Once a common childhood illness in the US, pertussis earned its popular name from

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| by Lauren Feder, MD

Straight talk on the 100-day cough

What are the symptoms of pertussis? Who's at risk? And is the vaccine right for your family?

In June 2010, news reports confirmed that whooping cough was now an epidemic in California.[1] Physicians were inundated with calls from concerned parents. As the disease spread in California and across the nation, it became important that people inform themselves about what whooping cough is, and their options for vaccines and treatment.

Having had whooping cough does not provide lifelong immunity. Adolescents and adults who had the infection in childhood might get milder forms of whooping cough that can go undetected, or be diagnosed as bronchitis or a simple cough. The several stages of whooping cough can last a total of two to three months, earning it the nickname "the hundred-day cough."

WHAT IS WHOOPING COUGH?

Whooping cough, aka pertussis, is a contagious illness caused by the *Bordetella pertussis* bacterium. Once a common childhood illness in the US, it earned its popular name from the characteristic *whooping* sound of the cough associated with the disease. The pertussis bacterium is easily spread by contact with an infected child or adult in the first two to three weeks of infection, usually before the illness has been accurately diagnosed. The incubation period is commonly 7 to 10 days, with a range of 4 to 21 days.

Like many illnesses, pertussis begins with a cold-like stage in which the sufferer is most contagious, with the familiar symptoms of runny nose, sneezing, low-grade fever, and mild cough. Within one to two weeks the cough worsens, developing into attacks or spells or fits: a rapid series of coughs followed by a long inhalation with the characteristic crowing sound or high-pitched whoop. Choking, gagging, or vomiting while coughing can be triggered by the buildup of thick mucus in the lungs. In more severe cases, a child can turn blue in the face (aka cyanosis). Although a child may be exhausted immediately following a coughing spell, he or she often appears and acts normal between spells.

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SUPERSTOCK

cough that can go undetected, or be diagnosed as bronchitis or a simple cough.

HOW COMMON IS WHOOPING COUGH?

By the 1970s, the Centers for Disease Control and Prevention (CDC) reported, the incidence of whooping cough had decreased by 99 percent since the inception of the whole-cell DTP vaccine.[2] In the holistic medical community, it is generally felt that individual cases and symptoms of pertussis are less severe now than in the past, due to improvements in sanitation, nutrition, and education and because of more sophisticated medical treatments for complications. In the US, pertussis epidemics happen every three to five years; approximately 17,000 cases were reported in 2009.[3] According to the CDC, pertussis is "one of the most common vaccine-preventable childhood diseases" in the US.[4] From 1999 to 2004, 91 infant deaths in the US were attributed to pertussis.[5]

However, since the 1980s, the number of reported cases of pertussis has increased.[6] That whooping cough is becoming more common in adolescents and adults than it was in the past[7, 8] may be due to improved abilities to recognize, diagnose, and report cases of pertussis.[9] In general, pertussis cases are vastly underreported.[10] Increases in whooping cough among adolescents and adults since the 1980s are most likely attributable to their immunity waning in the years following their vaccination.[11]

Outbreaks of whooping cough are also caused

If you suspect that your child has whooping cough, see your pediatrician.

Because pertussis is contagious, avoid contact with others.

NATURAL TREATMENTS for WHOOPING COUGH

From your pantry

CHAMOMILE TEA for chest congestion, bronchitis

LEMON TEA for watery, thin discharges, tickly coughs, bronchitis

ONION breaks up thick mucus and congestion. Place sliced onion on a plate by the bed at night.

Homeopathic remedies

ACONITUM NAPELLUS for sudden attacks of croupy coughs at the beginning stages of illness and cough

ANTIMONIUM TARTARICUM for rattling in the chest with a strong, loose cough when chest feels full of mucus

BRYONIA ALBA for dry, racking, painful cough in chest and head, made worse by motion and better by being still

COCCUS CACTI for winter coughs with tickling in the throat, and strong fits of coughing that end in choking or vomiting

CUPRUM METALLICUM (CUPRUM) for spasmodic coughing fits

DROSERA for violent coughing spells ending in choking, gagging, or vomiting. Sometimes these coughs are so strong that the child can hardly catch her breath. Drosera is indicated for barking coughs, whooping cough, croup, and coughs that are worse after midnight, commonly accompanied by a bloody nose and a hoarse voice.

HEPAR SULPHURIS CALCAREUM for croup that is worse in the morning and evening (until midnight); indicated following *Aconitum napellus*, especially with croup with rattling mucus in chest that is worse in the morning

IPECACUANHA for whooping cough and other severe suffocative coughs that end in retching, vomiting, or cyanosis, with stiffness in the body; the child feels nauseated and has an aversion to food (including the smell of food)

PULSATILLA for coughs with yellow-green mucus; cough is worse at night and interferes with sleep

SPONGIA TOSTA for dry coughs that sound like a saw going through wood; often used for croup. Useful for croupy coughs that are worse before midnight, accompanied by a dry, barking cough that can sound like a seal.

—Lauren Feder, MD

The pertussis vaccine should not be given to children who have a history of convulsions, brain disorder, or abnormal development.

In the US, pertussis epidemics happen every three to five years; approximately 17,000 cases were reported in 2009.

by *Bordetella parapertussis*, which is closely related to *Bordetella pertussis*. The symptoms of *B. parapertussis* are usually milder than those of *B. pertussis*; because of this, both infections remain underestimated. In general, infection by *B. pertussis* and/or *B. parapertussis* in the immunized population is common, and *B. parapertussis* is more prevalent than was previously known.[12]

THE VACCINES

The original pertussis vaccine was the whole-cell diphtheria-tetanus-pertussis (DTP) vaccine. However, the severe complications of the whole-cell DTP vaccine led to the development of the acellular pertussis (aP) version of this vaccine (DTaP). In fact, the publicity surrounding the complications of the original pertussis vaccine is, to a large extent, responsible for the public's current awareness of vaccine injuries in general.

The DTaP vaccine grants immunity for 5 to 10 years.[13] However, according to a study that compared the success rates of the two vaccines, the incidence of pertussis was lower in children who were given a combination of DTP and DTaP than in children who received only DTaP. This suggests that the rate of failure to immunize is higher in the DTaP vaccine.[14] According to the CDC, while the rate of pertussis immunization in the US has remained high,[15] whooping cough continues to reemerge. One theory for this is that the strains of the *B. pertussis* bacterium have evolved since introduction of the vaccines, much as other bacteria have evolved to become more resistant to commonly used antibiotics.[16]

Despite widespread programs of vaccination, epidemics of pertussis continue to occur every three to five years. While the reason or reasons for this remain unclear, what *is* known is that immunity from vaccines wanes over time, which can result in increased incidence among adolescents and adults.[17] In addition, many children and adults are carriers of pertussis while showing no symptoms of the disease.

Thus far, the worst case of pertussis I've seen was in an eight-month-old girl who was hospitalized for a few days despite having had two DTaP shots. Following the hospitalization, the patient and her family came to my office for homeopathic treatment to expedite her healing. Now she is fine.

VACCINE REACTIONS

Nowadays, the pertussis vaccine is given to children as part of the DTaP series. The five doses of this series are given at the ages of 2 months, 4 months, 6 months, 15 to 18 months, and 4 to 6 years. The pertussis vaccine is given only to children younger than seven years because it can cause severe reactions in older children.

The complications of the pertussis vaccines are well documented and include local swelling at the injection site, fever, high-pitched screaming, convulsions, mental retardation, and death. Although reactions to the acellular form of the vaccine are milder than to the whole-cell vaccine, severe reactions to the DTaP vaccine have occurred, including encephalitis and death.

Although the *B. pertussis* bacterium can cause ear infections, dehydration, convulsions, and, in rare instances, even brain damage or death, one of the complications most commonly associated with whooping cough is pneumonia. Pertussis poses the greatest risk to infants and small children; their air passages, which are much narrower than those of older children and adults, can be more quickly blocked by mucus.

On rare occasions, DTaP can cause serious complications. These include:

- fever higher than 105° F (1 child out of 16,000)[18]
- nonstop crying (1 child out of 1,000)[19]
- seizure (1 child out of 14,000)[20]
- serious allergic reaction (fewer than 1 in a million)[21]

The pertussis vaccine should not be given to children who have a history of convulsions, brain

narrower than those of older children and adults, can be more quickly blocked by mucus.

ISTOCK PHOTO

Smart SHOT STRATEGY

CONVENTIONAL TREATMENT

Typically, your doctor will recommend acetaminophen or ibuprofen before and after the shot, to prevent or relieve fever and fussiness.

HOME TREATMENT

Vitamin and herbal remedy

In an attempt to use a more natural preventive approach, I prefer a different course of action. With any vaccination, I recommend administering the following vitamin and herbal remedy seven days before and after the shot, to generally strengthen the body. They may also help reduce any side effects of the vaccine.

Remember, your child should not receive a vaccination if she is cranky or ill. At our office, we prefer that, when possible, people take only one vaccine at a time. Contact your practitioner if unusual symptoms occur following the shot. You can use this protocol in conjunction with any other medications you give your child.

Each day, for seven days before and after the shot, give your child the following:

BRIAR ROSE This gemmotherapy herb is a general immune strengthener.

VITAMIN C Less than two years old, 100 milligrams, twice daily; two years and older, 250 mg twice daily.

Homeopathic remedies

LEDUM PALUSTRE 30C One dose one hour before shot, then one dose immediately following the shot, and then one dose 12 hours later.

THUJA OCCIDENTALIS 30C Three pellets twice daily for three days following shot.

HOMEOPATHIC NOSODES If, for example, your child receives the DTaP vaccine, give three pellets of homeopathic DTaP 30C once a week for three weeks, beginning the day of the shot (three doses total). For the Hib vaccine, give Hib 30C; etc. You may need a physician's prescription to obtain a nosode from a homeopathic pharmacy.

ARNICA MONTANA 30C Three pellets twice daily, as needed, for muscle soreness following shot.

CHAMOMILLA 30C For fussiness, three pellets every two to four hours as needed, following shot.

—Lauren Feder, MD

disorder, or abnormal development. Some of the families in my practice have refused the pertussis shot because of a family history of seizures.

TREATMENT FOR WHOOPING COUGH

If you suspect that your child has whooping cough, see your pediatrician. A case of whooping cough usually lasts about six weeks. Because pertussis is contagious, avoid contact with others.

The standard treatment includes the general support of rest and liquids. Your doctor will probably prescribe erythromycin or azithromycin, as it is felt that such antibiotics render a child less contagious. While it is still in question whether an antibiotic changes the course of the illness, people with whooping cough are generally considered no longer contagious after the fifth day on antibiotics. Holistic medicine and homeopathy may shorten the course and severity of the illness.

But again: If you suspect that you or your child has whooping cough, *see your healthcare provider.*

The pertussis vaccine is given only to children younger than seven years because it can cause severe reactions in older children.

From 1999 to 2004, 91 infant deaths in the US were attributed to pertussis.

Holistic medicine and homeopathy may shorten the course and severity of the illness.

DR. JAY GORDON, noted attachment-parenting–oriented pediatrician and author, comments on the pertussis vaccine in his online column "Behind the Scenes with Dr. Jay" at *http://mothering.com/all-things-mothering/author/dr-jay-gordon.*

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Lauren Feder, MD, specializes in homeopathy, pediatrics, and primary-care medicine. Known for her holistically minded approach, Dr. Feder is a frequent lecturer to parents and professionals. She is the author of Natural Baby and Childcare *and* The Parents' Concise Guide to Childhood Vaccinations. *Her website is* www.drfeder.com.

ment-recommended pertussis shots can and do develop whooping cough.

| by Barbara Loe Fisher

The problem with pertussis vaccines

Why the DTaP shot may not protect you or your community from whooping cough.

Reports of whooping-cough

outbreaks in California[1, 2] and other states this summer are nothing new. Every four to five years, no matter how high the rate of vaccination, there are reports of increases in whooping cough.

Whooping cough is a respiratory disease. Toxins in the *Bordetella pertussis* bacteria stimulate the production of large amounts of thick, sticky mucus that can clog the airways of tiny babies and children, making it difficult for them to take a breath without vomiting, choking, and sometimes making a *whooping* sound[3] as they struggle to breathe.

An acellular pertussis vaccine, DTaP, was licensed for American babies in 1996.[4] DTaP replaced an older, very reactive whole-cell pertussis vaccine in DTP that was associated in the medical literature with frequent reports of high fever, collapse/shock (aka hypotonic-hyporesponsive episodes, or HHE), convulsions, brain inflammation, and permanent brain damage.[5, 6]

It is well known that pertussis vaccines used in the US, which can contain various amounts of bioactive toxins[7–11] as well as additives of aluminum[12–14] and, until 1999, mercury,[15] have injured the brains of some children and killed others. More than half of the 2,480 awards for vaccine injuries and deaths made under the National Childhood Vaccine Injury Act of 1986, which totaled $2 billion, involved pertussis vaccines.[16, 17]

The rates of vaccination for pertussis are very high in the US. According to the Centers for Disease Control and Prevention (CDC), 84.6 percent of children between 19 and 35 months of age born during January 2005 and June 2007 had received four DTaP shots.[18] By the time American children enter kindergarten, the vast majority of them have gotten all of the CDC-recommended pertussis shots.[19] In 2009, the CDC said that the proportion of US children who have received no vaccinations of any kind is only six hundredths of 1 percent (0.06%).[20] But even with this universal coverage by the pertussis vaccine in the US, and in other countries such as the Netherlands, Australia, Finland, and Canada, whooping-cough disease still has been present in these highly vaccinated populations.[21] There are two main reasons for this.

First, pertussis vaccines, widely used since the 1950s, have not prevented whooping cough from circulating in vaccinated populations. Unknown numbers of children and adults who have received all of the government-recommended pertussis shots can and do develop whooping cough, or are asymptomatic carriers of *Bordetella pertussis*.[22, 23] Because the immunity granted by the pertussis vaccine is only temporary, health officials now tell teenagers and adults to get more booster shots.[24] But that will not matter if the scientific research indicating that the *B. pertussis* organism has mutated and become resistant to vaccines turns out to be correct.[25]

A second important reason is that whooping cough can be caused by other *Bordetella* organisms, including *Bordetella parapertussis*.[26] The symptoms of *B. parapertussis*, while often milder, can look exactly the same as those indicating *B. pertussis* infection. But doctors rarely recognize or test for *B. parapertussis*—and there is *no* vaccine for this bacteria. The DTaP vaccine, normally given five times to children under age six, and in booster doses to teenagers and adults, *does not* protect against whooping cough caused by *B. parapertussis*. Studies conducted in highly vaccinated countries suggest that perhaps 30 percent or more of whooping-cough disease is now caused by *B. parapertussis*.[27, 28]

So which *Bordetella* organism was associated with whooping-cough cases seen in California during the summer of 2010: *pertussis* or *parapertussis*? How many of the suspected cases of whooping cough were confirmed as *B. pertussis* by health officials using expensive PCR (polymerase chain reaction) lab tests?[29]

The truth is that, whether or not you've been vaccinated, you can get a mild or serious case of whooping cough.

Above: The author speaks at NVIC's Fourth International Public Conference on Vaccination in October 2009.

Pertussis vaccines used in the US, which can contain various amounts of bioactive toxins as well as additives of aluminum and, until 1999, mercury, have injured the brains of some children and killed others.

The DTaP vaccine, normally given five times to children under age six, and in booster doses to teenagers and adults, *does not* protect against whooping cough caused by *B. parapertussis*.

Another question: Are public-health officials being transparent with the public about precisely how many children and adults reported to have whooping cough have been fully vaccinated? In 1985, when there was a great deal of publicity about whooping-cough outbreaks in eight states, much of the blame for these outbreaks was put on parents of children injured by the DTP vaccine, who were publicly calling for a safer pertussis vaccine. The allegation was that the bad publicity about the risks of DTP vaccination had caused many parents to avoid getting their children vaccinated. But 25 years ago, when I investigated those outbreaks, I found that 50 to 80 percent, or more, of the children and adults with symptoms of whooping cough had received one or more DTP shots.[30]

Bordetella organisms can live in pigs, cats, and dogs, as well as humans, and have been part of the earth's ecosystem for thousands of years,[31, 32] but the mass administration to humans of pertussis vaccines has been going on for only 60 years. So why are the unvaccinated being blamed for outbreaks of whooping cough in California,[33] Oregon,[34] and other states? After all, most Americans alive today have received three to five pertussis shots.

The truth is that, whether or not you've been vaccinated, you can get a mild or a serious case of whooping cough from the *B. pertussis* or *B. parapertussis* organisms. And both whooping cough and the pertussis vaccines carry a risk of injury or death, which can be greater for some people than for others. There are no guarantees.

It is time for public-health officials and doctors to look at themselves, and to stop pointing fingers at those who have examined the benefits and risks of pertussis vaccine and come to different conclusions.

Above: The author and her son, Chris, in 1981—shortly before his fourth birthday

Opposite: The author and Chris in 2009

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Barbara Loe Fisher is cofounder and president of the National Vaccine Information Center (NVIC). She is the coauthor of the book DPT: A Shot in the Dark *(Harcourt Brace Jovanovich, 1985), author of* Vaccines, Autism & Chronic Inflammation: The New Epidemic *(P.B. Industries, 2008), and editor of* Show Us the Science & Give Us the Choice: Proceedings of the Fourth International Public Conference on Vaccination *(2010). She has served on the National Vaccine Advisory Committee (1988–1992), the Institute of Medicine Vaccine Safety Forum (1995–1998), the FDA Vaccines and Related Biological Products Advisory Committee (1999–2003), and the federal Vaccine Policy Analysis Collaborative (2002–2005).*