The A.C.D. Quarterly

PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH

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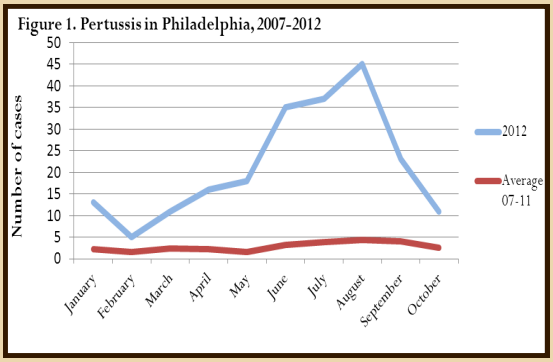
Pertussis Trends in Philadelphia

Pertussis, commonly known as whooping cough, is one of the most frequently reported vaccine preventable diseases. There has been a large increase in the number of reported Philadelphia cases of pertussis in 2012 as seen in Figure 1. The highest rates of pertussis have been reported in South Philadelphia, Chestnut Hill, and some areas of West Philadelphia (Figure 2). Nationally, pertussis cases have been increasing since the late 1980s. United States case counts as of July 1, 2012 are on track to exceed 2010, a previous peak year for pertussis that included 27,550 cases – the most since 1959. Causes for an increase in cases include increased waning vaccine immunity following a change from whole cell DTP vaccine to acellular DTaP vaccine in the 1990s, increased recognition of disease, and improved diagnostic testing and reporting.

Figure 1. Pertussis in Philadelphia, 2007-2012



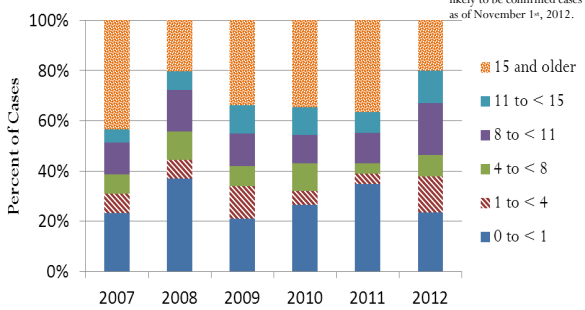
Box 1: The 3 Stages of Pertussis:

1. **Catarrhal: mild cough and cold-like symptoms lasting about a week**
2. **Paroxysmal: characteristic symptoms of pertussis emerge, including, paroxysms of cough, whoop, and post-tussive vomiting, lasting 1-6 weeks**
3. **Convalescent: continued cough for weeks to months**

Pertussis, a highly contagious respiratory infection caused by the toxin-producing bacteria, *Bordetella pertussis*, typically has 3 stages (Box 1), including a cough lasting weeks to months, although the individual is only infectious for the first 21 days after onset of symptoms. Individuals who have taken at least 5 days of antibiotics are considered no longer infectious and may go back to work or school. **All close contacts of pertussis cases should receive prophylactic treatment, especially infants and family members of infants**. Persons with extended cough duration do not need to be retreated. Infants represent the greatest proportion of pertussis and most severe illness (Figure 3). Infants may not have a prominent cough, but instead, apnea may present as their primary symptom. If pertussis is suspected, a culture or PCR test should be ordered to confirm the diagnosis. While serologic testing may be useful for clinical decision making for individuals over 10 years of age, it cannot be used as laboratory confirmation for surveillance purposes. Valid specimens include a nasal aspirate or nasal-pharyngeal swab, and should be collected while wearing appropriate PPE (refer to additional resources for more information on testing). Furthermore, specimens should be collected in a room where vaccines are not prepared to prevent contamination with pertussis DNA from vaccines.

Figure 3. Age of Pertussis Cases, Philadelphia, 2007-2012

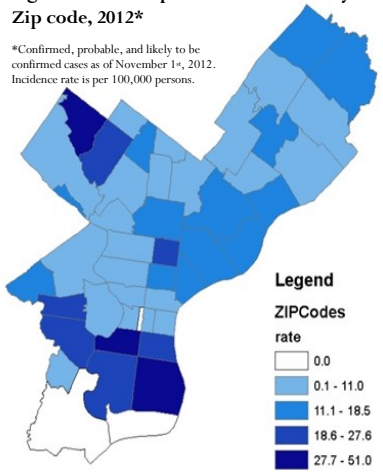
*Confirmed, probable, and likely to be confirmed cases as of November 1st, 2012.



Vaccination remains the best method of preventing pertussis. DTaP should be administered at 2, 4, 6, and 12 months of age with a 5th dose between 4 and 6 years of age. A booster of Tdap is recommended for children at age 11 or 12 years. Adults are also recommended to receive a Tdap vaccine if not previously vaccinated, however, currently only about 10% of adults in the US have been vaccinated. **Persons who anticipate being in close contact with infants are especially encouraged to receive a Tdap vaccine**, a practice known as cocooning. Pregnant women in their late second to third trimester are also recommended to receive Tdap, to transfer maternal antibodies to their child. While pertussis is circulating in the community, some fully vaccinated persons may become ill with pertussis, though often not as severe, because pertussis immunity wanes over time.

Figure 2. Philadelphia Pertussis Cases by Zip code, 2012*

*Confirmed, probable, and likely to be confirmed cases as of November 1st, 2012. Incidence rate is per 100,000 persons.



The Philadelphia Department of Public Health continues to investigate every case of pertussis, with specific focus on prevention of pertussis in infants, the highest risk group. Please report pertussis cases to the Division of Disease Control at 215-685-6748.

Additional resources for pertussis can be found at :

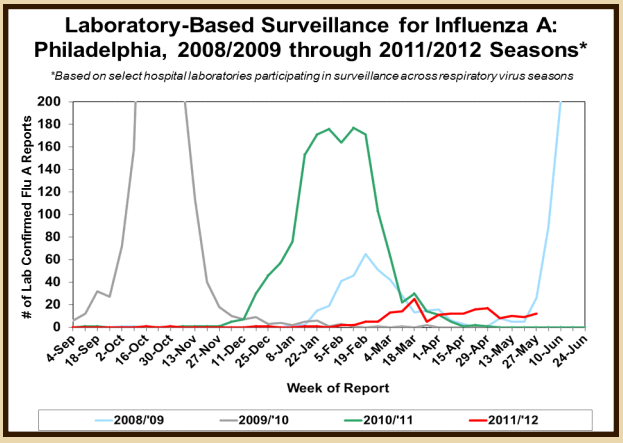
- http://www.cdph.ca.gov/__programs/immunize/Documents/PertussisLaboratoryTesting.pdf
- http://www.cdc.gov/pertussis/clinical/index.html
- https://hip.phila.gov/xv/DiseaseInformation/Pertussis/tabid/150/Default.aspx

Seasonal Spotlight: Influenza

Introduction

Influenza season is upon us in Philadelphia and across the United States. The season typically extends from October to May with peak activity seen between January and March. Symptoms of the flu include fever, cough, sore throat, runny/stuffy nose, muscle/body aches, headaches, fatigue, and vomiting/diarrhea (more common in children than adults).

The graph to the right demonstrates the variability of flu activity from season to season and the difficulty in predicting the severity of the coming flu season. Factors that affect the severity of a flu season include what flu viruses are spreading, how much flu vaccine is available, when vaccine is available, how many people get vaccinated, and how well the flu vaccine is matched to flu viruses causing illness.



Vaccine Information

The flu vaccine for the 2012-2013 season is made from influenza A 2009 H1N1 pandemic-like virus, influenza A 2011 H3N2-like virus, and influenza B/Wisconsin/1/2010-like virus. This year's H1N1 virus is the same as used in the 2011-2012 vaccine but the influenza H3N2 and B vaccine viruses are different from those recommended for the previous season. Antibodies from the flu vaccine take approximately two weeks to form from the vaccination date. Early vaccination is key to ensuring people have the best protection against flu before the peak of the season.

Two types of influenza vaccines are available. The first is the flu shot which is available as an intramuscular shot approved for ages 6 months and older, a high dose flu shot approved for people 65 years and older, and an intradermal flu shot approved for individuals 18 to 64 years of age. The second type is the nasal-spray vaccine made from of live, attenuated virus particles (abbreviated as LAIV for "Live Attenuated Influenza Vaccine"). The LAIV is approved for all healthy individuals two through forty-nine years of age who are not pregnant. Flu vaccines DO NOT cause the flu.

Vaccine Recommendations

Everyone who is 6 months of age and older should receive a flu vaccine this season. Children between 6 months and 9 years who have never received a dose of flu vaccine should receive 2 doses separated by at least 1 month. High risk individuals are especially encouraged to receive the vaccine and include people with chronic medical conditions, pregnant women, people 65 years and older, and children younger than five.

Vaccination of health care workers (HCW) is especially important to control the spread of influenza in hospitals, doctor's offices and long term care facilities (see Box 2). Intervention strategies have been increasingly used to boost vaccination rates among HCW. The strategy that seems to have the most impact in hospitals is the implementation of mandatory vaccination policies (Hollmeyer et al.). In a review of intervention strategy efficacy, seasons in which hospitals required vaccination attained rates of over 98%, increasing vaccination coverage by an average of 26% from prior seasons when such a policy was not implemented (Hollmeyer et al.). The CDC recently reported that in the 2011-2012 season, 68% of HCW in hospitals without a mandatory vaccination policy were vaccinated. During the same season, hospitals with a mandatory vaccination policy achieved coverage of 95%.

Box 2: Importance of Health Care Worker Vaccination

- **Higher influenza vaccination levels are associated with a lower risk of nosocomial influenza cases.**
- **Higher vaccination levels can reduce influenza related illness and deaths especially in nursing homes.**
- **Higher vaccination rates translate into lower levels of staff illness and absenteeism.**
- **Low vaccination rates contribute to outbreaks of influenza in hospitals and long-term care facilities.**

Resources:

Hollmeyer et. al. (2012) Review. Interventions to increase vaccination among healthcare workers in hospitals. Influenza and Other Respiratory Viruses DOI: 10.111/irv.12002.

Influenza Surveillance Activities

In order to gain information on the severity of an influenza season, the Philadelphia Department of Public Health investigates all reports of hospitalized influenza cases and cases of pediatric mortality caused by influenza in addition to gathering information from other surveillance systems. A weekly flu report which contains surveillance information for Philadelphia includes text as well as graphs summarizing sentinel laboratory surveillance, influenza-like illness at pediatric ambulatory clinics, syndromic surveillance for fever/flu in Emergency Departments, case-based surveillance for all hospitalized and fatal cases, and institutional outbreak surveillance. The flu report also summarizes both Pennsylvania and national flu surveillance data. Flu reports, guidelines and additional vaccine information can be found at hip.phila.gov.

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REPORT OUTBREAKS AND REPORTABLE DISEASES AND CONDITIONS TO PDPH AT:

PHONE: 215-685-6742

FAX: 215-238-6947

REPORTING REQUIREMENTS AND FORMS ARE POSTED ONLINE AT hip.phila.gov.

PHILADELPHIA Department of Public Health