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: B7471011

Dates of Study: 20 May 2020 to 02 September 2022

Title of this Study: A Study to Learn if 20vPnC Vaccine was 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 in Healthy Infants]

Date(s) of this Report: 29 January 2023

– 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 4 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 4 doses of 20vPnC have antibody responses to the study vaccine that were within a range considered comparable to those who received 4 doses of 13vPnC?
2. Was the percentage of infants with a specific level of antibodies to the study vaccine after the 3rd dose of 20vPnC within a range considered comparable to the percentage of infants after the 3rd dose of 13vPnC?
3. 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?
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 3rd dose of 20vPnC or 13vPnC?
8. What percentage of infants had a medical problem at any time from the 4th dose to 1 month after the 4th 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?

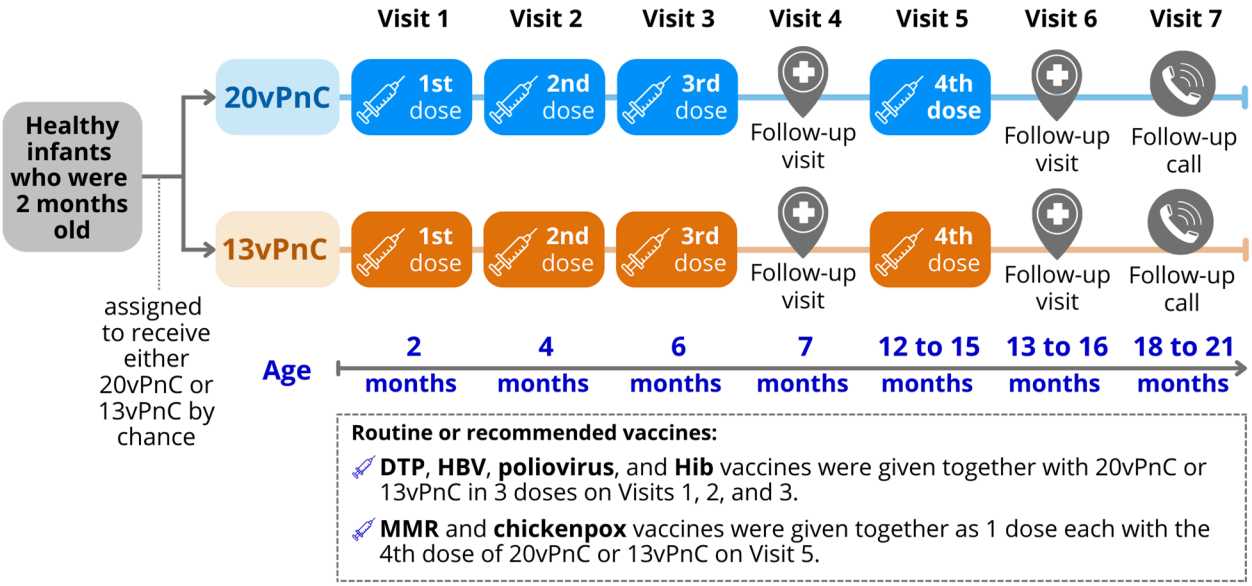
Researchers tested 20vPnC on a group of infants to learn about the safety of 20vPnC. They also wanted to know if 20vPnC produced antibody responses to *S pneumoniae*.

Researchers then compared the results of infants given 20vPnC to the results of a group of infants given 13vPnC. In this study, 20vPnC was compared to 13vPnC because 13vPnC is an approved vaccine commonly given in 4 doses to prevent *S pneumoniae* diseases in infants.

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 up to 4 doses.

Figure 1: What happened during the study?



The infants also received routine or recommended vaccines that target different germs.

- With the first 3 doses of 20vPnC or 13vPnC, they received a dose of routine vaccine that protects against **diphtheria, tetanus, and pertussis (DTP)** and diseases caused by **hepatitis B virus (HBV)** and **poliovirus**. They also received a dose of routine vaccine that protects against diseases caused by ***Haemophilus influenzae*** **type b (Hib)**.
- With the 4th dose of 20vPnC or 13vPnC, they received a dose of routine vaccines that protect against **measles, mumps, and rubella (MMR)** and **chickenpox**.

Throughout the study, the parents or guardians were asked how the infants were feeling.

- They brought their infants to visit the study site as scheduled. Blood samples were taken during Visits 4, 5, and 6.
- They were asked about their infants' health over a phone call at Visit 7.

Where did this study take place?

The Sponsor ran this study at 107 locations in the United States and Puerto Rico.

When did this study take place?

It began on 20 May 2020 and ended on 02 September 2022.

Who participated in this study?

This study included infants who:

- were born after more than 36 weeks of pregnancy.
- were between 6 and 14 weeks (or 42 and 98 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 1997 infants joined this study and were assigned to receive a study vaccine. Of these infants, 6 did not receive a study vaccine. Overall, 1991 infants received at least 1 dose of a study vaccine.

- 1001 received 20vPnC.
- 990 received 13vPnC.

About an equal number of boys and girls were in the study. The average age was 66 days old at the time of the 1st dose of a study vaccine.

Of the 1997 infants who started the study:

- 1623 (81%) infants finished the study.
- 374 (19%) infants did not finish the study. The most common reasons were as follows:
    - For 111 (6%) infants, their parents or guardians could not be contacted for follow-up.
    - For 106 (5%) infants, their parents or guardians decided for them to leave the study before it was over.

How long did the study last?

Infants were in the study for about 16 to 19 months. The entire study took about 2 years and 3 months to complete. This is because the infants started the study at different times.

When the study ended in September 2022, the Sponsor conducted their final review of the information collected. The Sponsor analyzed the results and 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 4 doses of 20vPnC have antibody responses to the study vaccine that were within a range considered comparable to those who received 4 doses of 13vPnC?

After the infants received all 4 doses of 20vPnC, their antibody responses to all 20 types of *S pneumoniae* were within a range considered comparable to those seen in infants after they received all 4 doses of 13vPnC.

- The levels of antibodies to all 13 types of *S pneumoniae* after infants received the 4th dose of 20vPnC were within a range considered comparable to those seen after infants received the 4th dose of 13vPnC.
- The levels of antibodies to all 7 additional types of *S pneumoniae* after infants received the 4th dose of 20vPnC were within a range considered comparable to the lowest seen among the 13 types of *S pneumoniae* after infants received the 4th dose of 13vPnC.

2 Was the percentage of infants with a specific level of antibodies to the study vaccine after the 3rd dose of 20vPnC within a range considered comparable to the percentage of infants after the 3rd dose of 13vPnC?

After the 3rd dose (out of the 4 total doses) of 20vPnC or 13vPnC:

- The percentages of infants with a specific level of antibodies to most of the 13 types of *S pneumoniae* after the 3rd dose of 20vPnC were within a range considered comparable to those after the 3rd dose of 13vPnC.

  The percentages of infants with a specific level of antibodies to the rest of the 13 types of *S pneumoniae* were lower after the 3rd dose of 20vPnC compared to those after the 3rd 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 3rd dose of 20vPnC were within a range considered comparable to the lowest seen among the 13 types of *S pneumoniae* after the 3rd dose of 13vPnC.

  The percentage of infants with a specific level of antibodies to the other additional type of *S pneumoniae* was lower after the 3rd dose of 20vPnC compared to the lowest seen among the 13 types of *S pneumoniae* after the 3rd dose of 13vPnC.

3 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?

After the infants received the 3rd dose of 20vPnC (out of the 4 total doses), their antibody responses to all 20 types of *S pneumoniae* were within a range considered comparable to those seen in infants after they received the 3rd dose of 13vPnC (out of the 4 total doses).

- The levels of antibodies to all 13 types of *S pneumoniae* after infants received the 3rd dose of 20vPnC were within a range considered comparable to those seen after infants received the 3rd dose of 13vPnC.
- The levels of antibodies to all 7 additional types of *S pneumoniae* after infants received the 3rd dose of 20vPnC were within a range considered comparable to the lowest seen among the 13 types of *S pneumoniae* after infants received the 3rd 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?

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.

The infants received routine vaccines together with a study vaccine (20vPnC or 13vPnC) for the first 3 doses.

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

Overall results on antibody responses:

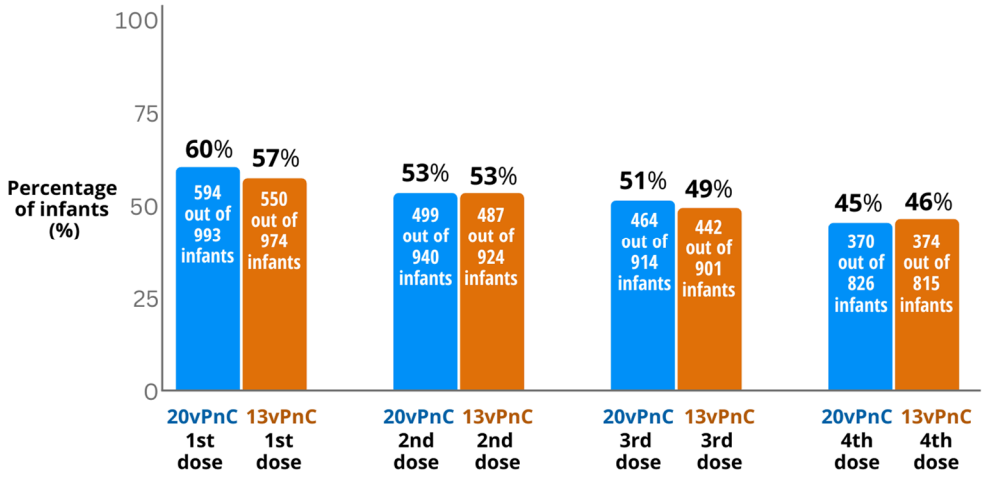
Researchers have decided that the results in Questions 1 to 4 are not likely due to chance. This means that 4 doses of 20vPnC produced antibody responses that can protect infants against diseases caused by *S pneumoniae*.

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 the 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 of 20vPnC or 13vPnC were similar in the 2 vaccine 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:

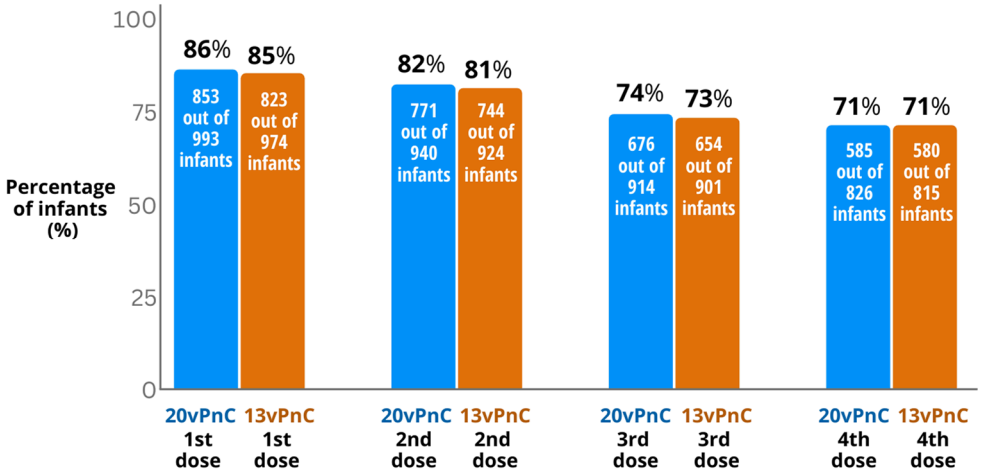
Most of these injection site reactions were mild or moderate in severity. These reactions generally went away after about 1 to 2 days. The most common single reaction after any dose of 20vPnC or 13vPnC was pain at the injection site.

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 the 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 of 20vPnC or 13vPnC were similar in the 2 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 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 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 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 a 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.

Researchers looked at the records of the 1991 infants who received at least 1 dose of a study vaccine.

Overall, 2 infants in the 20vPnC group and 3 infants in the 13vPnC 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 study vaccine.

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

Researchers looked at the records of infants who received at least 1 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 3rd dose** of 20vPnC and 13vPnC were similar in the 2 vaccine groups.

- 366 out of 1001 infants (37%) in the 20vPnC group.
- 389 out of 988 infants (39%) 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 3rd 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 commonly reported medical problems during a period of this study. All listed medical problems were seen in at least 2% of infants in any group.
- The **2nd** column shows how many of the 1001 infants in the 20vPnC group, and the percentage of these infants, had each medical problem.
- The **3rd** column shows how many of the 988 infants in the 13vPnC group, and the percentage of these infants, had each medical problem.
- For example, you can see in Table 1 that 24 out of the 1001 infants (2%) who received at least 1 dose of 20vPnC had acid reflux (or heartburn). And 21 of the 988 infants (2%) who received at least 1 dose of 13vPnC had acid reflux.

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 20vPnC or 13vPnC?

Medical Problem	20vPnC (1001 Infants)	13vPnC (988 Infants)
Acid reflux (or **heartburn**)	24 out of 1001 infants (2%)	21 out of 988 infants (2%)
Viral infection of the smaller airways in the lungs	21 out of 1001 infants (2%)	17 out of 988 infants (2%)
Swelling of the nose and throat (also known as **a cold**)	19 out of 1001 infants (2%)	28 out of 988 infants (3%)
Infection of the middle ear	39 out of 1001 infants (4%)	32 out of 988 infants (3%)
Recent infection of the middle ear	28 out of 1001 infants (3%)	29 out of 988 infants (3%)
Infection of the nose, sinuses, and throat	95 out of 1001 infants (10%)	96 out of 988 infants (10%)
Viral infection of the nose, sinuses, and throat	26 out of 1001 infants (3%)	20 out of 988 infants (2%)
Stuffy nose	20 out of 1001 infants (2%)	17 out of 988 infants (2%)
An itchy and dry skin condition called "eczema"	19 out of 1001 infants (2%)	27 out of 988 infants (3%)
A type of eczema called "atopic dermatitis"	24 out of 1001 infants (2%)	23 out of 988 infants (2%)
Scaly and red patches on the skin or scalp (also called **"cradle cap"**)	16 out of 1001 infants (2%)	23 out of 988 infants (2%)

8 What percentage of infants had a medical problem at any time from the 4th dose to 1 month after the 4th dose of 20vPnC or 13vPnC?

Researchers looked at the records of infants who received all 4 doses of 20vPnC or 13vPnC.

The percentages of infants with a medical problem that happened at any time from the **4th dose** to **1 month after the 4th dose** of 20vPnC and 13vPnC were similar in the 2 vaccine groups.

- 129 out of 853 infants (15%) in the 20vPnC group.
- 126 out of 841 infants (15%) in the 13vPnC group.

The list below shows the most common medical problems that happened at any time from the **4th dose** to **1 month after the 4th dose** of 20vPnC or 13vPnC. These medical problems were seen in at least 2% of infants in any group.

- **Infection of the middle ear** was seen in:
  - 24 out of 853 infants (3%) in the 20vPnC group.
  - 22 out of 841 infants (3%) in the 13vPnC group.
- **Infection of nose, sinuses, and throat** was seen in:
  - 25 out of 853 infants (3%) in the 20vPnC group.
  - 24 out of 841 infants (3%) in the 13vPnC group.

Did infants have any serious medical problems during the study?

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 infants who received at least 1 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 **6 months after the 4th dose** of 20vPnC and 13vPnC) were low and similar in the 2 vaccine groups.

- 45 out of 1001 infants (5%) in the 20vPnC group.
- 31 out of 987 infants (3%) in the 13vPnC group.

Each serious medical problem happened in fewer than 1% of infants in any group. Most of these serious medical problems included hospital care for infections commonly seen in this age group. The study doctors did not consider any of the serious medical problems to be related to 20vPnC or 13vPnC.

No infant died during the study.

Did infants have any new long-term medical conditions during the study?

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

Researchers looked at the records of infants who received at least 1 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 **6 months after the 4th dose** of 20vPnC and 13vPnC) were low and similar in the 2 vaccine groups.

- 50 out of 1001 infants (5%) in the 20vPnC group.
- 58 out of 987 infants (6%) in the 13vPnC group.

The most common new long-term medical conditions were "eczema" (an itchy and dry skin condition), "atopic dermatitis" (a type of eczema), and food allergy. These medical conditions are commonly seen in this age group.

Overall results on safety:

Based on the main results in Questions 5 to 10, researchers found that 20vPnC has an acceptable safety profile similar to that of 13vPnC.

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 **B7471011**

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

www.clinicaltrials.gov	Use the study identifier **NCT04382326**
www.clinicaltrialsregister.eu	Use the study identifier **2019-003305-10**

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!