

County of Santa Clara
Public Health Department

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HEALTH ALERT
Pertussis (Whooping Cough)

DATE: June 6, 2013

TO: Internal Medicine
Pediatrics
Obstetrics/Gynecology
Hospital Emergency Departments
Urgent Care Providers

FROM: Marty Fenstersheib, MD, MPH
Health Officer

This fax contains: 3 pages.

Please copy and distribute to
ALL physicians at your location.

Background

Pertussis is a cyclical disease that peaks every 2 – 5 years. Over three times as many cases of pertussis have been reported this year as compared to last year to date, and the number has been doubling every month over the last three months. Other San Francisco Bay Area jurisdictions are also seeing increased reports of pertussis. California experienced a pertussis epidemic in 2010 when >9,100 cases were reported and many other states experienced epidemics in 2012. Although it is too early to say whether the recent increase in cases reported in Santa Clara County and the Bay Area herald the next statewide peak, we want to remind providers to be prepared to accurately diagnose, treat, and prevent pertussis.

When to suspect pertussis

Recent studies indicate that immunity from DTaP vaccine is high immediately following receipt of vaccine but quickly wanes within a few years^{1,2,3}. Immunity from pertussis disease wanes as well. Therefore, clinicians are advised to consider pertussis in patients with a compatible clinical presentation, regardless of vaccination status or prior disease history.

¹ Klein et al. Waning protection after fifth dose of acellular pertussis vaccine in children. N Engl J Med. 2012 Sep 13;367(11):1012-9.

² Misegades et al. Association of childhood pertussis with receipt of 5 doses of pertussis vaccine by time since last vaccine dose, California, 2010. JAMA. 2012. Nov 28;308(20):2126-32.

³ Tartof et al. Waning immunity to pertussis following 5 doses of DTaP. Pediatrics. 2013 Apr;131(4):e1047-52.

Any patient who presents with an acute cough illness and:

- paroxysms of coughing (multiple coughs in a row without a pause for a breath in between coughs); OR
- inspiratory whoop (whooping sound made when inspiratory breath is taken at end of coughing paroxysm); OR
- post-tussive vomiting (emesis at end of coughing paroxysm); AND
- no other explanation for symptoms (cold-like symptoms typically precede cough; fever is usually absent)

should be tested for pertussis. (See testing guidance below.)

Additionally, clinicians should have a low threshold for testing pregnant women in their third trimester and infants.

- Any pregnant woman in her third trimester who has an acute cough illness > 5 days without other explanation should be tested for pertussis.
- Infants <6 months of age infected with pertussis typically have a different clinical presentation than older children and adults. They may have no apparent cough and parents may describe episodes in which the infant's face turns red or purple. Leukocytosis is typically present in unvaccinated infants. Recent studies indicate that white blood cell counts should be carefully monitored as an indicator of illness severity and that exchange transfusion is maximally beneficial if done before organ failure has occurred and immediately if shock or hypotension occur.^{4,5}

Clinical guidance on pertussis recognition and treatment in young infants is available at:

http://www.aap-ca.org/clinical/pertussis/pertussis_in_young_infants.html

Laboratory Testing

The CDC and the California Department of Public Health have determined that culture and PCR (polymerase chain reaction) are the only two accepted methods for the laboratory diagnosis for pertussis. Current serological tests for pertussis have not been standardized as of yet and are not considered to be a laboratory test for the confirmation of *Bordetella pertussis*. In addition, testing by DFA (direct fluorescent antibody) is not recommended at this time either.

Specimens for pertussis PCR and/or culture testing should be obtained by nasal aspiration or nasopharyngeal (NP) swab using Dacron-tipped (or other synthetic material) NP swabs with a flexible wire shaft. ***Cotton or calcium alginate swabs are not acceptable.*** Detailed instructions for collecting these specimens can be found at:

http://www.cdph.ca.gov/programs/immunize/Documents/CDPH_Pertussis%20laboratory%20testing_March2010.pdf

⁴Murray EL, et al. Characteristics of Severe *Bordetella pertussis* Infection Among Infants ≤90 Days of Age Admitted to Pediatric Intensive Care Units – Southern California, September 2009–June 2011. J Ped Infect Dis. 2013 Jan 10. [Epub ahead of print].

⁵Nieves D, et al. Exchange Blood Transfusion in the Management of Severe Pertussis in Young Infants. Pediatr Infect Dis J. 2013 Feb 12. [Epub ahead of print].

Specimens (NP swabs) collected for PCR testing only should be placed in a sterile tube or cup and refrigerated until transported to the lab. Testing should be performed within 72 hours of collection.

Specimens (NP swabs) collected for both PCR and culture should immediately after collection be placed into Regan-Lowe transport medium (leave swab in media). ***Specimens should NOT be submitted in Amies or Stuarts media.*** Specimens collected in Regan-Lowe may be kept at ambient temperature for up to 8 hours while transported to the laboratory. If immediate shipment is not possible, specimens must be incubated at 35°C for up to 48 hours prior to laboratory testing.

Specimens for PCR, or PCR and culture testing may be sent to the Santa Clara County Public Health Laboratory (see below) or your current commercial molecular diagnostics laboratory.

Santa Clara County Public Health Laboratory
Specimen Receiving
2220 Moorpark Ave., 2nd Floor
San Jose, CA 95128

408.885.4272 (T) ♦ 408.885.4275 (F)

For questions contact: Patricia Dadone, Director or Lorna Way

Prevention priorities

Prevention of pertussis in infants < 6 months is the highest priority. Infants <6 months of age are most likely to be hospitalized and infants <3 months of age are most likely to die from pertussis infection.

The most important strategy to prevent infection in vulnerable infants is Tdap vaccination of pregnant women.

All pregnant women should receive Tdap vaccine during each pregnancy, preferably in the third trimester, regardless of their vaccination history. Transplacentally transferred antibodies may protect young infants against pertussis until they can be immunized. To maximize the maternal antibody response and passive antibody transfer to the infant, optimal timing for Tdap administration is between 27 and 36 weeks gestation.

Reporting

To report a case of pertussis, please fax a Confidential Morbidity Report (CMR) (downloadable from <http://www.sccgov.org/sites/sccphd/en-us/FindForms/Pages/DRForms.aspx>) to the confidential fax line at Disease Prevention and Control: 408-885-3709, or call the Disease Prevention and Control Program at 408-885-4214.

Resources and more information

Pertussis outreach materials for clinicians and the public are available at:
<http://eziz.org/resources/pertussis-promo-materials/>

Statewide pertussis surveillance data are available at:

<http://www.cdph.ca.gov/programs/immunize/Pages/PertussisSummaryReports.aspx>