Centers for Disease Control and Prevention

Vaccine Safety

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# Pneumococcal Vaccines

Safety Information

## Pneumococcal Disease and How to Protect Against It

**Pneumococcal disease** is an infection caused by *Streptococcus pneumoniae* bacteria, sometimes referred to as pneumococcus. Pneumococcus can cause many types of illnesses, including ear and sinus infections, pneumonia, and bloodstream infections. You can protect against pneumococcal disease with safe, effective vaccination.

Child and Adult Immunization Schedules
Get CDC's official recommended immunization schedules for children, adolescents, and adults.

## Pneumococcal Vaccine Side Effects

Pneumococcal vaccines are very safe and effective at preventing pneumococcal disease. Vaccines, like any medicine, can have side effects. The most common side effects from pneumococcal vaccines are mild and last for 1 or 2 days.

### Common Side Effects of Pneumococcal Vaccine

- Feeling drowsy
- Loss of appetite
- Sore or swollen arm from the shot
- Fever
- Headache

Very rarely, severe (anaphylactic) allergic reactions may occur after vaccination.

## Available Pneumococcal Vaccines

There are four pneumococcal vaccines approved for use in the United States. Learn more about who should get which vaccine(s).

### Pneumococcal conjugate vaccines (PCV13, PCV15, PCV20)

- **Prevnar13 (PCV13)** [PDF – 43 pages] : The Food and Drug Administration (FDA) approved this vaccine in 2010 for use in children and in 2011 for use in adults. PCV13 replaced a previous pneumococcal vaccine, PCV7. PCV13 helps protect against 13 types of pneumococcal bacteria that cause the most severe illness among children and adults.
- **Vaxneuvance (PCV15)** [PDF – 24 pages] : FDA approved this vaccine in 2021 for use in adults and in 2022 for use in children. PCV15 helps protect against 15 types of pneumococcal bacteria that commonly cause severe illness among adults.

- **Prevnar20 (PCV20)** [PDF – 33 pages] : FDA approved this vaccine in 2023 for use in individuals ages 6 weeks and older. PCV20 helps protect against 20 types of pneumococcal bacteria that commonly cause severe illness among adults.

### Pneumococcal polysaccharide vaccine (PPSV23)

- **Pneumovax 23 (PPSV23)** [PDF – 8 pages]: FDA approved this vaccine in 1983. It helps protect against serious infections caused by 23 types of pneumococcal bacteria.

## How CDC Monitors Vaccine Safety

CDC and FDA monitor the safety of vaccines after they are approved or authorized. If a problem is found with a vaccine, CDC and FDA will inform health officials, health care providers, and the public.

CDC uses 3 systems to monitor vaccine safety:

- The Vaccine Adverse Event Reporting System (VAERS): an early warning system, co-managed by CDC and FDA, to monitor for potential vaccine safety problems. Anyone can report possible vaccine side effects to VAERS.
- The Vaccine Safety Datalink (VSD): a collaboration between CDC and 13 healthcare organizations that conducts vaccine safety monitoring and research.
- The Clinical Immunization Safety Assessment (CISA) Project: a partnership between CDC and several medical research centers that provides expert consultation and conducts clinical research on vaccine-associated health risks.

## A Closer Look at the Safety Data

- A 2004 study found most VAERS reports in the first 2 years after licensure of 7-valent pneumococcal conjugate vaccine (PCV7) were minor known side effects.
- Two large 2013 studies (Jackson et al ; Jackson et al ) conducted in the United States and Europe in adults ages 50 years and older compared PCV13 with PPSV23. Common adverse events reported with PCV13 were pain, redness, and swelling at the injection site; limited movement of the injected arm; tiredness; headache; chills; decreased appetite; generalized muscle pain; and joint pain.  Similar reactions were observed in adults who received PPSV23.
- A 2012 study showed that children who received both 2010-2011 trivalent influenza (flu) vaccine and PCV13 at the same doctor visit had a higher risk of fever-related seizures (febrile seizures).

## More Resources

- Pneumococcal Vaccine Information Statement
- Pneumococcal Vaccine: Who Should Not Be Vaccinated
- Pneumococcal Vaccination: Who Needs It?
- U.S. Vaccine Abbreviations [PDF – 5 pages]

## Related Scientific Articles

Centers for Disease Control and Prevention. Licensure of 13-valent pneumococcal conjugate vaccine for adults aged 50 years and older. *MMWR*. 2012 Jun 1;61(21):394-5.

Hak E, Grobbee DE, Sanders EA, et al. Rationale and design of CAPITA: A RCT of 13-valent conjugated pneumococcal vaccine efficacy among older adults . *Neth J Med*. 2008;66:378–83.

Jackson LA, Gurtman A, van Cleeff M, et al. Immunogenicity and safety of a 13-valent pneumococcal conjugate vaccine compared to a 23-valent pneumococcal polysaccharide vaccine in pneumococcal vaccine-naive adults . *Vaccine.* 2013;31:3577–84.

Jackson LA, Gurtman A, Rice K, et al. Immunogenicity and safety of a 13-valent pneumococcal conjugate vaccine in adults 70 years of age and older previously vaccinated with 23-valent pneumococcal polysaccharide vaccine . *Vaccine.* 2013;31:3585–93.

Kobayashi M, Farrar JL, Gierke R, Britton A, Childs L, Leidner AJ, Campos-Outcalt D, Morgan RL, Long SS, Talbot HK, Poehling KA, Pilishvili T. Use of 15-Valent Pneumococcal Conjugate Vaccine and 20-Valent Pneumococcal Conjugate Vaccine Among U.S. Adults: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2022. *MMWR*. 2022;71(4);109–117.

Kobayashi M, Farrar JL, Gierke R, Leidner AJ, Campos-Outcalt D, Morgan RL, Long SS, Poehling KA, Cohen AL. Use of 15-Valent Pneumococcal Conjugate Vaccine Among U.S. Children: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2022. *MMWR*. 2022;71(37);1174–1181.

Tomczyk S, Bennett NM, Stoecker C, Gierke R, Moore MR, Whitney CG, et al. Use of PCV-13 and PPSV-23 vaccine among adults aged 65 and older: Recommendations of the ACIP. *MMWR*. 2014;63(37);822-825.

Tse A, Tseng HF, Greene SK, Vellozzi C, Lee GM; VSD Rapid Cycle Analysis Influenza Working Group. Signal identification and evaluation for risk of febrile seizures in children following trivalent inactivated influenza vaccine in the Vaccine Safety Datalink Project, 2010-2011 . *Vaccine*. 2012 Mar 2;30(11):2024-31.

Wise RP, Iskander J, Pratt RD, Campbell S, Ball R, et al. Postlicensure safety surveillance for 7-valent pneumococcal conjugate vaccine . *JAMA*. 2004 Oct 13;292(14):1702-10.

## Related Links

Facts About Pneumococcal Disease for Adults

Pneumococcal Vaccination Recommendations By Age And Risk Factor [PDF -1 page]

COPD, Asthma, and Adult Vaccines Fact Sheet [PDF – 1 page]

Pneumonia Can Be Prevented—Vaccines Can Help

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