the US. Of the 101 infants with serological results, 100 infants (99%) were found to be immune and one antigen positive (1%). The infant with perinatal transmission had been immunized with HBIG and HBV vaccine series on time.

During home visits, 187 household contacts of HBsAg+ mothers were identified, educated, and offered free serological testing. Of the 144 contacts tested, 8 (6%) were positive for HBV infection, 121 (84%) were immune, and 15 (10%) were susceptible. Nine (60%) of the 15 susceptible household contacts completed a three-dose HBV vaccine series provided by DDC staff.

Complete 2008 PHBPP results will not be available until 2010. The PHBPP learned of 170 infants born to mothers with chronic HBV infections in 2008. Seven of them transferred out of program and one infant died, making the total number of infant cases managed by the program 162. All infants received a birth-dose of HBV vaccine and HBIG. Data collection, follow-up, and serologic testing will continue as the year progresses.

**Table 8: Comparison of Perinatal Hepatitis B in 2005-2008**

	2005	2006	2007	2008*
Total Mother-Child Pairs Followed	138	119	110	162
Total Children Receiving HBIG within one calendar day of birth	138 (100%)	118 (99% )	110 (100%)	162 (100%)
Total Children Receiving birth HBV within one calendar day of birth	138 (100%)	119 (100%)	110 (100%)	162 (100%)
Total Children Receiving 3 HBV vaccines in 1 year	138 (100%)	115 (97%)	109 (99%)	153 (94%)
Children who are HBV+ at screening	1 (1%)	2 (2%)	1 (1%)	0 (0%)
# Household Contacts identified and educated	188	197	187	167
#Household Contacts tested for HBsAg and HBsAb?	153	151	144	117
# Household Contacts Susceptible	21	16	15	17
#Susceptible Household Contacts Vaccinated	17	11	9	9

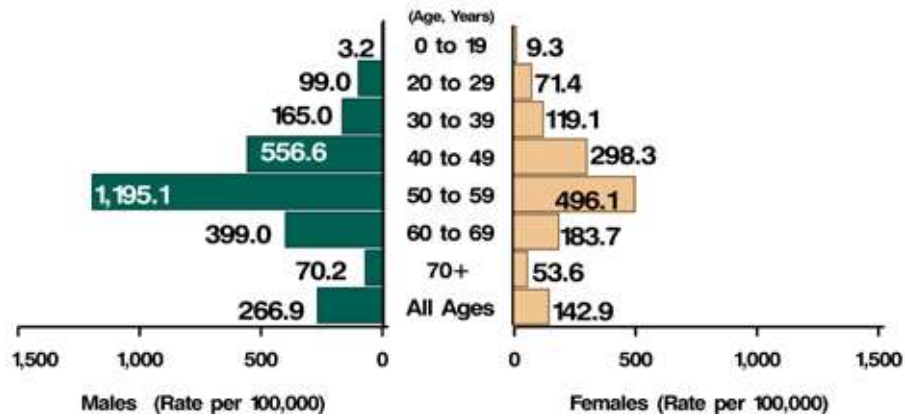
\*Preliminary date: the period for follow-up is not complete.

## Hepatitis C

DDC has maintained a registry of positive HCV laboratory results since 1998. The registry, which includes mainly individuals with chronic infections, is used to monitor disease trends and reporting, as well as to support and facilitate counseling, education and training, and program planning.

In 2008, DDC added 4,870 reports to the HCV registry, which was 5% higher than in 2007. There were no acute HCV infections reported during 2008. Of those individuals with test results reported in 2008, 3,041 (62%) could be classified as confirmed cases, 35 (<1%) were considered probable (positive antibody tests and elevated liver enzymes but lacking additional confirmatory testing), and 1,794 (37%) only had positive HCV antibody tests. Of the 3,044 confirmed reports, 1,879 (62%) were male. The median age of these individuals was 51 years (range: 0 years-90 years) as shown in Figure 17.

Figure 17. Rates of Newly Confirmed Hepatitis C Virus, Past or Present Infection per 100,000 Population by Age and Gender: Philadelphia, 2008



# Vector-borne *Diseases*

## Lyme Disease (*Borrelia burgdorferi*)

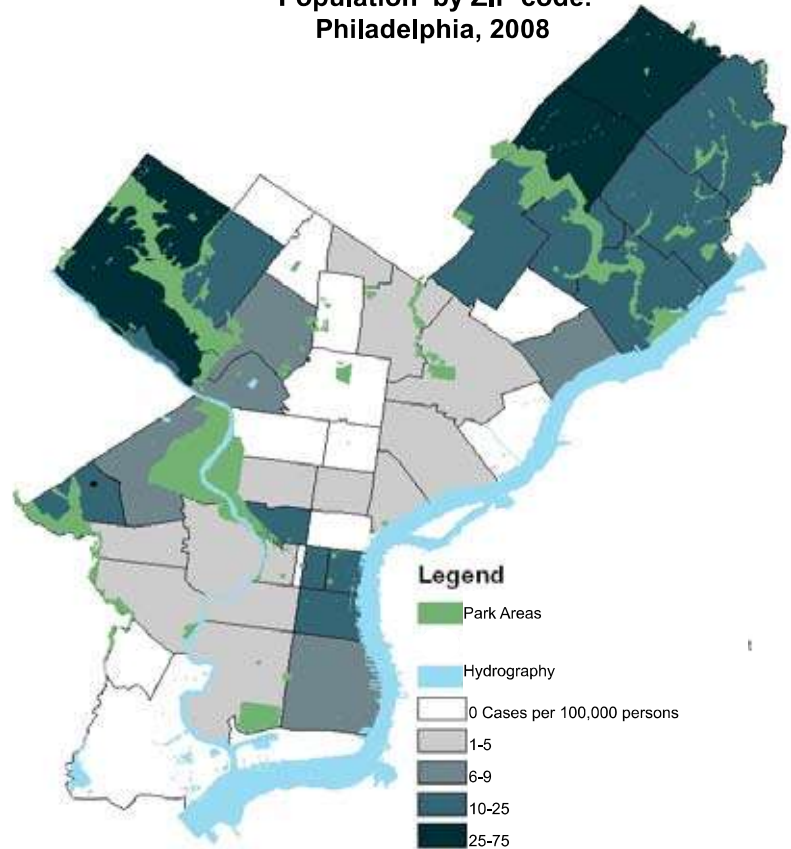
### CHANGE IN CDC CASE DEFINITION:

In 2008, CDC adopted a new case definition which includes probable and suspect case definitions. Probable cases are determined by laboratory criteria and a physician diagnosis. A case is deemed suspect if there is an absence of clinical information and only laboratory evidence of infection exists (Lyme IgG immunoblot). Lyme IgM immunoblot are not reliable to determine late-stage Lyme disease.

In 2008, clinical laboratories reported positive Lyme disease serologic tests on 1,090 unique individuals. Upon investigation 287 reports fit the CDC case definition, 157 (55%) of these individuals were confirmed cases, 25 (9%), were probable cases, and 105 (37%) were suspect cases. The median age among cases was 42 years (range: 1-97 years) and 145 cases (51%) were male.

Among the 157 confirmed cases, 68% had erythema migrans, arthritis (31%), Bell's palsy (8%), radiculopathy (5%), and carditis (1%). The distribution of laboratory test dates supports the known increases during summer and coincides with increase 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 18).

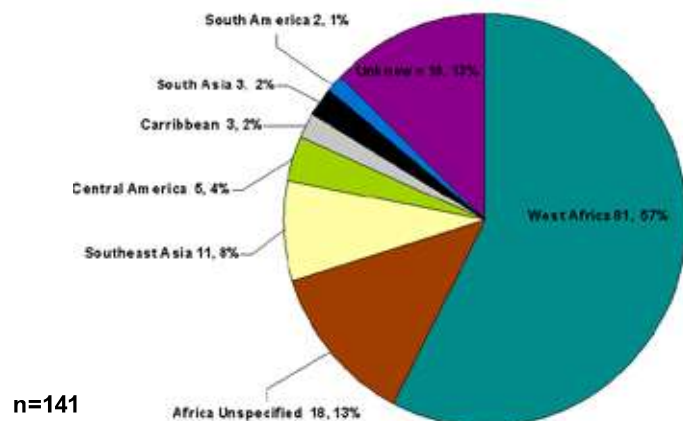
Figure 18. Rates of Lyme Disease per 100,000 Population by ZIP code: Philadelphia, 2008



## Malaria (*Plasmodia spp.*)

In 2008, nineteen confirmed cases of malaria were reported to PDPH, a 171% increase from 2007. Of the 19 cases reported, eleven (58%) were male. The median age was 40 years (range: 6-58 years). Twelve cases had parasitemia with *Plasmodium falciparum*, *P. malariae* (2), *P. vivax* (2), *P. ovale* (1), and 2 were not known. All cases reported travelling to malaria-endemic countries prior to the onset of symptoms (to West African countries [17], Pakistan [1] and to India [1]). Of the 17 cases with prophylaxis information, 10 (53%) reported no prophylaxis prior to travel. In the last 10 years, almost 60% (81/141) of cases reported travel to West Africa (Figure 19).

Figure 19. Countries Traveled by Malaria Cases: Philadelphia, 1998-2008



## West Nile Virus

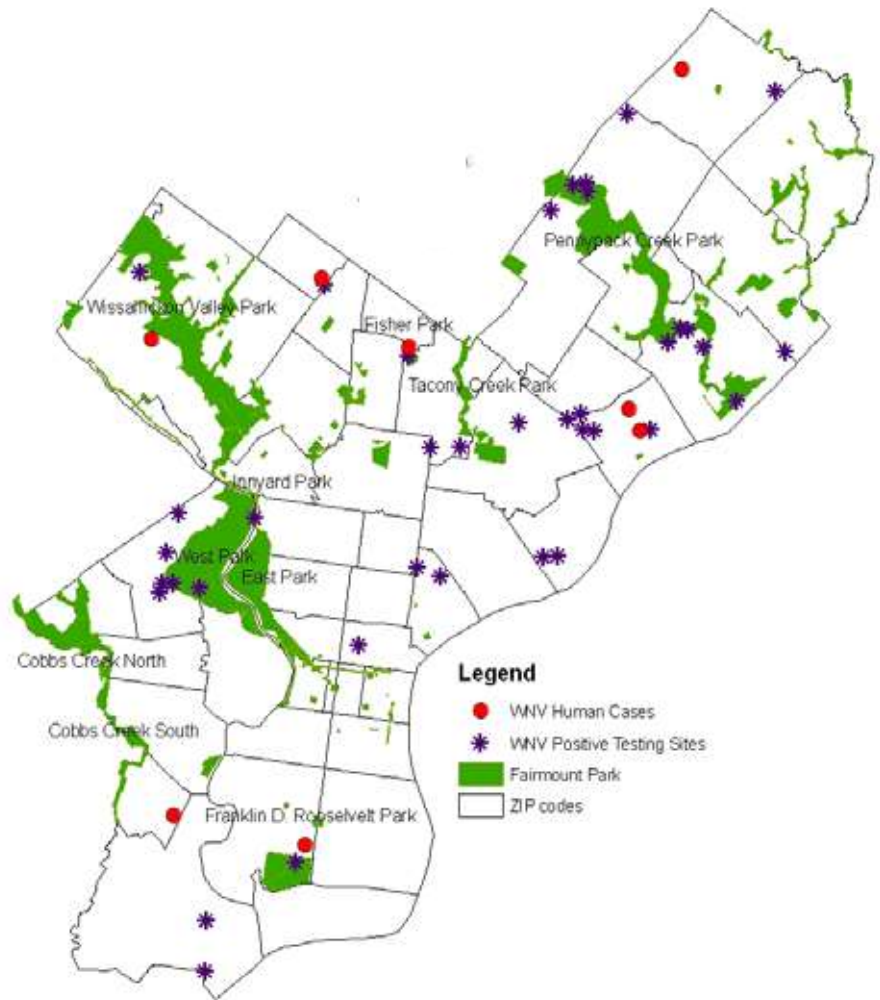
WNV prevention necessitates a close partnership between DDC and the PDPH Environmental Health Services (EHS) Vector Control Program. EHS performs surveillance for WNV in mosquitoes, as well as targeted treatment of mosquito pools, which is the primary means of reducing WNV transmission. From May 17 to September 13, 2008, the EHS program treated 52,553 catch basins (storm-water sewers) with larvicide in order to kill mosquito larvae. EHS also conducted 46 adult-focused treatments including barrier treatments for control and ultra low volume spray events between June and October 2008. During this period, 71 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 2008, there were 687 neuroinvasive and 624 non-neuroinvasive WNV reports nationally (provisional data).

Eight cases of WNV infection were reported to PDPH in 2008. Seven of the eight cases (88%) exhibited signs of neuroinvasive disease (stiff neck, altered mental status, neurological deficits) and one person experienced WNV fever, a less severe disease presentation. PA BOL detected WNV antibodies in CSF (4) and blood (4). The median age of cases was 72 years (range: 61-82 years). Residual effects from the infection were noted between 15 to 25 days after test date. The only travel reported by cases during the incubation period was travel to New Jersey (3). Six persons (75%) were hospitalized and there was 1 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 20 shows the sites where WNV-positive mosquitos pools are located as well as WNV human cases. For some cases, human cases are co-localized with WNV-positive mosquito pools.

**Figure 20. West Nile Virus (WNV) Cases and WNV Positive Mosquito Sampling Sites: Philadelphia, 2008**





# Immunizations and *Vaccine-Preventable Diseases*

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Currently, children should be routinely immunized against 16 vaccine-preventable diseases, including influenza, hepatitis A and B, varicella, invasive *Streptococcus pneumoniae* disease, invasive *Haemophilus influenzae* type b disease, and meningococcal infections – which are discussed in this report.

Through the Federal Vaccines For Children program (VFC), the DDC Immunization Program provides over \$24 million in free vaccines to nearly 300 health care providers in Philadelphia annually. This enables almost 260,000 children in the city to receive immunizations and offers substantial cost savings to VFC-enrolled physicians. VFC allows eligible children (0-18 years of age, and on Medicaid or uninsured) to receive all recommended childhood vaccines without out-of-pocket costs to their families, removing a significant barrier to timely immunizations.

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 program (VFAAR) provides vaccines to select health care providers who serve adults at high risk for vaccine preventable diseases. The Adult Flu Vaccination Program is discussed with the Respiratory Virus section of this report.

The KIDS Immunization Registry is a web-based system that serves as a centralized repository of immunization information on all children 0-18 years of age who receive vaccinations in Philadelphia. KIDS is populated by birth data from the state and immunization data submitted by health care providers. Overall, KIDS has information on approximately 560,000 children and about 6 million pediatric immunizations. KIDS allows providers to determine the immunizations a child has received and those that are needed, helping promote timely immunizations, prevent missed opportunities for vaccination, and avoid over-vaccination.

Visit the Immunization Program website for more information:  
<https://kids.phila.gov/>

## Pertussis (*Bordetella pertussis*)

The 54 pertussis reports received by PDPH in 2008 included 43 confirmed and 11 probable cases, yielding a rate of 3.6 cases per 100,000 population. Thirty (56%) of these cases were female, including six women of childbearing age (16-44 years old). However, the highest rates are still among infants (Figure 21). The most commonly reported symptoms included paroxysmal cough (56%), whoop (44%), post-tussive vomiting (44%), and apnea (24%). Eighteen (33%) cases were hospitalized, 16 of which were <1 year old. No fatalities were reported. Over 80% of the probable cases did not have appropriate testing performed (PCR or culture) to confirm the infection but had documented cough > 2 weeks and other symptoms.

Six of the reported cases (11%) were part of a household cluster. Twelve cases (22%) were epidemiologically-linked to facility outbreaks in 2008. Two cases were part of a homeless shelter outbreak and ten cases were part of a school outbreak. The average number of contacts (non-ill) exposed per case was 3.5 individuals (range: 0-11 individuals).

In the 24 cases under five years of age (22 confirmed and two probable), vaccination was not always appropriate for the child's age (Table 9).

## Mumps

Of the 17 suspected Philadelphia mumps cases reported to DDC in 2008, only one case report was confirmed. The confirmed case by positive mumps virus PCR was a 28-year-old male immigrant without any history of any mumps vaccine and travel to India during his incubation period. Two of the suspected cases presented with parotitis post live mumps vaccination.

## Measles

Philadelphia had no confirmed measles cases in 2008. The most recent cases in Philadelphia include two travel-related cases (Mongolia in 2001 and Nigeria in 1998) and seven cases in 1996, six of which were associated with a homeless shelter.

## Rubella

Philadelphia had no reported cases of rubella in 2008. The last two cases of rubella infection recorded for Philadelphia occurred in 1996 and 1998.

Figure 21. Rates of Pertussis per 100,000 Population by Age and Gender: Philadelphia, 2008

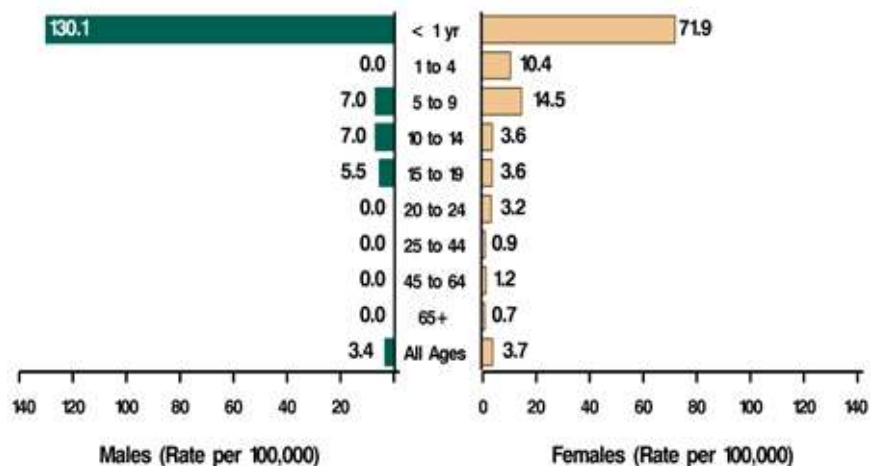


Table 9: Doses of Pertussis-Containing Vaccine Given to Pertussis Cases by Age

Age Group (months)	# in Age Group	# of Pertussis-Containing Vaccine Doses Received Prior to Illness				
		0	1	2	3	4
Under 2	7	<b>7</b>	0	0	0	0
2-5	11	7	<b>4</b>	<b>0</b>	0	0
6-11	2	2	0	0	<b>0</b>	0
12-59	4	0	0	1	0	<b>3</b>

Bolded red numbers represent age-appropriate vaccine dose

# Varicella-Zoster Virus

## Varicella Vaccine Coverage

According to the KIDS Immunization Registry, varicella vaccination coverage rates ranged from 61% to 89% for children 1 to 3 years of age in Philadelphia during 2008 (Figure 22). In Fall 2008, school entry regulations in Philadelphia required 2 doses of varicella vaccine for all children entering kindergarten and 1st grade, while 1 dose continued to be required for entry into grades 2 through 12. 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 2008, 349 varicella cases (confirmed and probable) were reported to VASP through passive surveillance from the city outside of West Philadelphia, marking a 53% decrease from 2007 (735 cases). The citywide declines may be attributed to increasing 2-dose varicella vaccination coverage. Median age for the reports was 9 years (range: 5 months-86 years). Four of the varicella cases reported in 2008 were hospitalized: 3 older cases ( $\geq 16$  years) who were unvaccinated or had an uncertain vaccination status and a 6-year old who was vaccinated and admitted for an asthma exacerbation that possibly was related to this varicella infection. Sixty-six percent (229) of the reported varicella cases had been vaccinated, including 50 children aged 4 to 15 years who developed breakthrough infections after receiving a second dose of vaccine. Vaccinated cases occurring among those with higher use of varicella vaccine, particularly children aged 1 to 14 years (Figure 23).

Figure 22. Varicella Vaccination Coverage Among Children by Age and Dosage: Philadelphia, 2008

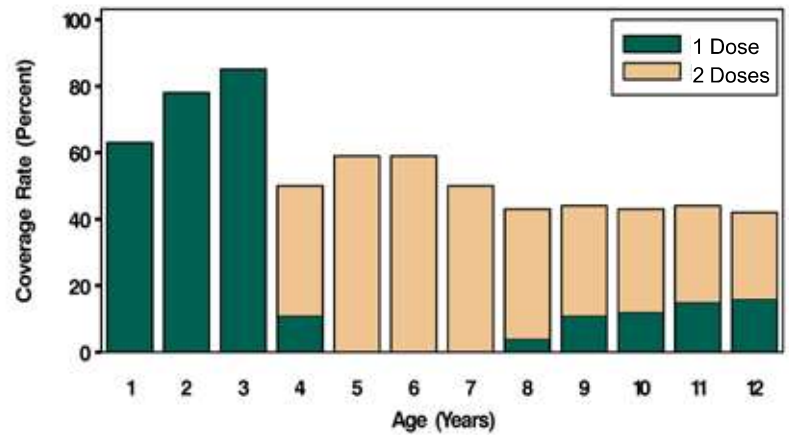
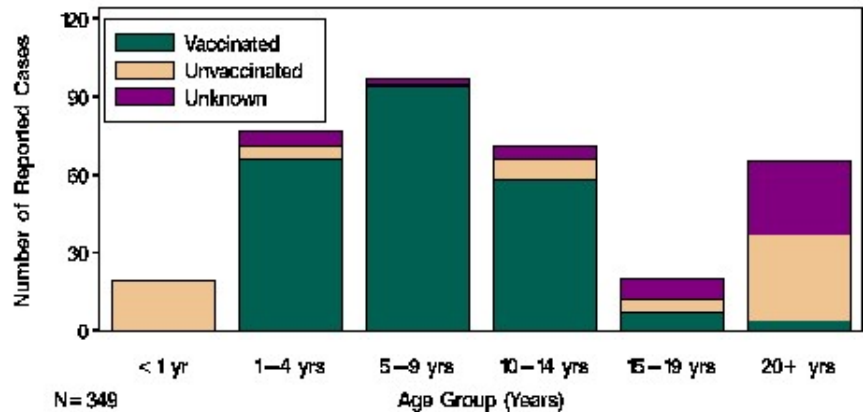


Figure 23. Citywide Varicella Reports by Age Group and Varicella Vaccination Status: Philadelphia, 2008



## Varicella Active Surveillance in West Philadelphia

Through an active surveillance network maintained in West Philadelphia (VASP), 75 confirmed varicella cases were reported during 2008. Varicella disease remained markedly lower than in the early vaccination era – a 94% reduction from 1995 (Figure 24). In 2008, 39 (52%) varicella cases were breakthrough varicella infections in previously vaccinated individuals with 10 breakthrough cases occurring among 2-dose recipients. Two varicella cases from 2008 were hospitalized as a result of their illness: an unvaccinated infant with cellulitis and an unvaccinated adult with pancreatitis possibly due to the case's varicella infection.

## Herpes Zoster Active Surveillance in West Philadelphia

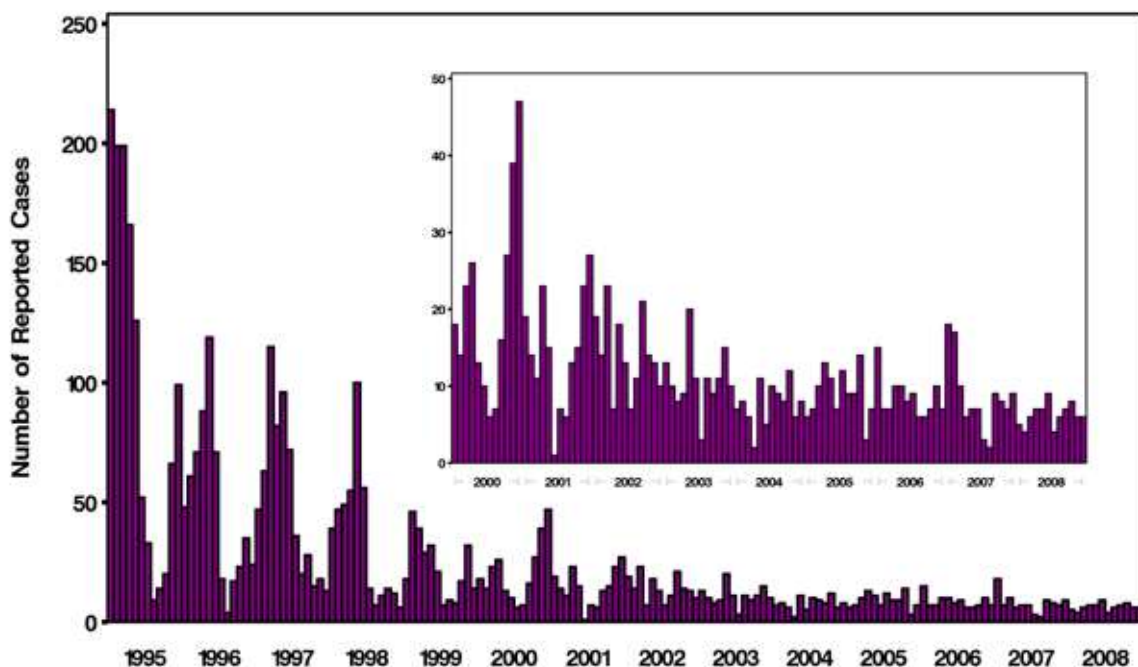
### Herpes Zoster Surveillance Among Children and Adolescents

During 2008, VASP received 23 confirmed HZ cases among West Philadelphia residents <20 years of age (median age 16 years; range: 15 months to 19 years). The number of cases in children 1-4 years old has been increasing since 2006 from 3 to 7 cases. Two HZ <20 years of age were hospitalized in 2008: an immunocompromised, 19 year old male with a history of varicella disease who was admitted for observation and intravenous acyclovir therapy and an otherwise healthy 19 year old female who developed Ramsey Hunt Syndrome.

### Adult Herpes Zoster Surveillance (>50 years old)

In 2008, VASP received 191 confirmed HZ cases among West Philadelphia residents 50 years of age and older, which was a slight increase (14%) from 2007. In 2008, 33 (17%) 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 191 adult HZ cases occurring during 2008, 19 (10%) were hospitalized, and none of the HZ-related hospitalizations resulted in death.

Figure 24. Reported Cases of Varicella by Month of Onset: West Philadelphia Active Surveillance Area, 1995 to 2008

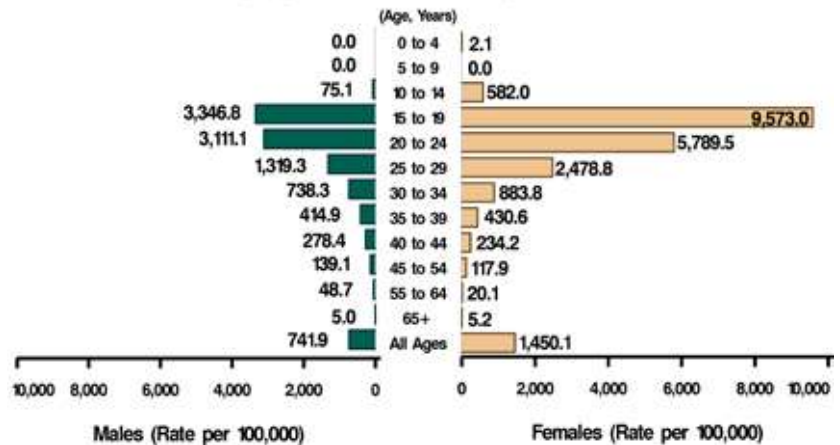


# Sexually Transmitted *Diseases*

## *Chlamydia trachomatis*

In 2008, there were 17,012 positive *Chlamydia trachomatis* results reported to PDPH including 11,436 (67%) as part of the PDPH STD screening program. Rates of reported chlamydial infection are consistently much higher in women than in men and are highest in 15-19 year olds, as can be seen for 2008 in Figure 25. After steady increases in chlamydial reports from 1997 through 2003, related to more sensitive testing methods (nucleic acid amplification tests [NAATs]), expansion of the citywide screening program, and increased testing by private clinicians, reductions were seen in 2004-2005 followed again by increases in 2006-2008.

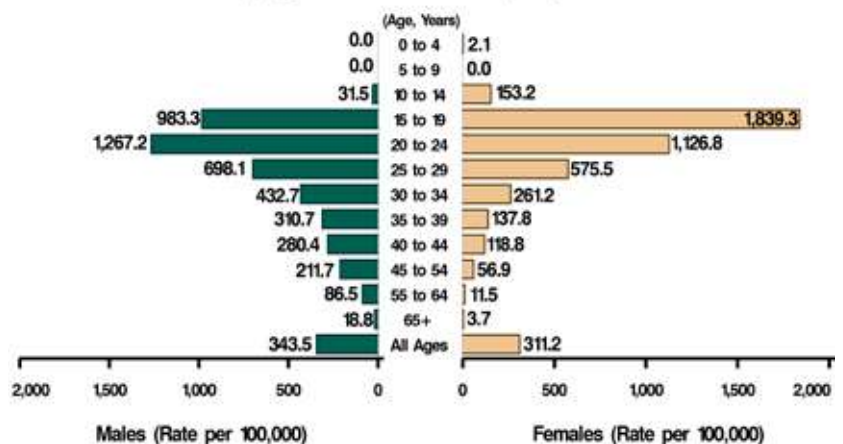
Figure 25. Rates of Chlamydia per 100,000 Population by Age and Gender: Philadelphia, 2008



## Gonorrhea (*Neisseria gonorrhoeae*)

In 2008, 4,950 cases of gonorrhea were reported in Philadelphia, a 6% (-296 cases) decrease from 2007. Reports of gonorrhea in 2008 are just slightly higher for females (51%) and the highest rates are seen among 15-19 year olds (Figure 26). Every year, DDC submits 300 *N. gonorrhoeae* isolates from male STD clinic attendees to the CDC Gonococcal Isolate Surveillance Project (GISP) for antibiotic susceptibility testing. Of the 253 isolates submitted in 2008, 52 (21%) were found to be ciprofloxacin resistant. This level of resistance is lower to that found in recent years (~30), but still higher compared to 2005 (14%) and the most recent national GISP resistance level (16% in 2007). Still to date there is no known resistance to ceftriaxone, which is the primary recommended treatment for gonococcal infections at all anatomical sites (a single dose of 125 mg of ceftriaxone intramuscularly). In April 2008, Cefixime 400 mg, the only oral treatment for uncomplicated gonococcal infections of the urethra, cervix, and rectum, again became available in US.

Figure 26. Rates of Gonorrhea per 100,000 Population by Age and Gender: Philadelphia, 2008



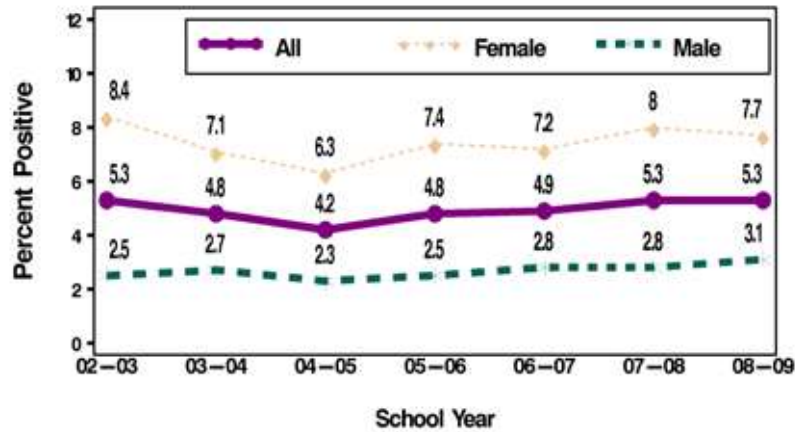
## Chlamydia and Gonorrhea Screening in Philadelphia High Schools

Since January 2003, PDPH and the Philadelphia School District have collaborated to offer voluntary chlamydia and gonorrhea screening in all 72 public high schools. After screening for 7 consecutive school years, 112,968 screening tests have been completed on 78,874 students, resulting in 5,585 positive tests for either or both of these diseases. Treatment has been confirmed for at least 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 2008-2009 school year, the three programs – public school screening, charter school screening, and HRC testing – identified 860 students infected with both infections or either chlamydia or gonorrhea alone, and to date 805 (94%) students have documented treatment for these infections.

### Public High School Screening Program

In the 2008-2009 school year screening program, 476 (8%) of the 6,164 females and 216 (3%) of the 6,864 males screened were positive for chlamydia only, gonorrhea only, or both infections (Figure 27).

Figure 27. Percent of Philadelphia Public High School Students Testing Positive for CT and/or GC by Gender and School Year

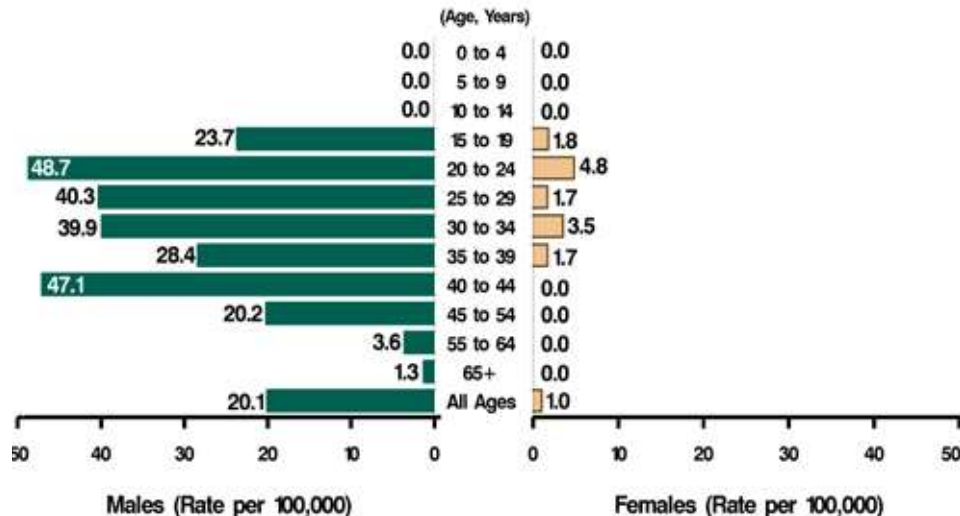


## Syphilis (*Treponema pallidum*)

### P & S Syphilis Surveillance in Philadelphia

In Philadelphia, infectious syphilis rates began to increase in the last three years. In 2008, 150 cases of primary and secondary (P&S) syphilis were reported to PDPH, a 10% increase from 2007. In 2008, as in many previous years, P&S syphilis was disproportionately found among males (95%, Figure 28) and individuals identifying as African American (74%). Of the 142 P&S cases among males identified in 2008, most (108, 76%) were men who report having sex with men (MSM). Among the 108 MSM with P&S syphilis, 93 disclosed their HIV status, and 49 (53%) of these men were HIV positive. Alarmingly, the number of young (<24 years old) MSM with P&S syphilis in 2008 increased by 19% compared to 2007.

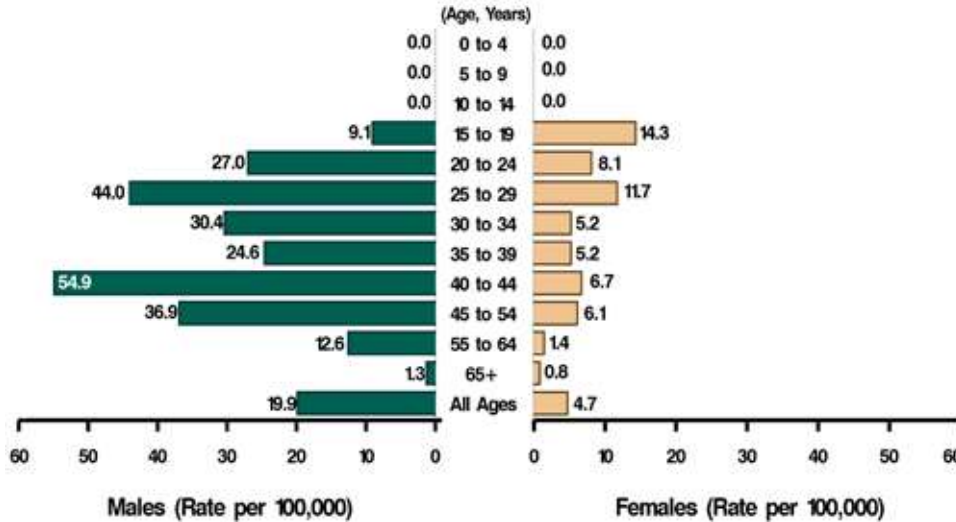
Figure 28. Rates of Primary and Secondary Syphilis per 100,000 Population by Age and Gender: Philadelphia, 2008



## Early Latent Syphilis Surveillance in Philadelphia

There were 178 cases of early latent syphilis reported in 2008, a 12% decrease from 2007. Most early latent cases were male (79%, Figure 29).

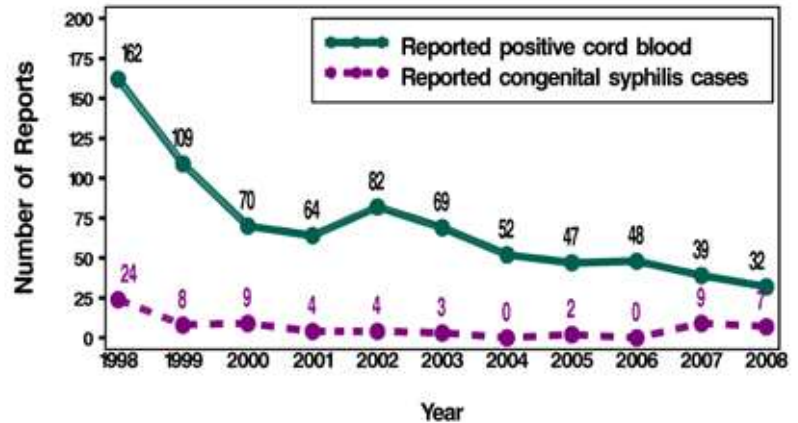
Figure 29. Rates of Early Latent Syphilis per 100,000 Population by Age and Gender: Philadelphia, 2008



## Congenital Syphilis

Since a peak of congenital syphilis in 1991 (301 cases) subsequent to changes in the case definition in 1990, the number of reports has greatly decreased (Figure 30). Between 2007 and 2008, PDPH received 16 case reports (9 in 2007, 7 in 2008) meeting the screening case definition for congenital syphilis. Despite recent increases in reported congenital syphilis cases, the number of positive cord blood samples continued to decrease in 2008. Known risk factors for the 16 cases reported in 2007 and 2008 were no or inadequate prenatal care (33%), non-English speaking mother (33%), and maternal drug use (19%). PDPH currently recommends that all pregnant women without a history of adequate prenatal care who present to an ED should be tested for syphilis. Adequate prenatal care, which includes routine screening and treatment of syphilis, clearly plays a major role in preventing congenital syphilis.

Figure 30. Reported Cases of Congenital Syphilis and Positive Cord Blood Tests: Philadelphia, 1998 to 2008



# Other Reportable Diseases and Conditions

## HIV/AIDS

Currently around one million individuals are thought to be living with HIV or AIDS in the US. During 2008, CDC released that an estimated 56,300 new HIV infections occurred during 2006 in the US (Hall HI, et al. JAMA. 2008; 300: 520), which is much higher than previous annual estimates (approximately 40,000 new cases per year). This jump was not due to increases in actual incidence, but rather improvements in HIV testing and analytic methods. More in depth analysis of HIV and AIDS surveillance in Philadelphia can be found at: [http://www.phila.gov/health/units/aaco/pdfs/Final\\_Dec2007.pdf](http://www.phila.gov/health/units/aaco/pdfs/Final_Dec2007.pdf)

### HIV Surveillance in Philadelphia

Name-based reporting of HIV diagnoses was implemented in October 2005. In 2008, 1,174 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 (70%), African American (66%), and report heterosexual contact as mode of transmission (54%).

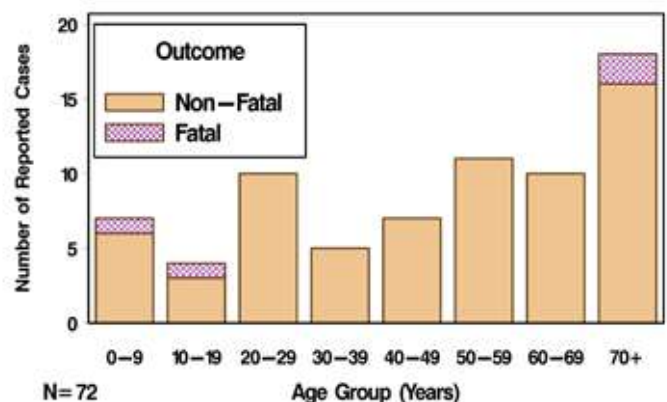
### AIDS Surveillance in Philadelphia

In 2008, 504 cases of AIDS were reported to the AACO Surveillance Unit. AIDS in Philadelphia disproportionately affects African Americans (70%) as compared to Whites (18%) and Hispanics (10%). More than two-thirds of cases (69%) were among males, and about 70% were among persons 20-49 years of age. In contrast with the early years, heterosexual contact is now the dominant mode of transmission (53%) in Philadelphia, compared to men who have sex with men (MSM) contact (27%) and injection drug use (17%). These numbers demonstrate the significant demographic shift that has occurred since beginning in the 1980s, when white MSM experienced the majority of new infections. For additional information about HIV/AIDS in Philadelphia, please visit the AACO website: [http://www.phila.gov/health/units/aaco/HIV\\_AIDS.html](http://www.phila.gov/health/units/aaco/HIV_AIDS.html).

## Invasive Group A *Streptococcus* (GAS)

In Philadelphia during 2008, there were 75 reported cases of invasive GAS, or 2.3 cases per 100,000 population. GAS was isolated from blood in 72 cases (96%), 2 (3%) from joint fluid, and in the remaining case from cerebrospinal fluid. Thirty-six (48%) cases were female. The median age was 53 years (range: 0-87 years). Five of these individuals (6%) died (Figure 31).

Figure 31. Invasive Group A *Streptococcus* by Age Group and Outcome: Philadelphia, 2008





## Animal Exposures and Animal Rabies Testing

In 2008, DDC received 1,641 reports of Philadelphia residents exposed to an animal (bite, scratch, etc.). The majority of exposures were bites (95%), followed by exposure to saliva without skin breakage (3%), and other miscellaneous exposures such as scratches or a bat in a household (2%). Dogs, cats, and bats accounted for 69%, 24%, and 5% of all reported exposures, respectively. Other species of animals responsible for reported exposures included: raccoons, rats, squirrels, rabbits, snakes, and mice. In 67% of the exposures, the animal's owner was located. In at least 247 exposures (22%), the victims were from the same household as the animal. Exposures were equally distributed by gender. Of the 90% of reports with the victim's age included, the median age was 26 years with the majority of victims between the ages of 11 and 43 years.

Management of animal exposures and animal rabies testing requires a strong partnership with the PDPH Environmental Health Services (EHS) Vector Control Unit and the PDPH Public Health Laboratory (PHL). The PHL tested 131 animals for rabies by direct fluorescent antibody staining of brain tissue in 2008. One animal tested positive for rabies (cat). Seventeen contacts were identified and post-exposure prophylaxis was recommended for all.

# Public Health *Preparedness*

## **Bioterrorism & Public Health Preparedness (BT-PHP) Activities – Highlights of 2008**

### **Expansion of Mass Treatment and Prophylaxis Capacity**

PDPH scored 98% for the 2007-2008 grant year on the CDC's Division of the Strategic National Stockpile annual assessment of major urban area public health preparedness activities pertaining to emergency medication distribution.

In 2008, the BT PHP Program developed and tested a mass medication support center to communicate and coordinate emergency operations related to opening and running 40 points of dispensing (POD) and additional push sites.

BT PHP manages a volunteer cadre of medically trained personnel through its Medical Reserve Corps. In 2008, PDPH actively recruited medical professionals through a new personal brochure mailed directly to Philadelphia healthcare practitioners. This resulted in 300 new registered volunteers. To register for the Medical Reserve Corps visit <https://mrcalert.phila.gov/regprocess.php>

### **Expansion of Regional Public Health Preparedness Activities**

Working through the Southeastern Pennsylvania Regional Task Force, BT PHP coordinated the integration of a Homeland Security funded regional public health preparedness program to improve mass prophylaxis capacity throughout Southeastern Pennsylvania. Activities involved development of regional public health emergency response coordination guidelines and an exercise for the 12-county 4-state metropolitan statistical area.

### **Pandemic Influenza Planning**

BT PHP engaged all federally-qualified health centers in Philadelphia to plan and discuss strategies for the provision of tailored healthcare services and community support during a prolonged influenza pandemic. Non-city health centers demonstrated community commitment by exploring ways to expand medical services to offset the acute care demands of city hospitals, and to provide critical health information in appropriate languages.

BT PHP successfully competed for a CDC pandemic influenza grant that expanded regional planning and preparedness for vulnerable populations in the 5 southeastern Pennsylvania counties. Outreach workers coordinated with service provider agencies to expand identification of special populations, develop and deliver trainings and materials to these agencies, and to integrate service provider and community based organizations into emergency management and public health preparedness planning activities.

**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	Occupation		
		<input type="checkbox"/> M <input type="checkbox"/> F			
Name of Employer or School			Address ( Number, Street, City, Zip Code)		

**Medical Information**

Disease or Condition	Date of Onset (Mo., Day, Yr.)		Diagnosis (check one)		Fatal (check one)		
	(If animal bite, Date it Occurred)		<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	Phone
	<input type="checkbox"/> ICP <input type="checkbox"/> ED <input type="checkbox"/> Other _____	
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 _____

**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: 215-545-8362**

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

## REPORTABLE DISEASES AND CONDITIONS

<p>Acquired Immune Deficiency Syndrome (AIDS/HIV) ‡</p> <p>Amebiasis</p> <p>Animal bites (wild/stray/domestic)</p> <p><b>Anthrax *</b></p> <p><b>Botulism *</b></p> <p><b>Brucellosis *</b></p> <p>Campylobacteriosis</p> <p><i>Chlamydia trachomatis</i> including lymphogranuloma venereum (LGV)</p> <p>Chancroid</p> <p><b>Cholera *</b></p> <p>Creutzfeldt-Jakob disease</p> <p>Cryptosporidiosis</p> <p>Cyclosporiasis</p> <p><b>Diphtheria *</b></p> <p>Ehrlichiosis</p> <p><b>Encephalitis including all arboviruses *</b></p> <p><b><i>Escherichia coli</i> O157:H7 *</b></p> <p><b>Food poisoning *</b></p> <p>Giardiasis</p> <p>Gonococcal infections</p> <p>Guillain-Barré syndrome</p> <p><b><i>Haemophilus influenzae</i>, invasive disease *</b></p> <p><b>Hantavirus Pulmonary Syndrome *</b></p> <p>Hepatitis A</p> <p>Hepatitis B</p> <p>Hepatitis C</p> <p>Hepatitis, other viral</p> <p>Histoplasmosis</p> <p>Influenza – pediatric mortality and institutional outbreaks</p> <p>Lead poisoning</p> <p><b>Legionnaires' disease *</b></p> <p>Leprosy (Hansen's disease)</p> <p>Leptospirosis (Weil's disease)</p>	<p><b>Listeriosis *</b></p> <p>Lyme disease</p> <p>Malaria</p> <p><b>Measles (rubeola) *</b></p> <p>Meningitis - all types</p> <p><b>Meningococcal infections *</b></p> <p>Mumps</p> <p>Pelvic inflammatory disease</p> <p>Pertussis (whooping cough)</p> <p><b>Plague *</b></p> <p><b>Poliomyelitis *</b></p> <p>Psittacosis (ornithosis)</p> <p><b>Rabies *</b></p> <p>Rickettsial diseases</p> <p><b>Rubella (German Measles) &amp; Congenital Rubella *</b></p> <p><b>Severe Acute Respiratory Syndrome (SARS) *</b></p> <p>Salmonellosis</p> <p>Shigellosis</p> <p><b>Smallpox *</b></p> <p><i>Staphylococcus aureus</i>, vancomycin insensitive</p> <p>Streptococcal disease, invasive group A</p> <p><i>Streptococcus pneumoniae</i>, invasive disease</p> <p>Syphilis</p> <p>Tetanus</p> <p>Toxic Shock Syndrome</p> <p>Trichinosis</p> <p>Tuberculosis §</p> <p><b>Tularemia *</b></p> <p><b>Typhoid (<i>Salmonella typhi</i> and <i>paratyphi</i>) *</b></p> <p><b>West Nile Virus *</b></p> <p>Varicella, including zoster</p> <p><b>Yellow Fever and other viral hemorrhagic fevers *</b></p>
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\* 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 - 1998 to 2008*

NR = Not reportable, NA = Not available)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
ACQUIRED IMMUNODEFICIENCY SYNDROME	891	1,224	947	893	914	848	760	508	699	690	504
AMEBIASIS	4	15	31	30	20	18	9	6	4	19	14
ANIMAL BITES/EXPOSURES	2,345	2,130	2,096	1,894	1,922	1,612	1,353	1,418	1,457	1,499	1,641
ANTHRAX	0	0	0	0	0	0	0	0	0	0	0
BABESIOSIS	0	0	0	0	0	1	0	0	0	1	0
BOTULISM	0	1	1	1	3	3	0	1	1	1	1
BRUCELLOSIS	0	0	0	0	1	0	0	0	0	1	0
CAMPYLOBACTERIOSIS	142	132	148	90	97	114	96	74	73	80	118
CHLAMYDIA TRACHOMATIS	11,763	12,660	13,593	13,586	15,234	17,747	16,723	15,577	17,199	17,029	17,012
CHOLERA	0	0	0	0	0	0	0	0	0	0	0
CRYPTOSPORIDIOSIS	14	24	22	13	15	19	19	27	29	94	23
CYCLOSPORIASIS	NR	NR	NR	1	0	2	0	3	0	2	1
DENGUE FEVER	0	0	0	0	0	0	0	0	1	8	1
DIPHTHERIA	0	0	0	0	0	0	0	0	0	0	0
ENCEPHALITIS, PRIMARY excluding West Nile Virus	0	1	1	5	6	9	6	0	0	1	0
ESCHERICHIA COLI, shiga-toxin producing (STEC)	6	7	6	42	17	14	11	7	19	4	8
GIARDIASIS	130	105	132	120	135	113	104	93	81	65	99
GONORRHEA	7,271	7,776	8,170	8,061	7,277	5,731	5,206	5,053	5,218	5,246	4,950
GUILLIAN-BARRE SYNDROME	0	2	3	2	2	0	0	1	2	1	3
HAEMOPHILUS INFLUENZAE [type b]	NR [0]	NR [0]	NR [0]	7 [1]	8 [1]	14 [1]	9 [0]	14 [0]	16 [0]	19 [2]	11 [1]
HEPATITIS A	133	62	255	98	70	179	39	17	14	9	10
HEPATITIS B, ACUTE	155	152	134	111	97	51	60	27	21	15	21
HEPATITIS C, ACUTE (Non-A, Non-B until 1998)	0	3	1	1	4	3	0	2	1	0	0
HISTOPLASMOSIS	0	0	2	1	2	2	2	0	1	2	0
HUMAN IMMUNODEFICIENCY VIRUS	NR	NR	NR	NR	NR	NR	NR	NR	703	1,384	1,174
LEGIONELLOSIS	15	15	19	3	10	23	31	19	21	24	26
LEPTOSPIROSIS	0	0	0	1	1	0	0	0	0	0	0
LISTERIOSIS	5	10	12	8	19	11	11	2	7	8	5
LYME DISEASE	179	220	165	99	179	164	182	172	139	172	281
MALARIA	11	10	11	16	16	19	13	14	15	7	19
MEASLES	1	0	0	1	0	0	0	0	0	0	0
MENINGITIS, ASEPTIC	26	25	68	71	112	120	87	95	66	86	79
MENINGITIS, BACTERIAL	12	15	23	15	21	7*	4*	4*	1*	4*	4*
MENINGOCOCCAL INFECTIONS	13	13	24	12	15	15	14	8	2	9	5
MUMPS	1	5	2	1	1	2	1	2	2	1	0
PERTUSSIS	31	44	61	34	31	98	109	75	50	39	54
PLAGUE	0	0	0	0	0	0	0	0	0	0	0
POLIOMYELITIS	0	0	0	0	0	0	0	0	0	0	0
RABIES (Human)	0	0	0	0	0	0	0	0	0	0	0
RICKETTSIAL DISEASES, including RMSF	1	4	0	2	4	0	7	3	8	2	5
RUBELLA, including congenital rubella syndrome	1	0	0	0	0	0	0	0	0	0	0
SALMONELLOSIS, excluding typhoid	319	346	328	287	324	316	261	305	293	404	420
SHIGELLOSIS	123	129	115	139	191	696	31	31	14	138	206
STREP PNEUMONIAE, INVASIVE	NR	NR	NR	NR	NR	101	94	151	139	162	165
STREPTOCOCCUS, INVASIVE Gp. A [TSS]	NR	NR	NR	14 [7]	16 [1]	43 [3]	24 [3]	27 [0]	37 [0]	34 [0]	75 [0]
SYPHILIS - PRIMARY & SECONDARY	89	69	67	77	71	98	72	86	125	136	150
SYPHILIS - CONGENITAL	24	8	9	4	4	3	0	2	0	9	7
SYPHILIS - TOTAL	796	826	622	639	589	587	470	417	540	500	526
TETANUS	0	0	0	0	0	0	0	0	0	0	0
TOXIC SHOCK SYNDROME, staphylococcal	1	0	0	0	1	0	0	0	0	0	0
TUBERCULOSIS	179	184	169	144	147	120	129	116	149	133	162
TULAREMIA	0	0	0	0	0	0	0	0	0	0	0
TYPHOID FEVER	4	1	2	2	1	1	2	1	4	0	6
VARICELLA	N/A**	N/A**	N/A**	N/A**	N/A**	N/A**	N/A**	614	787	735	349
WEST NILE VIRUS	NR	NR	0	2	6	24	1	0	1	0	8
YELLOW FEVER	0	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.