**Pertussis**

*Research provided by the Kansas Association of Local Health Departments*

***What is it?***

Pertussis, often called Whooping Cough, is caused by a bacterium like tetanus and diphtheria. This disease is highly contagious and can be spread from person to person without symptoms. When the bacteria enter the body, it attaches to the cilia (hair-like extensions) that line part of the upper respiratory system. The cilia can become damaged and cause airways to swell. Pertussis typically causes severe complications in infants and young children who have not received a Tdap vaccine. About half of babies in the United States younger than 1 year old who get pertussis will need care in the hospital. Teens and adults can also get complications from pertussis, like fracturing ribs. The incubation period for pertussis is about 7 to 10 days and can even last a month.

***History Behind the Name “Whooping” Cough***

One of the tell-tale signs of pertussis is its signature cough. The cough typically starts off small and has cold-like symptoms. Over the course of the infection, the cough becomes more severe, eventually leading to rapid coughing fits and the signature “whooping” sound that comes from inhaling. The patient may even turn blue while coughing.

***Pregnancy and Pertussis***

You may have heard that doctors recommend a Tdap booster for all pregnant women and Tdap cocooning for people close to the pregnant person. This is because babies have an increased risk of dying or having severe life-altering complications from pertussis. While pregnant women themselves are not at a higher risk, they can spread the bacteria to the baby once it’s born. Many doctors also prescribe preventative antibiotics prior to birth. [The CDC has many resources for both the public and health providers on Tdap during pregnancy.](https://www.cdc.gov/pertussis/pregnant/index.html)

***Treatment***

Treating pertussis typically requires both preventative and active antibiotics to cure the infection. Preventative antibiotics are typical for people close to the family because of how contagious the disease is.

***History***

There isn’t much known about what caused pertussis to move from humans through bacteria. The bacteria were first isolated over 100 years ago in Paris, France by Jules Bordet and Octave Gengou. From there, a vaccine was invented very quickly and by 1914, there was a whole-cell vaccine to prevent pertussis.

***Vaccine History and Uptake***

As mentioned above, the first pertussis vaccine was developed in 1914. By the 1940s, the vaccine was combined with Tetanus and Diphtheria anti-toxins to form the early version of the Tdap, DTP. From there, incidences of pertussis decreased significantly over the course of the last century. The DTP vaccines were about 80% effective at offering protection from pertussis, tetanus, and diphtheria and only provides 5-10 years of protection. In the United States, the DTaP vaccine replaced the original DTP vaccine for babies and children. It is still recommended that adults get the Tdap vaccine every 10 years.

In the 1990s, an acellular vaccine was introduced, which has now replaced the traditional Tdap vaccination. The ACIP currently recommends this vaccine. However, there has been incidences of pertussis that have grown since the 1980s, particularly because of the lack of long-term immunity from the vaccine.

***History of Combination Vaccines***

While vaccination remains the most cost-effective disease preventative measure, it continues to be a topic of contention for parents and families. While the Andrew Wakefield study did not help this, vaccination has always been considered problematic by some. To combat this, pharmaceutical companies and researchers developed combination vaccines by merging antigens into one product (MMR, MMRV, Tdap, etc.). These products are typically developed from like-minded antigens and can improve vaccination rates in children who may not come back for multiple shots. [There is a great study on the value of combo vaccines for children here.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4635899/)

***What We Can Learn***

Unfortunately, I have not had any connections to pertussis, so I don’t have any fun stories for you this week. But, the Tdap vaccine has revolutionized the way we treat bacterial diseases and their prevention. In addition, providers can continue to provide protection to patients through vaccinations throughout the adult lifespan.

Sources:

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