



# County of Erie

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HEALTH ADVISORY #290

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## Health Advisory: Pertussis Continues in New York State

**Please distribute to the Infection Control Department, Emergency Department, Employee Health Service, Infectious Disease Department, Director of Nursing, Medical Director, Laboratory Service, and all patient care areas.**

### SUMMARY

- Pertussis activity has continued in New York State (NYS). Preliminary data for 2011 shows 928 probable and confirmed cases in NYS outside of New York City compared to 781 cases reported in 2010. **Data from Erie County shows 151 probable and confirmed cases of pertussis in 2011 compared to 27 probable and confirmed cases reported in 2010.** Reports of disease continue to be received both sporadically and in outbreaks throughout NYS, including New York City.
- Since January 1, 2012 the New York State Department of Health (NYSDOH) has been notified of 158 cases of pertussis from throughout the state. **A total of 19 probable and confirmed cases have been reported in Erie County.** All regions are reporting increases in investigations of pertussis disease. Pertussis is cyclical in nature with recent increases in several NYS counties that have previously had lower pertussis disease incidence. The disease is primarily affecting school aged children and includes transmission to infants less than 1 year of age. Three infants died of pertussis complications in 2011.
- The Erie County Department of Health (ECDOH) is asking providers to consider pertussis when seeing patients with clinically compatible illness, to immediately report suspected cases and institute appropriate infection control measures. Health care providers are encouraged to review the best practices document available at the CDC website below and follow the CDC recommendations for testing, understanding and interpreting PCR results for diagnosing pertussis.
- In 2011, the Centers for Disease Control and Prevention (CDC) released a best practices document for health care professionals on using polymerase chain reaction (PCR) tests for diagnosing pertussis. The best practices include who and when to test; how to obtain

specimens; and how to avoid contamination of clinical specimens with pertussis DNA, including best practices for preparing and administering vaccines and adhering to basic infection-control measures. Also included are recommendations for understanding and interpreting PCR results. See below for information on how to obtain this document.

- Providers should also ensure that all patients are vaccinated according to the current recommendations for tetanus, diphtheria, and acellular pertussis (DTaP or Tdap). Increasing community immunity will help to protect infants who are not fully vaccinated.
- The 2012 Adult and Pediatric Immunization Schedules were published in the February 2 and 9, 2012 issues of the Morbidity and Mortality Weekly Report (MMWR), respectively, and reflect the most current recommendations for the use of pertussis containing vaccine. See below for information on how to obtain these documents.

## BACKGROUND

Pertussis is an acute infectious disease caused by the bacterium *Bordetella pertussis*. In the 20<sup>th</sup> century, pertussis was one of the most common childhood diseases and a major cause of childhood mortality in the United States. Before the availability of pertussis vaccine in the 1940s, more than 200,000 cases of pertussis were reported annually. Since widespread use of the vaccine began, incidence has decreased more than 80% compared with the pre-vaccine era.

However, since the 1980s there has been an increase in the number of reported cases of pertussis, especially among 10 to 19 year olds and infants younger than 6 months of age. In Erie County during 2011, greater than 90% of reported cases of pertussis occurred among children and adolescents, and nearly 11% in infants under the age of 1 year.

| <b>Age Distribution of Probable and Confirmed Cases of Pertussis Reported to ECDOH in 2011</b> |                |                |                     |
|--|----------------|----------------|---------------------|
| <b>Age Group (yrs)</b>   | <b># Cases</b> | <b>% Cases</b> | <b>Cumulative %</b> |
| < 1  | 16             | 10.6           | 10.6                |
| 1-4  | 14             | 9.3            | 19.9                |
| 5-9  | 35             | 22.5           | 42.4                |
| 10-14  | 64             | 42.4           | 84.8                |
| 15-19  | 10             | 6.6            | 91.4                |
| 20-29  | 5              | 3.3            | 94.7                |
| 30-39  | 3              | 2.0            | 96.7                |
| 40-49  | 4              | 2.7            | 99.4                |
| 50-59  | 1              | 0.6            | 100                 |

In 2010, a total of 27,550 cases of pertussis were reported nationally—and many more cases go unreported. Several factors have likely contributed to the increase in reported cases, including increased awareness and improved recognition of pertussis among clinicians, greater access to and use of laboratory diagnostics, especially PCR testing, and increased surveillance and reporting of pertussis to public health departments. Even with these improvements, CDC believes that the disease frequently goes unrecognized.

ECDOH and the NYSDOH are asking providers to consider pertussis when seeing patients with clinically compatible illness. Suspect cases should be immediately reported to the local health

department where the patient resides and appropriate infection control measures should be instituted. Reports should be made at the time of initial clinical suspicion. If the diagnosis of pertussis is being considered and diagnostic testing for pertussis is ordered, then the case should be reported at that time.

## **CLINICAL AND DIAGNOSTIC INFORMATION**

Pertussis is a highly communicable, vaccine-preventable disease that lasts for many weeks and typically manifests in children with paroxysmal spasms of severe coughing, whooping, and post-tussive vomiting.

The attack rate for pertussis is between 70% and 100% among susceptible household contacts. Transmission occurs by direct or airborne contact with respiratory droplets, or by direct contact with objects contaminated with respiratory secretions from infectious individuals. The period of communicability is from the onset of symptoms to 21 days after the onset of cough.

Major complications are most common among infants and young children and include hypoxia, apnea, pneumonia, seizures, encephalopathy, and malnutrition. Young children can die from pertussis and 17 children died in the United States in 2011, including three in NYS. Most deaths occur among unvaccinated children or children too young to be vaccinated.

Testing for pertussis is most reliable when performed early in the course of the illness and prior to the initiation of antibiotic treatment. Testing must be done on nasopharyngeal specimens obtained by using *Dacron*, NOT cotton swabs. A pharyngeal or throat swab is not acceptable for pertussis testing.

Acceptable diagnostic methods for pertussis include polymerase chain reaction (PCR) and culture. PCR testing of nasopharyngeal aspirates or swabs is a rapid, sensitive method for diagnosing pertussis. It is not a perfect test, and results should be interpreted in light of patient symptoms. It is available at approved laboratories throughout NYS as well as NYSDOH's Wadsworth Center.

Culture for *Bordetella pertussis* is performed on special media culture and its fastidious growth requirements make it hard to isolate, however it is important to submit specimens for culture to confirm the disease due to the variable specificity of PCR testing and potential for falsely positive PCR results. Specimens obtained within three weeks of cough onset have a higher proportion of culture-positive results. Prior antibiotic treatment may interfere with culture growth.

**Direct fluorescent antibody (DFA) and serology are not reliable testing methods. Neither is recommended for the diagnosis of pertussis.**

## **TREATMENT AND PROPHYLAXIS**

Antibiotics given during the catarrhal stage may lessen the severity of the disease and decrease communicability. Treatment after the third week of cough is of questionable benefit. Persons with pertussis are considered non-infectious after having completed 5 days of any of the appropriate antibiotics or if at least 21 days have elapsed since the onset of cough. The macrolide agents erythromycin, clarithromycin, and azithromycin are preferred for the treatment of pertussis in persons aged >1 month. For infants aged <1 month, azithromycin is preferred; erythromycin and clarithromycin are not recommended. Trimethoprim-sulfamethoxazole is an alternative agent to macrolides for treatment of persons aged >2 months.

**CDC recommends administration of chemoprophylaxis to all close contacts and all household members of a pertussis case-patient, regardless of age and vaccination status.** Prophylaxis with antibiotics may prevent or minimize transmission. The same antibiotic regimens described above for treatment are used for prophylaxis.

## **REPORTING OF CONFIRMED OR SUSPECT CASES**

**All potential pertussis cases must be reported to the Erie County Department of Health at 858-7697.** The ECDOH and the NYSDOH Bureau of Immunization can assist in investigating any potential cases of pertussis.

## **VACCINE**

**The best way to prevent pertussis among infants, children, teens, and adults is to get vaccinated.** Since the introduction of pertussis vaccines, pertussis disease in the United States has been reduced by greater than 80% compared with the pre-vaccine era.

To provide optimum pertussis vaccine coverage, children ages 2 months to 6 years **should receive all age appropriate doses of DTaP vaccine** which includes a booster dose between the ages of 4 to 6 years, prior to school attendance. The five doses of DTaP are recommended to provide maximum protection. Tdap is also recommended for children aged 11 to 12 years, is available for children as young as 7, and is required for entry into grades 6 through 10.

In 2011, the Advisory Committee on Immunization Practices (ACIP) updated and expanded the recommendations for the use of the combination tetanus, diphtheria and pertussis vaccine or Tdap. There are currently two licensed products that can be used. **Because immunity from childhood pertussis vaccination wanes over time, this booster shot for adolescents and adults is essential.** Boosting reduces the risk of contracting pertussis and can decrease severity of disease. Most importantly, vaccinating adolescents and adults can help prevent pertussis transmission to infants too young to be vaccinated. This youngest age group is most vulnerable to severe disease and death from pertussis.

Complete information on the current vaccine recommendations is available at the websites below:

- Pertussis vaccination: Use of Acellular Pertussis Vaccines Among Infants and Young Children. Recommendations of the Advisory Committee on Immunization Practices (ACIP). <http://www.cdc.gov/mmwr/PDF/rr/rr4607.pdf>
- Updated Recommendations for Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis (Tdap) Vaccine from the Advisory Committee on Immunization Practices (ACIP). [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6001a4.htm?s\\_cid=mm6001a4\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6001a4.htm?s_cid=mm6001a4_w)
- Updated Recommendations for the Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis (Tdap) in Pregnant Women and Persons Who Have or Anticipate Having Close Contact with an Infant Aged < 12 Months --- Advisory Committee on Immunization Practices (ACIP), 2011. [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6041a4.htm?s\\_cid=mm6041a4\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6041a4.htm?s_cid=mm6041a4_w)
- Preventing Tetanus, Diphtheria, and Pertussis Among Adults; Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) and Recommendation of ACIP, supported by the Healthcare Infection Control Practices Advisory Committee (HICPAC), for Use of Tdap Among Health Care Personnel. <http://www.cdc.gov/mmwr/PDF/rr/rr5517.pdf>

- Preventing Tetanus, Diphtheria, and Pertussis Among Adolescents; Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP).  
<http://www.cdc.gov/mmwr/PDF/rr/rr5503.pdf>
- CDC Immunization Schedules: <http://www.cdc.gov/vaccines/recs/schedules/default.htm>

## ADDITIONAL INFORMATION

Information on pertussis from the CDC: <http://www.cdc.gov/pertussis/index.html>

Best Practices for Health Care Professionals on the Use of PCR for diagnosing Pertussis:  
<http://www.cdc.gov/pertussis/clinical/diagnostic-testing/diagnosis-pcr-bestpractices.html>

NYS Outbreak Control Guidelines for Vaccine Preventable Disease:  
[http://www.health.ny.gov/prevention/immunization/providers/outbreak\\_control\\_guidelines.htm](http://www.health.ny.gov/prevention/immunization/providers/outbreak_control_guidelines.htm)

Current treatment information is available at:  
Recommended Antimicrobial Agents for the Treatment and Postexposure Prophylaxis of Pertussis; 2005 CDC guidelines. MMWR 2005; 54 (No. RR-14).  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5414a1.htm>

## CONTACT INFORMATION

Providers with questions or concerns may contact the Erie County Department of Health's Epidemiology and Surveillance program at **(716) 858-7697** (Monday – Friday 8:30 AM – 4:30 PM).

### **Health Category Definitions:**

**Health Alert FLASH:** conveys the highest level of importance due to a large-scale, catastrophic public health emergency; warrants immediate action or attention

**Health Alert Priority:** conveys the highest level of importance; warrants immediate action or attention to a health problem or situation

**Health Advisory:** provides important information for a specific incident or situation; may not require immediate action

**Health Update:** provides updated information regarding an incident or situation; no immediate action necessary

The Erie County Department of Health does not provide medical advice. The information provided on the Erie County Department of Health website is not an attempt to practice medicine and is not intended as a substitute for professional medical advice, diagnosis, or treatment. It is for informational purposes only. Always seek the advice of your personal physician or other qualified health provider with any questions you may have regarding a medical condition or issue. Never disregard professional medical advice or delay in seeking it because of the content found on the Erie County Department of Health website or this correspondence.

The ECDOH Health Alert & Advisory System is an e-mail notification system designed to alert community partners about important health related information. **You can sign up to receive alerts & advisories at**  
<http://www2.erie.gov/health/index.php?q=node/59>.