

# **Pertussis (Whooping Cough) Epidemic: *Let's Get Educated!***

## ***INTRODUCTION***

California and San Diego County (County) are in middle of a deadly epidemic that has recently received widespread media attention. Pertussis, also known as “whooping cough,” is a highly contagious, but preventable, bacterial disease. The current epidemic is the largest pertussis outbreak in California in more than 60 years. In 2010, more than 9000 people in California and 1144 in the County were diagnosed with pertussis; two infants died in the County. Most of those diagnosed were between eight and ten years old, and 52% of those diagnosed were current with the required immunizations. The 2010/2011 San Diego County Grand Jury (Grand Jury) investigated how County Public Health Services (PHS), school districts, local primary care providers (internists, family practitioners, OB-GYN, pediatricians) and medical specialists (infectious disease, pulmonary, etc.) are coordinating efforts to immunize as many children and adults as possible against pertussis. Infants younger than six months have not completed the full series of immunizations and are at the highest risk for contracting pertussis. The federal Centers for Disease Control and Prevention (CDC) strongly recommend that all adults and older children be immunized to protect our most vulnerable citizens from this life-threatening disease. The Grand Jury and local medical experts believe that a stronger law requiring immunizations before a child enters school and more widely publicized efforts to educate the public and healthcare providers about pertussis would enhance immunization rates, decrease “personal belief” exemptions and reduce the disease’s incidence.

## ***INVESTIGATION***

The Grand Jury learned from several experts that pertussis usually begins with a runny nose, cough and a mild fever, followed by several weeks to months of rapid coughing fits that end with a distinctive “whoop” sound. Those who have experienced or observed the disease stated that once you have heard this “whoop,” you never forget it. The disease is spread by person-to-person contact through the air (coughing, sneezing). Infants younger than six months have not completed the series of three injections of “diphtheria-tetanus-acellular pertussis” (*Dtap*) vaccine so they are at high risk for contracting pertussis. They are often hospitalized to support their immature respiratory system and treated with antibiotics. California health officials declared a pertussis epidemic in early 2010; eventually more than 9400 people were diagnosed, including 10 infants who died. The California Department of Public Health instituted several measures to counter the epidemic in its early stages. Among these measures was to provide free “tetanus-diphtheria-acellular pertussis” (*Tdap*) vaccine to new parents immediately after birth as well as to other family members who would be in close contact with the infant.<sup>1</sup> This version of the vaccine (*Tdap*) is given beginning at approximately 11 years of age as a booster to the original *Dtap* immunization series.

The state of California requires immunizations against the primary childhood diseases (red measles, mumps, rubella or German measles, pertussis, diphtheria, tetanus, chicken pox, polio,

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<sup>1</sup> “CDPH Broadens Recommendations for Vaccinating Against Pertussis: Immunization Key to Controlling Whooping Cough.” [www.cdph.ca.gov/Pages/PH10-048.aspx](http://www.cdph.ca.gov/Pages/PH10-048.aspx)

haemophilus influenza type B) be completed before a child enters kindergarten in any school. In addition, a new state law (Assembly Bill 354) requires that all children entering the seventh through twelfth grades be immunized against pertussis by receiving the *Tdap* booster, effective July 1, 2011. However, exemptions from the law may be permitted for “medical” reasons or a “personal belief.” Medical reasons may include such situations as the child being immunocompromised (weakened immune system due to illness, organ transplant) or having a documented allergy to a vaccine component, i.e. egg-based medium used to grow the vaccine.

The “personal belief” exemption is much more common. This exemption includes religious and/or philosophical beliefs or distrust of the safety of vaccines. The Grand Jury’s review of pertinent scientific literature, CDC, state and County data, and information from medical experts revealed that many parents believe some or all vaccines are unsafe. However, this belief is not supported by scientific evidence from reputable studies. For example, the contention that additives in vaccines cause autism has been thoroughly refuted by many well-controlled studies. Nevertheless, some vocal celebrities, parent activist groups and even healthcare providers continue to promote a vaccine-autism link. A mercury-based vaccine preservative, thimerosal, which anti-vaccination activists believe to be the link to autism, has not been used in children’s vaccines since 2001. However, the autism diagnosis rate continues to increase.<sup>2</sup> A “personal belief” exemption allows a school principal to accept a child without proof of immunization, thus California schools have a disincentive to enforce the immunization requirement since the state reimburses them for each child present per day of the school year. The vast majority of experts believe failure to immunize may expose children to a greater risk of contracting and then infecting others, particularly infants, with a preventable disease.

## ***DISCUSSION***

The pertussis vaccine in particular is about 80-85% effective, and immunity wanes with age. The CDC and other prominent healthcare groups strongly recommend all children older than 10 and adults who are frequently around small children receive a *Tdap* booster every five to seven years to maintain immunity.

Some experts believe that recent generations of parents and healthcare providers who have never seen the scourge of pertussis, polio and chicken pox, for example, have become complacent regarding immunizations. Recent articles published in the *New England Journal of Medicine*<sup>3</sup> and by the Johns Hopkins Bloomberg School of Public Health<sup>4</sup> discussed these and other issues involved with the apparent increased parental resistance to childhood immunization. They include the well-substantiated benefits of immunization and reasons for failure to immunize, risks of not immunizing, healthcare provider knowledge of immunization benefits and the role of providers and parents in the decision to immunize or not. The authors noted U.S. states that make it easy for parents to use a “personal belief” exemption to avoid immunization had much higher

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<sup>2</sup> Every Child By Two, 2009. Video FAQs-full transcripts, p.13-15. [www.vaccinateyourbaby.org](http://www.vaccinateyourbaby.org).

<sup>3</sup> Omer, Saad B., et al. Vaccine refusal, mandatory immunization and the risks of vaccine-preventable diseases. New England Journal of Medicine, 360 (19), May 7, 2009.

<sup>4</sup> “High Rates of Pertussis Found in States with Easy Immunization Exemptions.” [www.jhsph.edu/publichealthnews/articles/2006/omer\\_immunizations.html](http://www.jhsph.edu/publichealthnews/articles/2006/omer_immunizations.html)

rates of pertussis; California was the only state in 2010 to declare a pertussis epidemic, although several other states reported a higher-than-usual incidence.

San Diego Unified School District (SDUSD), the largest school district in the County, and the PHS work closely to reach parents about the need to immunize their child against pertussis after the July 1 deadline for those children entering the seventh grade and above. SDUSD recently began using the PHS's immunization database to track immunization compliance district-wide. The district's web site has links to the County's web site where there is much information about pertussis and other communicable diseases. School principals are responsible for ensuring information about immunization requirements is provided to parents and all children are immunized prior to starting school. SDUSD will begin including an immunization reminder on report cards. In addition, the district now requires a parent to come in person to the school to sign an affidavit requesting a "personal belief" exemption for their child.

According to 2010 data supplied by the County, the "personal belief" exemption rate for entering kindergartners was 3.5% compared to 2.3% statewide. The rate has gradually increased between 2001 and 2010. This does not bode well for increasing immunization rates and reducing the incidence of pertussis. The Grand Jury learned from experts they interviewed that more publicity is needed to help educate the public, especially parents, about the importance of immunizations in preventing communicable diseases. Many infectious disease researchers recommend public health officials focus education/information campaigns to help alleviate concerns parents may have about vaccine safety. At the same time, the officials should create more of a balance between parental autonomy and public health mandates, and make it harder to obtain immunization exemptions.

## ***FACTS & FINDINGS***

***Fact:*** Pertussis (whooping cough) is a highly contagious bacterial disease spread by person-to-person contact through the air. San Diego County reported 1144 cases in 2010 (two infant deaths) and 116 cases from January-March 2011.

***Fact:*** California declared a pertussis epidemic in 2010 with more than 9400 reported cases.

***Fact:*** Immunization against formerly common childhood diseases, including pertussis, is readily available from private healthcare providers, San Diego County Health Department, local pharmacies and non-profit clinics. The cost varies depending on who provides it.

***Fact:*** California state law requires all children entering kindergarten be immunized against childhood diseases; effective July 1, 2011, seventh graders and up must be immunized against pertussis before starting school.

***Fact:*** California state law permits parents to use a medical and "personal belief" exemption to avoid immunizing their children.

***Fact:*** Anti-vaccine activists continue to promote a link between vaccines and autism and other conditions despite much scientific evidence to the contrary.

**Fact:** Immunity to pertussis wanes with age; the Centers for Disease Control and Prevention recommend a *Tdap* booster every five to seven years starting at age 11 to maintain immunity.

**Fact:** San Diego County has experienced a continuing increase in “personal belief” exemptions from immunizations between 2001 and 2010.

**Finding 01:** San Diego County Public Health Services provides valuable information on pertussis and other preventable diseases on its web site.

**Finding 02:** Many local primary healthcare providers are not current with information on who should receive the *Tdap* immunization.

**Finding 03:** The cost of the *Tdap* vaccine varies depending on insurance coverage and who provides it. Random calls to local pharmacies revealed costs ranging from \$35-\$120 per injection.

**Finding 04:** The San Diego Unified School District and San Diego County Public Health Services appear to have well-coordinated plans to educate parents about pertussis and strongly encourage immunizing children.

## ***RECOMMENDATIONS***

**The 2010/2011 San Diego County Grand Jury recommends the Director, Health and Human Services:**

- 11-51:** Direct the Public Health Officer to develop and implement a comprehensive and widely publicized plan, in collaboration with local school districts, the San Diego County Office of Education and local medical societies, to educate healthcare providers and the public, especially parents, about the disease and the critical need for all ages to be immunized against pertussis.
- 11-52:** Initiate efforts to draft legislation, in collaboration with the San Diego County Board of Supervisors and local state legislators, to strengthen current state law regarding immunizations required for school entry and minimize the “personal belief” exemption by parents.
- 11-53:** Initiate efforts to draft legislation, in collaboration with the San Diego County Board of Supervisors and local state legislators, to strengthen current state law regarding immunizations so that all school administrators, teachers, staff and volunteers be immunized against pertussis according to Centers for Disease Control and Prevention recommendations.

## ***REQUIREMENTS AND INSTRUCTIONS***

The California Penal Code §933(c) requires any public agency which the Grand Jury has reviewed, and about which it has issued a final report, to comment to the Presiding Judge of the Superior Court on the findings and recommendations pertaining to matters under the control of the agency. Such comment shall be made *no later than 90 days* after the Grand Jury publishes its

report (filed with the Clerk of the Court); except that in the case of a report containing findings and recommendations pertaining to a department or agency headed by an elected County official (e.g. District Attorney, Sheriff, etc.), such comment shall be made *within 60 days* to the Presiding Judge with an information copy sent to the Board of Supervisors.

Furthermore, California Penal Code §933.05(a), (b), (c), details, as follows, the manner in which such comment(s) are to be made:

- (a) As to each grand jury finding, the responding person or entity shall indicate one of the following:
  - (1) The respondent agrees with the finding
  - (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.
- (b) As to each grand jury recommendation, the responding person or entity shall report one of the following actions:
  - (1) The recommendation has been implemented, with a summary regarding the implemented action.
  - (2) The recommendation has not yet been implemented, but will be implemented in the future, with a time frame for implementation.
  - (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This time frame shall not exceed six months from the date of publication of the grand jury report.
  - (4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefor.
- (c) If a finding or recommendation of the grand jury addresses budgetary or personnel matters of a county agency or department headed by an elected officer, both the agency or department head and the Board of Supervisors shall respond if requested by the grand jury, but the response of the Board of Supervisors shall address only those budgetary or personnel matters over which it has some decision making authority. The response of the elected agency or department head shall address all aspects of the findings or recommendations affecting his or her agency or department.

Comments to the Presiding Judge of the Superior Court in compliance with the Penal Code §933.05 are required from the:

<b>Responding Agency</b>	<b>Recommendations</b>	<b>Date</b>
<b>Director, Health &amp; Human Services Agency, County of San Diego</b>	<b>11-51 through 11-53</b>	<b>8/24/11</b>

## ***REFERENCES***

San Diego County Public Health Services website:

<http://www.sdcounty.ca.gov/hhsa/programs/phs/>

California Department of Public Health website:

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

Centers for Disease Control and Prevention website:

<http://cdc.gov/vaccines/>

San Diego Unified School District Nursing and Wellness website:

<http://www.sandi.net/20451072011457763/blank/browse.asp?a=383&BMDRN=2000&BCOB=0&c=60504&20451072011457763Nav=|&NodeID=3017>

Offit, Paul A. The Cutter Incident: How America's First Polio Vaccine Led to Today's Growing Vaccine Crisis. New Haven: Yale University Press, 2005.

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