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 medication 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.
Medicine(s) Studied:	20-valent Pneumococcal Conjugate Vaccine (20vPnC), Compound Number: PF-06482077
Protocol Number:	B7471016
Dates of Study:	16 September 2020 to 02 April 2022
Title of this Study:	20-valent Pneumococcal Conjugate Vaccine Safety and Immunogenicity Study in Healthy Japanese Infants [A Phase 3, Randomized, Double-Blind, Third Party Unblind Trial to Evaluate the Safety and Immunogenicity of a 20-Valent Pneumococcal Conjugate Vaccine in Healthy Japanese Infants]
Date(s) of this Report:	21 February 2023

– Thank You –

Pfizer, the Sponsor, would like to thank you and your child for participating in this clinical trial and provide you a summary of results representing everyone who participated.

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. It is not approved for sale in Japan. 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 Prevenar 13®. It is approved in the Japan 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*. In Japan, 13vPnC is given by injection under the skin.
- 20vPnC has the same parts contained in 13vPnC. But, 20vPnC has 7 more parts for wider protection against 7 additional types of *S pneumoniae*. In this study, 20vPnC was given by injection either under the skin or into a muscle.

What was the purpose of this study?

This study aimed to find out if 20vPnC was safe when given in 4 doses to healthy Japanese infants. Researchers wanted to know if 20vPnC produced antibody

responses to *S pneumoniae* that were comparable to those seen with 13vPnC. Researchers also wanted to see if antibody responses to 20vPnC were similar when it is given as an injection into a muscle compared to an injection under the skin. Many countries give routine vaccines by injection into a muscle.

Researchers wanted to know:

1. **Was the percentage of infants with a specific level of antibodies to the study vaccine after 3 doses of 20vPnC under the skin 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 3 doses of 20vPnC under the skin similar to those who received 3 doses of 20vPnC into a muscle?**
3. **What percentage of infants had redness, swelling, or pain at the injection site after each dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?**
4. **What percentage of infants had fever, loss of appetite, drowsiness, or irritability after each dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?**
5. **What percentage of infants had a medical problem at any time from the 1st dose to 1 month after the 3rd dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?**
6. **What percentage of infants had a medical problem at any time from the 4th dose to 1 month after the 4th dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?**
7. **What percentage of infants had a serious medical problem during the study?**
8. **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 3 groups of infants:

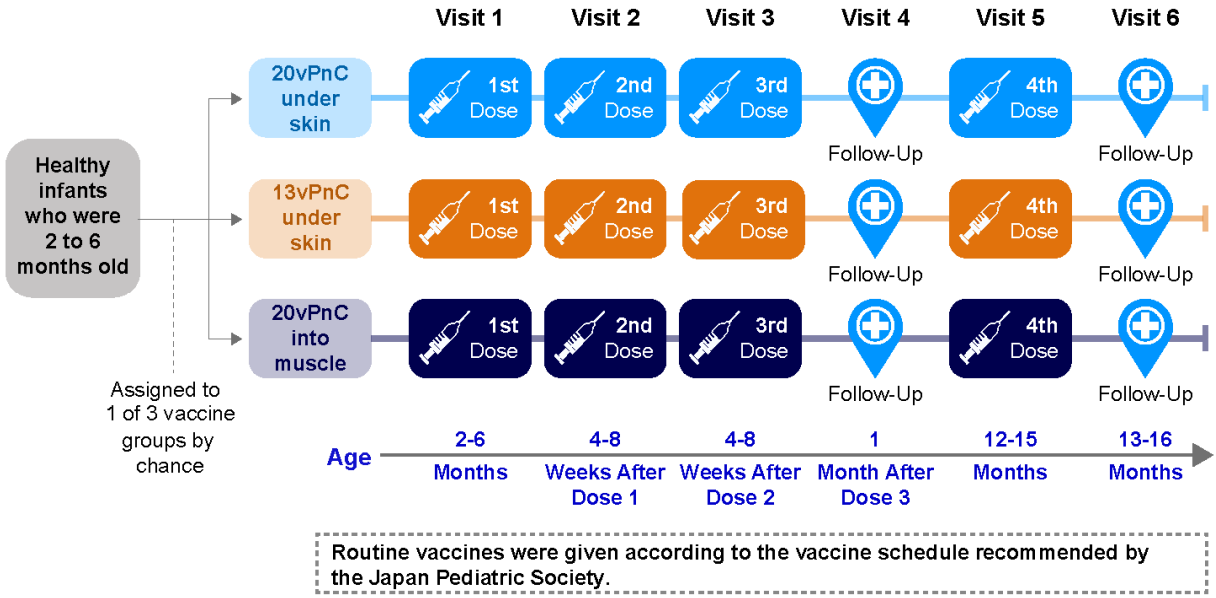
- Group 1 were given 20vPnC as an injection under the skin,
- Group 2 were given 13vPnC as an injection under the skin, and
- Group 3 were given 20vPnC into a muscle.

Researchers then compared the results of infants given 20vPnC under the skin to the results of the group of infants given 13vPnC. The researchers also compared the results of infants given 20vPnC under the skin to the results of the third group of infants given 20vPnC into a muscle.

The infants were assigned to 1 of 3 vaccine groups by chance. Specific personnel at the clinic gave the vaccine. The infants' parents or guardians and the researchers assessing the infants did not know which study vaccine (20vPnC under the skin, 13vPnC, or 20vPnC into a muscle) was given to the infants during the study. The person giving the vaccine knew which vaccine each infant received. This is known as a "blinded/third party unblinded" study.

Figure 1 shows that the infants received either 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle. They received the same study vaccine in the same way for all 4 doses.

Figure 1. Study Design



Blood samples were taken during Visits 4, 5, and 6. 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 38 locations in Japan.

When did this study take place?

It began on 16 September 2020 and ended on 02 April 2022.

Who participated in this study?

The study included Japanese infants who:

- were between 2 and 6 months old when they joined this study.
- were assessed as healthy by the study doctors.
- had not received any vaccine for *S pneumoniae* or specific routine vaccines for infants (Hib, Hep B, rotavirus, diphtheria, tetanus, acellular pertussis, and poliovirus vaccines) before joining this study.

A total of 668 infants joined this study. Overall, 667 infants received at least the 1st dose of a study vaccine. One (1) infant did not receive a study vaccine and 1 infant received the 1st dose of 20vPnC by the wrong injection method (given into a muscle but should have been under the skin).

Out of the 666 infants who correctly received at least the 1st dose of a study vaccine:

- 329 (49.4%) were boys, and 337 (50.6%) were girls
- The infants' average age was 2.4 months at the time of the 1st dose.

Out of the 668 infants who started the study:

- 649 infants (97.2%) finished the study.
- 19 infants (2.8%) 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 up to 14 months. The entire study took about 18 months to complete.

After the last study visit took place in April 2022, the Sponsor performed antibody testing and reviewed 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 and 2 below, researchers measured the infants' levels of antibodies to 20 types of *S pneumoniae* after the infants received 3 doses of study vaccine.

- The researchers compared the percentage of infants with specific levels of antibodies to the 13 types of *S pneumoniae* (found in both 20vPnC and 13vPnC) in the 20vPnC under the skin group to those seen in the 13vPnC group.
- Researchers compared the percentage of infants with specific levels of antibodies to 7 additional types of *S pneumoniae* for the 20vPnC under the skin group to the lowest among the 13 types of *S pneumoniae* for the 13vPnC group.

- Researchers also compared the percentage of infants with specific levels of antibodies to the 20 types of *S pneumoniae* for the 20vPnC under the skin group to those seen in the 20vPnC into a muscle group.

1 Was the percentage of infants with specific levels of antibodies to the study vaccine after 3 doses of 20vPnC under the skin within a range considered comparable to those who received 3 doses of 13vPnC?

The percentages of infants with specific levels of antibodies after 3 doses of 20vPnC under the skin were within a range considered comparable to those seen in infants after 3 doses of 13vPnC for most of the 20 types of *S pneumoniae*.

- The percentages of infants with specific levels of antibodies for all but 2 of the 13 types of *S pneumoniae* after 3 doses of 20vPnC under the skin were within a range considered comparable to those seen after infants received 3 doses of 13vPnC. The remaining 2 were lower than the range to be considered comparable.
- The percentages of infants with specific levels of antibodies for all but 2 of the 7 additional types of *S pneumoniae* after 3 doses of 20vPnC under the skin were within a range considered comparable to the lowest seen among the 13 types of *S pneumoniae* after 3 doses of 13vPnC. The remaining 2 were lower than the range to be considered comparable.

2 Was the percentage of infants with specific levels of antibodies after 3 doses of 20vPnC under the skin similar to those who received 3 doses of 20vPnC into a muscle?

The percentages of infants with specific levels of antibodies after 3 doses of 20vPnC under the skin had antibody responses that were similar to those who received 3 doses of 20vPnC into a muscle for all 20 types of *S pneumoniae*.

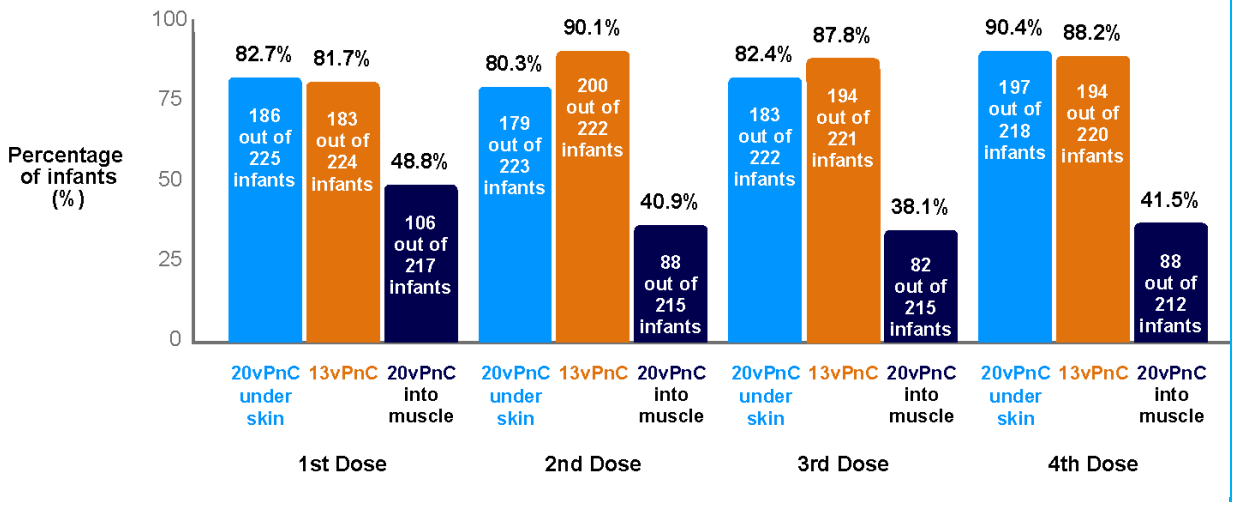
The researchers have decided that the results in Questions 1 and 2 are not likely due to chance. This does not mean that everyone in this study had these results. This is a summary of just some of the main results of this study. Other studies may have different results.

3 What percentage of infants had redness, swelling, or pain at the injection site after each dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?

Parents or guardians kept a diary to record how the infants felt within 7 days after each dose of study vaccine. 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 under the skin and 13vPnC groups. Fewer infants had injection site reactions within 7 days after each dose of 20vPnC into a muscle.

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 study vaccine?



Not shown in Figure 2:

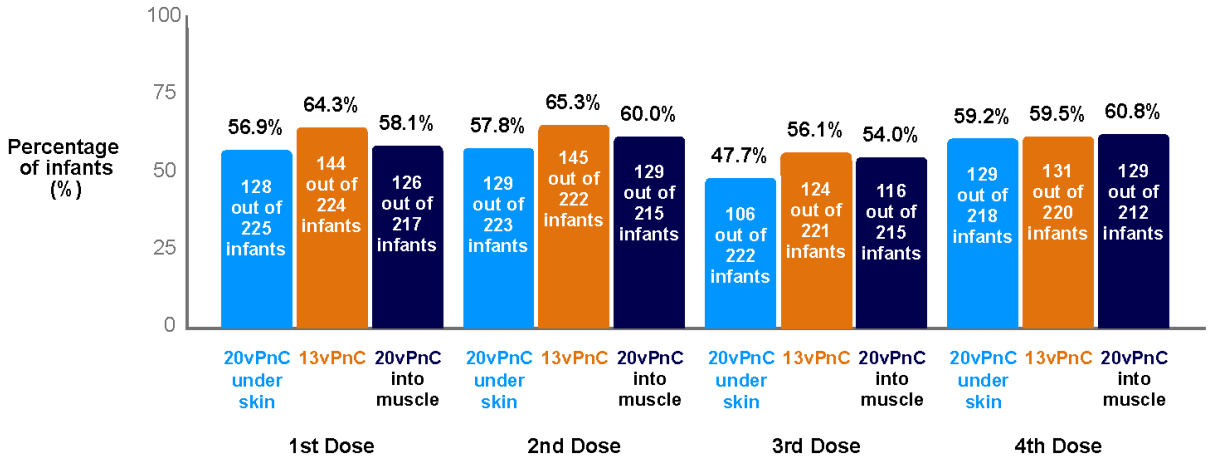
Most of these injection site reactions were mild or moderate in severity. These reactions generally went away after about 1 to 5 days. The most common reaction after each dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle was redness at the injection site.

4 What percentage of infants had fever, loss of appetite, drowsiness, or irritability after each dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?

Parents or guardians kept a diary to record their infants' symptoms within 7 days after each dose of study vaccine. 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 all 3 vaccine 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 study vaccine?



Not shown in Figure 3:

Most of these symptoms were mild or moderate in severity. These symptoms generally went away after about 1 to 2 days. The most common symptoms after each dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle were irritability and drowsiness.

What medical problems did the 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, medical problems could have been caused by the study vaccine, another vaccine, or by another 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.

A total of 358 out of 666 (54%) infants who were correctly vaccinated in this study had at least 1 medical problem during the study. One (1) infant in the 13vPnC group left the study because of medical problems.

5 What percentage of infants had a medical problem at any time from the 1st dose to 1 month after the 3rd dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?

Researchers looked at the records of 666 infants who correctly received at least the 1st dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle.

The percentages of infants with a medical problem that happened at any time from the **1st dose** to **1 month after the 3rd dose** were similar for all 3 vaccine groups:

- 107 out of 225 (48%) infants receiving 20vPnC under the skin
- 124 out of 224 (55%) infants receiving 13vPnC

- 127 out of 217 (59%) infants receiving 20vPnC into a muscle

Table 1 shows the most common medical problems that happened at any time from the 1st dose to 1 month after the 3rd dose of study vaccine. These medical problems were seen in 5% or more of infants in any vaccine 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 5% of infants in any group.
- The **2nd** column shows how many of the 225 infants, including the percentage of the 225 infants, in the 20vPnC under the skin group had each medical problem.
- The **3rd** column shows how many of the 224 infants, including the percentage of the 224 infants, in the 13vPnC group had each medical problem.
- The **4th** column shows how many of the 217 infants, including the percentage of the 217 infants, in the 20vPnC into a muscle group had each medical problem.
- For example, you can see in Table 1 that 28 out of the 225 infants (12%) who received 20vPnC under the skin had swelling of the nose and throat (also known as a cold). A total of 37 of the 224 infants (17%) who received 13vPnC and 40 of the 217 infants (18%) who received 20vPnC into a muscle had swelling of the nose and throat.

Table 1. What were the most common medical problems that happened at any time from the 1st dose to 1 month after the 3rd dose of study vaccine?

Medical Problem	20vPnC under skin (225 Infants)	13vPnC (224 Infants)	20vPnC into muscle (217 Infants)
Swelling of the nose and throat (also known as **a cold**)	28 out of 225 infants (12%)	37 out of 224 infants (17%)	40 out of 217 infants (18%)
An itchy and dry skin condition called "eczema"	21 out of 225 infants (9%)	18 out of 224 infants (8%)	28 out of 217 infants (13%)
Red, itchy, dry skin of infancy	6 out of 225 infants (3%)	16 out of 224 infants (7%)	13 out of 217 infants (6%)

6 What percentage of infants had a medical problem at any time from the 4th dose to 1 month after the 4th dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle?

Researchers looked at the records of 650 infants who received all 4 doses of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle.

The percentages of infants with a medical problem that happened at any time from the **4th dose** to **1 month after the 4th dose** were similar for all 3 vaccine groups:

- 88 out of 218 (40%) infants receiving 20vPnC under the skin
- 95 out of 220 (43%) infants receiving 13vPnC
- 93 out of 212 (44%) infants receiving 20vPnC into a muscle

Table 2 shows the most common medical problems that happened at any time from the 4th dose to 1 month after the 4th dose of study vaccine. These medical problems were seen in 5% or more infants in any vaccine 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 4th dose to 1 month after the 4th dose of study vaccine?

Medical Problem	20vPnC under skin (218 Infants)	13vPnC (220 Infants)	20vPnC into muscle (212 Infants)
Swelling of the nose and throat (also known as **a cold**)	30 out of 218 infants (14%)	34 out of 220 infants (15%)	38 out of 212 infants (18%)
Swelling in nose, sinus, or throat	12 out of 218 infants (6%)	7 out of 220 infants (3%)	8 out of 212 infants (4%)

Did the infants have any serious medical problems?

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

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

Researchers looked at the records of 666 infants who received at least the 1st dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle.

The percentages of infants with a serious medical problem during the study (at any time after the 1st dose) were similar for all 3 vaccine groups:

- 14 out of 225 (6%) infants receiving 20vPnC under the skin
- 9 out of 224 (4%) infants receiving 13vPnC
- 16 out of 217 (7%) infants receiving 20vPnC into a muscle

Most of the cases of serious medical problems were infections, and none were considered related to the study vaccines.

One (1) infant passed away during the study from medical problems that were not related to the study vaccine.

Did infants have any new long-term medical conditions?

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

Researchers looked at the records of 666 infants who received at least the 1st dose of 20vPnC under the skin, 13vPnC, or 20vPnC into a muscle.

The percentages of infants diagnosed with a new long-term medical condition during the study (at any time after the 1st dose of study vaccine) were low and similar for all 3 vaccine groups.

- 24 out of 225 (11%) infants receiving 20vPnC under the skin
- 20 out of 224 (9%) infants receiving 13vPnC
- 18 out of 217 (8%) infants receiving 20vPnC into a muscle

The most common new long-term medical condition was food allergy. 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 child's study, please speak with the doctor or staff at your child's study site.

For more details on your study protocol, please visit:

www.pfizer.com/research/research_clinical_trials/trial_results	Use the protocol number **B7471016**

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

www.clinicaltrials.gov	Use the study identifier **NCT04530838**

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 your child 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!