Clinical Study Results

This summary reports the results of only one study. Researchers must look at the results of many types of studies to understand if a study vaccine works, how it works, and if it is safe to prescribe to patients. The results of this study might be different than the results of other studies that the researchers review.

Sponsor: Pfizer Inc.

Vaccine Studied: 20-valent pneumococcal conjugate vaccine (called 20vPnC or PF-06482077)

Protocol Number: B7471012

Dates of Study: 09 September 2020 to 22 April 2022

Title of this Study: A Study to Learn if 3 Doses of the 20vPnC Vaccine Were Safe in Healthy Infants and if 20vPnC Produced Antibody Responses Against a Germ Called *Streptococcus pneumoniae*

[A Phase 3, Randomized, Double-Blind Trial to Evaluate the Safety and Immunogenicity of a 20-valent Pneumococcal Conjugate Vaccine Given as a Series of 2 Infant Doses and 1 Toddler Dose in Healthy Infants]

Date(s) of this Report: 22 December 2022

– Thank You –

If you and your child participated in this study, Pfizer, the Sponsor, would like to thank you for your participation.

This summary will describe the study results. If you have any questions about the study or the results, please contact the doctor or staff at your study site.

Why was this study done?

What is *Streptococcus pneumoniae*?

Streptococcus pneumoniae (also known as pneumococcus or *S pneumoniae*) is a kind of germ. *S pneumoniae* has more than 100 types, but only a few types cause serious diseases.

S pneumoniae can cause infections of the lung, brain lining, blood, and ear. These infections can be serious in young children.

What is 20-valent pneumococcal conjugate vaccine (20vPnC)?

20vPnC is an injectable vaccine that was tested in this study. Researchers think that 20vPnC can help to prevent 20 of the most common types of *S pneumoniae* that cause infections.

> A vaccine can help the body prevent an infection or a disease.
>
> After a person gets a vaccine, the body makes antibodies, which are proteins that fight off infections. This is called an antibody response.

In this study, 20vPnC was compared to the 13-valent pneumococcal conjugate vaccine (13vPnC).

- 13vPnC is also known as Prevnar 13® or Prevenar 13®. It is approved in the United States, Europe, and many other countries to prevent diseases caused by *S pneumoniae* in children and adults. 13vPnC is made up of 13 parts (or components) to prevent diseases caused by 13 types of *S pneumoniae*.
- 20vPnC has the same parts contained in 13vPnC. But, 20vPnC has 7 more parts for wider protection against 7 additional types of *S pneumoniae*.

What was the purpose of this study?

This study aimed to find out if 20vPnC was safe when given in 3 doses to healthy infants. Researchers wanted to know if 20vPnC produced antibody responses to *S pneumoniae* that were comparable to those seen with 13vPnC.

Researchers wanted to know:

1. Did infants who received 3 doses of 20vPnC have antibody responses to the study vaccine that were within a range considered comparable to those who received 3 doses of 13vPnC?
2. Was the percentage of infants with a specific level of antibodies to the study vaccine after the 2nd dose of 20vPnC within a range considered comparable to the percentage of infants after the 2nd dose of 13vPnC?
3. Did infants who received the 2nd dose of 20vPnC have antibody responses to the study vaccine that were within a range considered comparable to those who received the 2nd dose of 13vPnC?
4. Did infants who received routine vaccines with 20vPnC have antibody responses to these routine vaccines that were within a range considered comparable to those who received routine vaccines with 13vPnC?
5. What percentage of infants had redness, swelling, or pain at the injection site after each dose of 20vPnC or 13vPnC?
6. What percentage of infants had fever, loss of appetite, drowsiness, or irritability after each dose of 20vPnC or 13vPnC?
7. What percentage of infants had a medical problem at any time from the 1st dose to 1 month after the 2nd dose of 20vPnC or 13vPnC?
8. What percentage of infants had a medical problem at any time from the 3rd dose to 1 month after the 3rd dose of 20vPnC or 13vPnC?
9. What percentage of infants had a serious medical problem during the study?
10. What percentage of infants were diagnosed with a new long-term medical condition during the study?

What happened during the study?

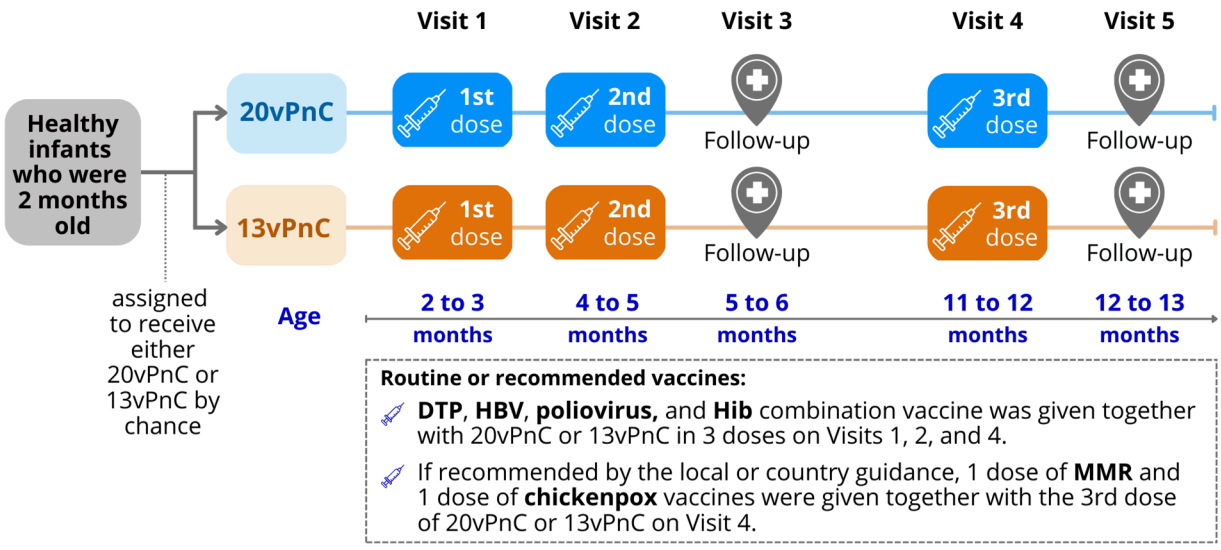
How was the study done?

Researchers tested 20vPnC on a group of infants. Researchers then compared the results of infants given 20vPnC to the results of another group of infants given 13vPnC.

The infants were assigned to 1 of 2 vaccine groups by chance. The infants' parents or guardians and the researchers did not know which study vaccine (20vPnC or 13vPnC) was given to the infants during the study. This is known as a "double-blind" study.

Figure 1 shows that the infants received either 20vPnC or 13vPnC. They received the same study vaccine (20vPnC or 13vPnC) for all 3 doses.

Figure 1: What happened during the study?



The infants also received routine or recommended vaccines.

- With each of the 3 doses of 20vPnC or 13vPnC, they also received a dose of a routine vaccine. This routine combination vaccine and its key germ targets are:
    - Diphtheria, tetanus, and pertussis (DTP)
    - Hepatitis B virus (HBV)
    - Poliovirus
    - *Haemophilus influenzae* type b (Hib)

- With the 3rd dose of 20vPnC or 13vPnC, they also received a dose of routine vaccines if recommended by the local or country guidance. These routine vaccines and their key germ targets are:
    - Measles, mumps, and rubella (MMR)
    - Chickenpox

Blood samples were taken during Visits 3, 4, and 5. Some infants also had blood samples taken during Visits 1 and 2.

During each visit, the parents or guardians were asked how the infants were feeling.

Where did this study take place?

The Sponsor ran this study at 59 locations in Europe and Australia. At the time of this report, the study sites in Russia were ongoing.

When did this study take place?

For the participants in Europe and Australia, the study began on 09 September 2020, and it ended on 22 April 2022.

The entire study will be complete when the last study visit has occurred for the participants in Russia around February 2023. A separate summary of the report will be prepared once the study in Russia is completed.

Who participated in this study?

This study included infants who:

- were born after more than 36 weeks of pregnancy.
- were between 6 and 16 weeks (or 42 and 112 days) old when they joined this study.
- were assessed as healthy by the study doctors.
- had not gotten any vaccine for *S pneumoniae* or specific routine vaccines for infants (DTP, HBV, poliovirus, and Hib) before joining this study.

A total of 1207 infants joined this study from Europe and Australia. Overall, 1204 infants received at least the 1st dose of a study vaccine (20vPnC or 13vPnC), and 3 infants did not receive a study vaccine.

Out of the 1204 infants who received at least the 1st dose of a study vaccine:

- 610 (51%) were boys, and 594 (49%) were girls.
- The infants' average age was 69 days old at the time of the 1st dose.

Out of the 1207 infants who started the study:

- 1173 (97%) infants finished the study.
- 34 (3%) infants did not finish the study. The most common reason was that their parents or guardians decided for them to leave the study before it was over.

How long did the study last?

The infants were in the study for about 11 months. The study sites in Europe and Australia took about 1 year and 7 months to complete. This is because the infants started the study at different times.

When the last study visit took place for the participants in Europe and Australia in April 2022, the Sponsor began performing antibody testing and then reviewing the information collected. The Sponsor then created a report of the results. This is a summary of that report.

What were the results of the study?

To answer Questions 1 to 3 below, researchers checked the infants' antibody responses to 20 types of *S pneumoniae*. To find out, researchers measured the levels of antibodies to these types of *S pneumoniae*.

- For the 13 parts found in both 20vPnC and 13vPnC, researchers compared the levels of antibodies to the 13 types of *S pneumoniae* for the 20vPnC group to those seen in the 13vPnC group.
- Researchers compared the levels of antibodies to 7 additional types of *S pneumoniae* for the 20vPnC group to the lowest among the 13 types of *S pneumoniae* for the 13vPnC group.

1 Did infants who received 3 doses of 20vPnC have antibody responses to the study vaccine that were within a range considered comparable to those who received 3 doses of 13vPnC?

The infants who received all 3 doses of 20vPnC had antibody responses to almost all 20 types of *S pneumoniae* that were within a range considered comparable to those seen in infants who received all 3 doses of 13vPnC.

- The levels of antibodies to all but 1 of the 13 types of *S pneumoniae* after infants received 3 doses of 20vPnC were within a range considered comparable to those seen after infants received 3 doses of 13vPnC. Of the 13 types of *S pneumoniae*, 1 was slightly lower than the range to be considered comparable.
- The levels of antibodies to all of the 7 additional types of *S pneumoniae* after infants received 3 doses of 20vPnC were within a range considered comparable to the lowest seen among the 13 types of *S pneumoniae* after infants received 3 doses of 13vPnC.

2 Was the percentage of infants with a specific level of antibodies to the study vaccine after the 2nd dose of 20vPnC within a range considered comparable to the percentage of infants after the 2nd dose of 13vPnC?

After the 2nd dose (out of the 3 total doses) of 20vPnC or 13vPnC:

- The percentages of infants with a specific level of antibodies to some of the 13 types of *S pneumoniae* after the 2nd dose of 20vPnC were within a range considered comparable to those after the 2nd dose of 13vPnC.

  For the rest of the 13 types of *S pneumoniae*, the percentages of infants with a specific level of antibodies were lower after the 2nd dose of 20vPnC compared to those after the 2nd dose of 13vPnC.

- The percentages of infants with a specific level of antibodies to most of the 7 additional types of *S pneumoniae* after the 2nd dose of 20vPnC were within a range considered comparable to the lowest seen among the 13 types of *S pneumoniae* after the 2nd dose of 13vPnC.

3 Did infants who received the 2nd dose of 20vPnC have antibody responses to the study vaccine that were within a range considered comparable to those who received the 2nd dose of 13vPnC?

After the infants' 2nd dose of 20vPnC (out of the 3 total doses), antibody responses to most of the 20 types of *S pneumoniae* were within a range considered comparable to those seen in infants after the 2nd dose (out of the 3 total doses) of 13vPnC.

- The levels of antibodies to most of the 13 types of *S pneumoniae* after infants received the 2nd dose of 20vPnC were within a range considered comparable to those seen after infants received the 2nd dose of 13vPnC.

- The levels of antibodies to all of the 7 additional types of *S pneumoniae* after infants received the 2nd dose of 20vPnC were within a range considered comparable to the lowest seen among the 13 types of *S pneumoniae* after infants received the 2nd dose of 13vPnC.

4 Did infants who received routine vaccines with 20vPnC have antibody responses to these routine vaccines that were within a range considered comparable to those who received routine vaccines with 13vPnC?

Together with a study vaccine (20vPnC or 13vPnC), the infants received routine vaccines. These routine vaccines and their key germ targets are:

- DTP, HBV, poliovirus, and Hib combination vaccine
- MMR vaccine
- Chickenpox vaccine

To answer this question, the researchers looked at the infant's blood to measure the levels of antibodies that show a response to the routine vaccines.

Antibody responses to routine vaccines were within a range considered comparable between infants who received 20vPnC and those who received 13vPnC.

- Infants who received DTP, HBV, poliovirus, and Hib routine vaccines with 20vPnC together for 3 doses had antibody responses to these routine vaccines that were within a range considered comparable to those seen in infants who received routine vaccines with 13vPnC.
- Infants who received 1 dose of MMR and 1 dose of chickenpox routine vaccines together with the 3rd dose of 20vPnC had antibody responses to these routine vaccines that were within a range considered comparable to those seen in infants who received routine vaccines together with the 3rd dose of 13vPnC.

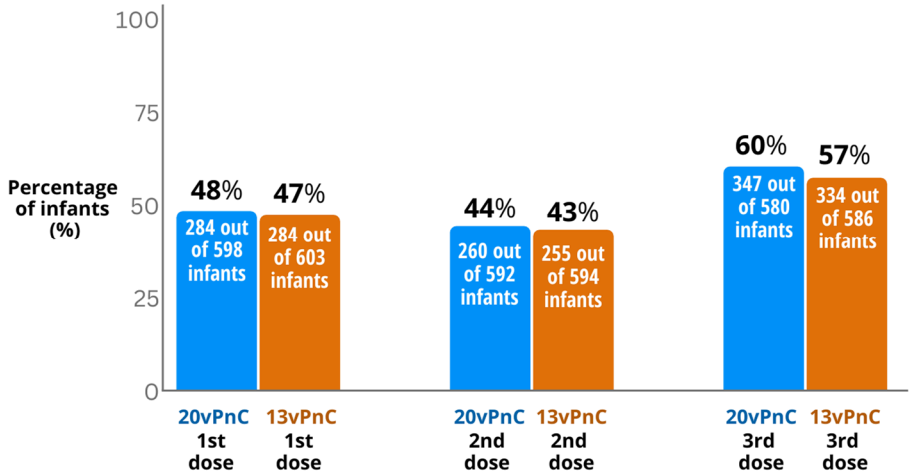
The researchers have decided that the results in Questions 1 to 4 are not likely due to chance. This means that 3 doses of 20vPnC produced antibody responses that can protect infants against diseases caused by *S pneumoniae*.

5 What percentage of infants had redness, swelling, or pain at the injection site after each dose of 20vPnC or 13vPnC?

Parents or guardians kept a diary to record how the infants felt within 7 days after each dose of 20vPnC or 13vPnC. They checked for any reaction at the skin area where the study vaccine was injected (or injection site reaction). Researchers looked at the diary records collected for infants.

Figure 2 shows that the percentages of infants with at least 1 injection site reaction (any redness, swelling, or pain at the injection site) within 7 days after each dose were similar in the 20vPnC and 13vPnC groups.

Figure 2: What percentage of infants had at least 1 injection site reaction (any redness, swelling, or pain at the injection site) within 7 days after each dose of 20vPnC or 13vPnC?



Not shown in Figure 2:

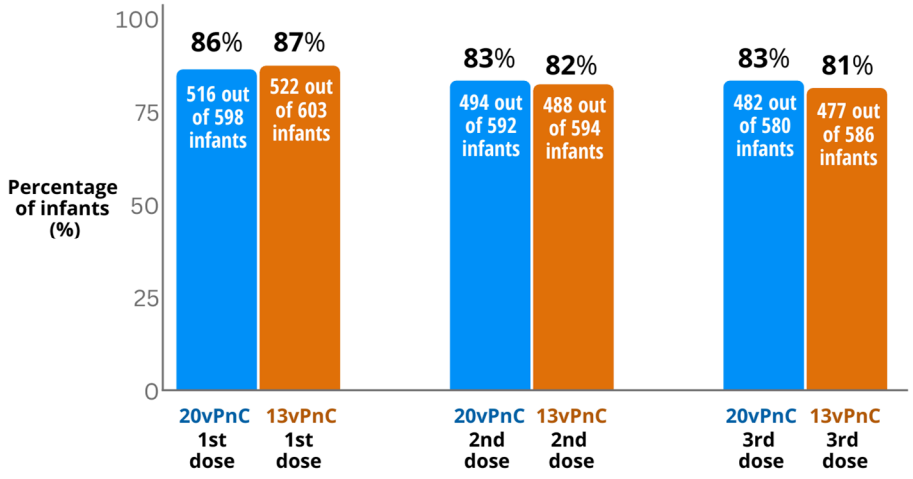
Most of these injection site reactions were mild or moderate in severity. These reactions generally went away after about 1 to 3 days. The most common single reaction after the 1st and 3rd doses of 20vPnC or 13vPnC was pain at the injection site. The most common single reaction after the 2nd dose of 20vPnC or 13vPnC was redness at the injection site.

6 What percentage of infants had fever, loss of appetite, drowsiness, or irritability after each dose of 20vPnC or 13vPnC?

Parents or guardians kept a diary to record their infants' symptoms within 7 days after each dose of 20vPnC or 13vPnC. Researchers looked at the diary records collected for infants.

Figure 3 shows that the percentages of infants with at least 1 symptom (any fever, loss of appetite, drowsiness, or irritability) within 7 days after each dose were similar in the 20vPnC and 13vPnC groups.

Figure 3: What percentage of infants had at least 1 symptom (any fever, loss of appetite, drowsiness, or irritability) within 7 days after each dose of 20vPnC or 13vPnC?



Not shown in Figure 3:

Most of these symptoms were mild or moderate in severity. These symptoms generally went away after about 1 to 3 days. The most common of these symptoms after each dose of 20vPnC or 13vPnC (Doses 1 to 3) were irritability and drowsiness.

This does not mean that everyone in this study had these results. This is a summary of just some of the main results of this study. Other studies of 20vPnC may have different results.

What medical problems did infants have during the study?

The researchers recorded any medical problems the infants had during the study. Infants could have had medical problems for reasons not related to the study (for example, caused by an underlying disease or by chance). Or, the medical problems could have been caused by the study vaccine, another vaccine, or a medicine the infant was taking. Sometimes the cause of a medical problem is unknown. By comparing medical problems across many vaccine groups in many studies, doctors try to understand what effects a study vaccine might have on an infant.

Overall, 3 infants in the 20vPnC group stopped taking part in the study because of a medical problem they had during the study. As a result, they did not receive the remaining doses of 20vPnC. None of the infants in the 13vPnC group stopped taking part in the study because of a medical problem.

7 What percentage of infants had a medical problem at any time from the 1st dose to 1 month after the 2nd dose of 20vPnC or 13vPnC?

Researchers looked at the records of 1204 infants who received at least the 1st dose of 20vPnC or 13vPnC.

The percentages of infants with a medical problem that happened at any time from the **1st dose** to **1 month after the 2nd dose** were similar in the 20vPnC and 13vPnC groups.

- 83 out of 601 infants (14%) in the 20vPnC group.
- 87 out of 603 infants (14%) in the 13vPnC group.

Table 1 shows the most common medical problems that happened at any time from the 1st dose to 1 month after the 2nd dose of 20vPnC or 13vPnC. These medical problems were seen in at least 2% of infants in any group.

Below are instructions on how to read Table 1.

Instructions for Understanding Table 1.

- The **1st** column of the table lists the most common medical problems during a time period of this study. The table lists all medical problems seen in at least 2% of infants in any group.
- The **2nd** column shows how many of the 601 infants, including the percentage of the 601 infants, in the 20vPnC group had each medical problem.
- The **3rd** column shows how many of the 603 infants, including the percentage of the 603 infants, in the 13vPnC group had each medical problem.
- For example, you can see in Table 1 that 9 out of the 601 infants (2%) who received 20vPnC had an eye infection. None of the 603 infants (0%) who received 13vPnC had an eye infection.

Table 1. What were the most common medical problems that happened at any time from the 1st dose to 1 month after the 2nd dose of 20vPnC or 13vPnC?		
Medical Problem	**20vPnC (601 Infants)**	**13vPnC (603 Infants)**
Eye infection	9 out of 601 infants (2%)	0 out of 603 infants (0%)
Swelling of the nose and throat (also known as **a cold**)	8 out of 601 infants (1%)	12 out of 603 infants (2%)
Infection of the nose, sinuses, and throat	8 out of 601 infants (1%)	12 out of 603 infants (2%)
Itchy and dry skin condition called "eczema"	9 out of 601 infants (2%)	9 out of 603 infants (2%)

8 What percentage of infants had a medical problem at any time from the 3rd dose to 1 month after the 3rd dose of 20vPnC or 13vPnC?

Researchers looked at the records of 1182 infants who received all 3 doses of 20vPnC or 13vPnC.

The percentages of infants with a medical problem that happened at any time from the **3rd dose** to **1 month after the 3rd dose** were similar in the 20vPnC and 13vPnC groups.

- 91 out of 588 infants (16%) in the 20vPnC group.
- 98 out of 594 infants (17%) in the 13vPnC group.

Table 2 shows the most common medical problems that happened at any time from the 3rd dose to 1 month after the 3rd dose of 20vPnC or 13vPnC. These medical problems were seen in at least 2% of infants in any group.

Instructions on how to read Table 2 are similar to those for Table 1, but the time periods and the total number of infants are different.

Table 2. What were the most common medical problems that happened at any time from the 3rd dose to 1 month after the 3rd dose of 20vPnC or 13vPnC?

Medical Problem	20vPnC (588 Infants)	13vPnC (594 Infants)
Swelling of the nose and throat (also known as **a cold**)	12 out of 588 infants (2%)	10 out of 594 infants (2%)
Infection of the middle ear	5 out of 588 infants (1%)	10 out of 594 infants (2%)
Infection of the nose, sinuses, and throat	13 out of 588 infants (2%)	26 out of 594 infants (4%)

Did infants have any serious medical problems?

A medical problem is considered "serious" when it is life-threatening, needs hospital care, or causes lasting problems.

9 What percentage of infants had a serious medical problem during the study?

Researchers looked at the records of 1204 infants who received at least the 1st dose of 20vPnC or 13vPnC.

The percentages of infants with a serious medical problem during the study (at any time from the **1st dose** to **1 month after the 3rd dose**) were similar in the 20vPnC and 13vPnC groups.

- 34 out of 601 infants (6%) in the 20vPnC group.
- 40 out of 603 infants (7%) in the 13vPnC group.

No specific serious medical problem was seen in 1% or more infants in any group.

One (1) infant who received 20vPnC had a serious medical problem of fever and blood test that showed signs of an overactive immune system 7 days after the 1st dose.

- This infant also had groin swelling and pain on the opposite side of the 20vPnC injection.
- The study site doctor thought this serious medical problem could be related to either the study vaccine or the routine vaccine. The infant received the 2nd and 3rd doses of 20vPnC with no repeat of the medical problem.

No infant died during the study.

Did infants have any new long-term medical conditions?

10 What percentage of infants were diagnosed with a new long-term medical condition during the study?

Researchers looked at the records of 1204 infants who received at least the 1st dose of 20vPnC or 13vPnC.

The percentages of infants diagnosed with a new long-term medical condition during the study (at any time from the **1st dose** to **1 month after the 3rd dose**) were low and similar in the 20vPnC and 13vPnC groups.

- 6 out of 601 infants (1%) in the 20vPnC group.
- 6 out of 603 infants (1%) in the 13vPnC group.

The most common new long-term medical condition was an itchy and dry skin condition called "eczema". This medical condition is commonly seen in this age group.

Where can I learn more about this study?

If you have questions about the results of your study, please speak with the doctor or staff at your study site.

For more details on your study protocol, please visit:

www.pfizer.com/research/research_clinical_trials/trial_results	Use the protocol number **B7471012**

The full scientific report of this study is available online at:

www.clinicaltrials.gov	Use the study identifier **NCT04546425**
www.clinicaltrialsregister.eu	Use the study identifier **2019-003306-27**

Please remember that researchers look at the results of many studies to find out which medicines can work and are safe for patients.

Again, if you participated in this study,
thank you for volunteering.
We do research to try to find the
best ways to help patients, and you helped
us to do that!