

DTaP Vaccine (*Diphtheria, Tetanus and Pertussis*)

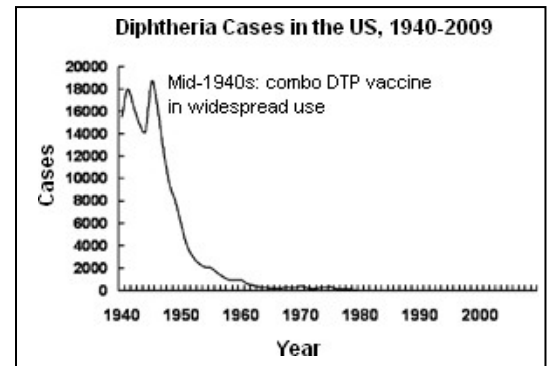
Diphtheria Vaccination

Benefits of Diphtheria vaccination

Protects against diphtheria infection, which can cause sudden breathing or skin problems, as well as complications like heart failure and paralysis.

Saves lives: Before the vaccine, diphtheria was in the top 3 causes of death in kids under 15. Since vaccination efforts began, the death rate for vaccinated kids has dropped almost to 0.

Effective: The series of three properly-spaced diphtheria immunizations works 97% of the time.



Concerns about Diphtheria vaccination

Diphtheria isn't around anymore. Why do I need the vaccine?

There are still cases of diphtheria, though it is rare. Since 1980 there have been 62 reported cases in the US. Diphtheria still kills thousands of children a year in countries where vaccination is not as widespread.

Can't I just treat this illness if it occurs?

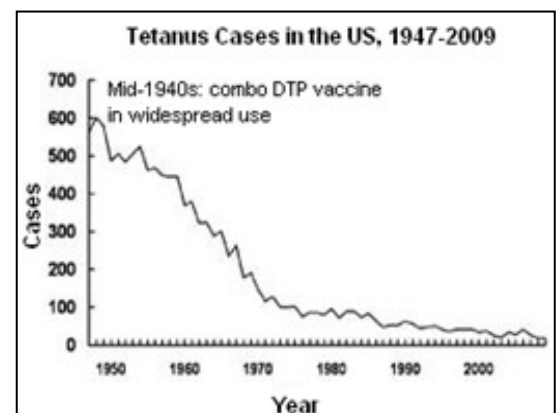
Treating diphtheria is not always easy. Even with the best medical care available, about 1 in 5 children under the age of 5 who get diphtheria will die, and those who live might experience severe side effects.

Tetanus Vaccination

Benefits of Tetanus vaccination

Protects against tetanus infection, a nerve disease that can cause powerful muscle spasms, seizures, lockjaw, fever, and death.

Saves lives: Even with the best medical care available, tetanus kills 1 in 7 people that it affects. The vaccine has been shown to be nearly 100% effective. The vast majority of cases in the US in the past 30 years have been in people who are not up to date on their vaccination.



Concerns about Tetanus vaccination

Tetanus isn't around anymore. Why do I need the vaccine?

Tetanus infection can occur whenever you have a contaminated cut or puncture wound. Since 2001 there have been about 30 cases each year in the US.

Can't I just treat this illness if it occurs?

Tetanus is a medical emergency. Treatment includes immediate hospitalization and aggressive wound care (including cutting away dead, infected skin). If lockjaw occurs, doctors will need to cut into the airway through the neck and attach the patient to a ventilator. Even with all of this medical treatment, tetanus has a 13% mortality rate.

Pertussis (Whooping Cough) Vaccination

Benefits of Pertussis vaccination

Protects against pertussis (aka whooping cough), a sudden respiratory illness. Pertussis is called the 100-day cough because it causes you to cough until you vomit several times a day for up to three months.

Keeps babies safe: Pertussis is very dangerous in babies. About half of infants less than 1 year old who get pertussis are hospitalized, and 1-2% of those infants die.

Saves lives: Pertussis is on the rise— due to falls in vaccination rates, there were 48,000 cases of pertussis and 20 deaths in 2012. This is more than any year since 1951. Most of these cases were in unvaccinated children younger than 3 months of age.

Possible Side Effects from DTaP Vaccine

One in four children will experience mild side effects such as redness or swelling around the injection site or a fever lasting 1-2 days. 1 in 16,000 children will experience a fever of 105 or greater, and 1 in 14,000 will experience seizures with no long-term consequences. A serious reaction to the DTaP vaccine will occur in fewer than 1 in 1 million kids.

Concerns

Sometimes this vaccine doesn't work. What's the advantage if kids who get the vaccine can still get infected?

Pertussis vaccine works about 80-85% of the time. If you've been vaccinated and get pertussis, you are less likely to have a severe infection. When vaccinated children get pertussis, fewer have apnea (life-threatening pauses in breathing), cyanosis (blue/purplish skin coloration due to lack of oxygen), and vomiting.

Can't I just treat this illness if it occurs?

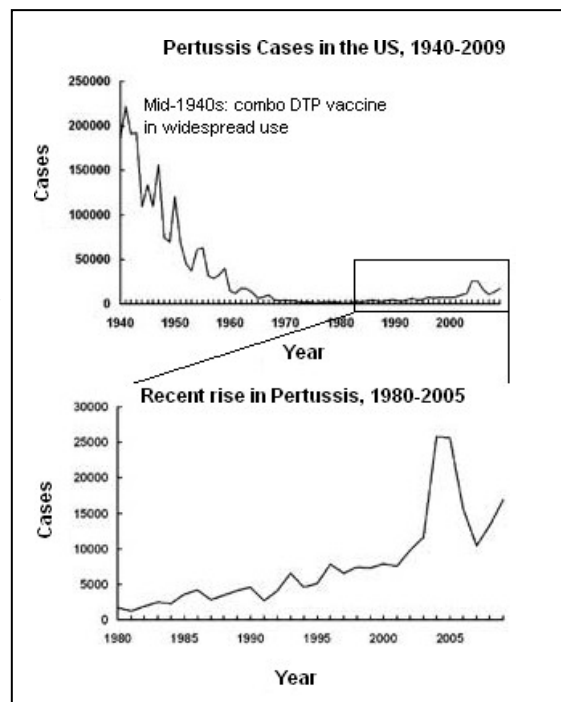
In infants younger than 1 year of age who get pertussis, about half are hospitalized. The younger the infant, the more likely treatment in the hospital will be needed. Complications of those infants who are hospitalized include pneumonia, convulsions, encephalopathy (disease of the brain). About 1 in 50 kids who are hospitalized will die.

Does the DTaP vaccine contain aluminum, mercury, formaldehyde, or thimerosal?

The DTaP vaccine has not contained any thimerosal or mercury since 2001, when the formula was altered. The vaccine contains a tiny amount of aluminum, the same amount that is in 1 day of infant formula or 1 week of breast milk. The vaccine also contains 0.02mg of formaldehyde, 1/10 the amount that an infant produces naturally and that circulates in his or her bloodstream.

Where does the DTaP vaccine come from?

The vaccine is grown from a culture of cells from cows.



Do any of the sources used in this handout have ties to pharmaceutical companies?

The sources used for this handout are the Center for Disease Control (CDC), the World Health Organization (WHO), and the Children's Hospital of Philadelphia (CHoP). While some employees at the CDC, the WHO, and CHoP have ties to pharmaceutical companies, both of those organizations are up-front about these connections. The CDC in particular took steps in 2006 to make its vaccine recommendation unit more independent and less subject to bias.

References:

<http://www.cdc.gov/vaccines/vpd-vac/diphtheria/fs-parents.html>

<http://www.who.int/immunization/topics/diphtheria/en/index1.html>

<http://www.cdc.gov/tetanus/>

<http://www.cdc.gov/pertussis/>

<http://www.chop.edu/service/vaccine-education-center/vaccine-safety/vaccine-ingredients/fetal-tissues.html>

<http://www.chop.edu/service/vaccine-education-center/vaccine-safety/vaccine-ingredients/aluminum.html>

<http://www.chop.edu/service/vaccine-education-center/vaccine-safety/vaccine-ingredients/formaldehyde.html>

Written by:

Nathan Potter, Tufts University School of Medicine Class of 2017;

Wayne Altman, MD, Associate Professor of Family Medicine, Tufts University School of Medicine.