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.

Vaccine Studied: Group B Streptococcus 6-Valent Polysaccharide Conjugate Vaccine (GBS6)

Protocol Number: C1091005

Dates of Study: 12 August 2022 to 27 April 2023

Title of this Study: A Study to Test the Safety, Tolerability, and Immunogenicity of a Multivalent Group B Streptococcus Vaccine When Administered With Tetanus, Diphtheria, and Acellular Pertussis Vaccine (Tdap) in Healthy, Nonpregnant Women Aged 18 to 49 Years

[A Phase 2b, Placebo-Controlled, Randomized, Observer-Blinded Trial to Evaluate the Safety, Tolerability, and Immunogenicity of a Multivalent Group B Streptococcus Vaccine When Administered Concomitantly With Tetanus, Diphtheria, and Acellular Pertussis Vaccine (Tdap) in Healthy Nonpregnant Women 18 Through 49 Years of Age]

Date of this Report: 16 January 2024

– Thank You –

If you 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 Group B Streptococcus?

Group B Streptococcus (GBS) is a germ (bacteria) that may cause serious disease. There are 10 different types of GBS (called serotypes), but 6 types are responsible for causing more than 95% of GBS disease worldwide. GBS disease is most common in infants less than 3 months old and older adults.

In infants, the GBS germ may cause serious disease including infection of the blood (sepsis), infection of the lining covering the brain and spinal cord (meningitis), and infection of the lungs (pneumonia).

What is GBS6?

Group B streptococcus 6-valent polysaccharide conjugate vaccine (GBS6) is a vaccine under development to prevent GBS disease in infants by vaccinating their mothers during pregnancy. It is given as an injection in the muscle.

GBS6 contains small parts of the GBS germ that do not cause disease. These small parts of the GBS germ are connected to a certain type of protein that help turn on the body's disease defence system (immune system). To fight the small parts of the GBS germ, the immune system makes specialized proteins called antibodies. Antibodies can recognize the germ in the body in the event of infection by the germ and help the immune system attack and kill it. Antibodies can help protect the body against GBS disease if the person comes into contact with the GBS germ in the future.

Antibodies can be passed from a pregnant woman to their unborn child. This can protect the unborn child against serious infection caused by germs during pregnancy or when it is born. Researchers think that giving GBS6 to a pregnant woman would be more effective at protecting the infant against

GBS disease than giving GBS6 to the infant. This is because the infant's immune system is still developing and might not create enough antibodies when given a vaccine.

GBS6 was shown in a previous study to be safe in healthy men and nonpregnant women. It also caused the body to create antibodies for the GBS germ that lasted at least 6 months after vaccination.

What is Tdap?

Tetanus, diphtheria, and pertussis are serious infections that are caused by germs. The tetanus, diphtheria, and pertussis vaccine (also called "Tdap") is a vaccine that protects the body against these infections. In the United States, it is recommended that women who are 27 to 36 weeks pregnant receive the Tdap vaccine to protect the newborn against these infections.

What was the purpose of this study?

Scientists think that giving GBS6 to pregnant women could provide protection for the unborn child/infant against GBS disease. Since Tdap is also given during pregnancy, researchers wanted to see if giving GBS6 and Tdap at the same time was safe and produced similar amounts of antibodies as giving either vaccine alone. They tested this in healthy, nonpregnant women aged 18 through 49 years.

Researchers wanted to know:

- **Did participants taking GBS6 and Tdap together have as many antibodies as participants taking GBS6 or Tdap alone?**

- **Did the participants taking GBS6 and Tdap together have more side effects than participants taking GBS6 or Tdap alone?**

What happened during the study?

How was the study done?

Researchers gave GBS6 and Tdap to a group of study participants to find out if taking the 2 vaccines together was safe and produced similar amounts of antibodies as giving either vaccine alone.

To test this, participants were assigned to 1 of the following 3 groups:

- **GBS6 + Tdap**: participants in this group received both GBS6 and Tdap at the same time. There were 103 participants in this group, but only 102 received the vaccines.
- **GBS6 + placebo**: participants in this group received GBS6 and placebo. There were 99 participants in this group and all 99 received the vaccine.
- **Placebo + Tdap**: participants in this group received Tdap and placebo. There were 104 participants in this group but only 103 participants received the vaccine.

A placebo does not have any medicine in it, but it looks just like the study medication.

The study participants and researchers did not know who received which vaccines. This is known as a "blinded" study. Study participants were assigned to each group by chance alone.

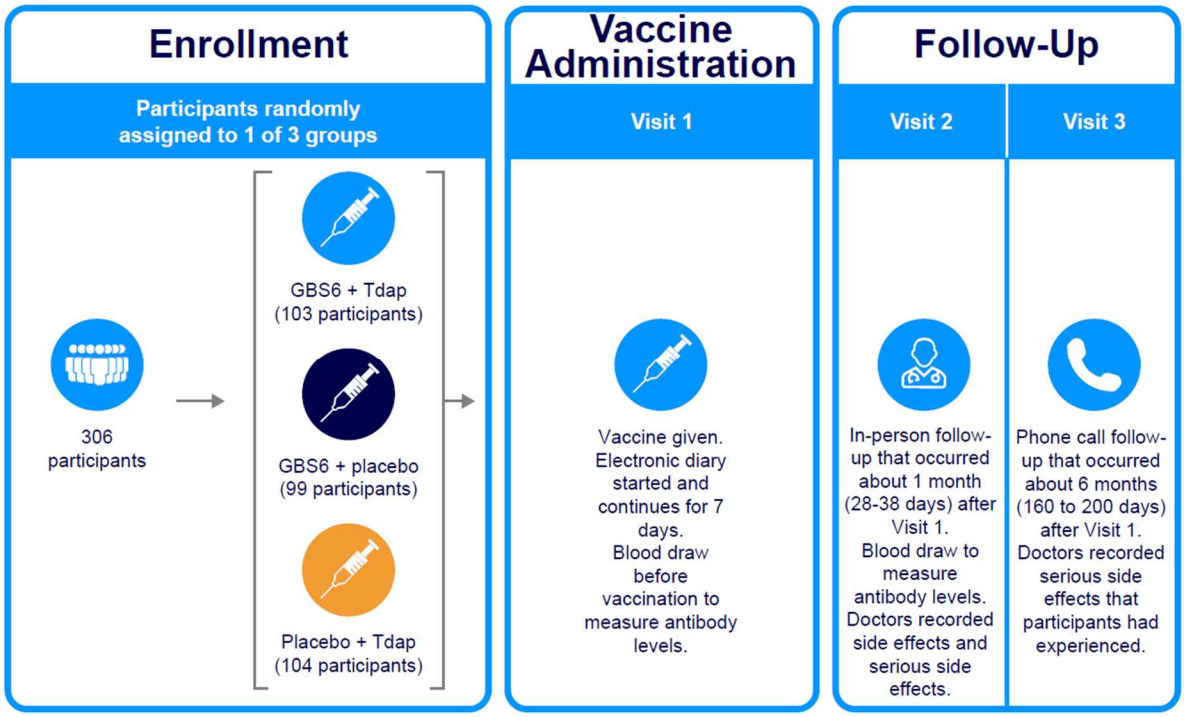
There were 3 planned visits during this study:

- Visit 1 was in-person. At this visit, study doctors made sure that participants were qualified to take part in the study. Qualified participants were randomly assigned to 1 of the 3 groups. Participants received the study vaccine(s) at Visit 1. Study doctors took blood samples from participants before they received the vaccine to measure antibody levels in the blood. Participants were instructed to record any pre-specified side effects for 7 days after vaccination in an electronic diary. Study doctors also recorded serious side effects. Serious side effects are life-threatening or require hospital care.
- Visit 2 was in-person and occurred about 1 month (28 to 38 days) after Visit 1. At this visit, study doctors recorded any side effects or serious side effects that participants had experienced. Study doctors also took blood samples from participants to measure antibody levels in the blood.
- Visit 3 was a telephone call visit and occurred about 6 months (160 to 200 days) after Visit 1. At this visit, study doctors recorded any serious side effects that participants had experienced.

Researchers then compared the results of study participants taking GBS6 and Tdap together to the results of study participants taking GBS6 or Tdap with placebo.

The study design is shown below in Figure 1.

Figure 1. Study Design



Where did this study take place?

This study was done at 11 locations in the United States.

When did this study take place?

It began 12 August 2022 and ended 27 April 2023.

Who participated in this study?

The study included participants who were healthy, nonpregnant women 18 through 49 years of age.

- A total of 306 women agreed to be in the study and were randomly put into a group, but only 304 received the study vaccine(s).

After participants received the study vaccine(s), they were followed for 6 months. Of the 306 participants who started the study, 304 were vaccinated, and 290 finished the study.

16 participants did not finish the study for the following reasons:

- 11 participants were lost to follow-up. This means the participant did not return to the study site for scheduled visits and did not respond to phone calls from study site staff.
- 4 participants chose to leave the study before it was over.
- 1 participant did not finish the study for "other" reason.

No participants left the study early due to a side effect.

How long did the study last?

Study participants were in the study for about 6 months. The entire study took about 8 months to complete.

When the study ended in April 2023, the researchers began reviewing the information collected. The researchers then created a report of the results. This is a summary of that report.

What were the results of the study?

Did participants taking GBS6 and Tdap together have as many antibodies as participants taking GBS6 or Tdap alone?

To test this, researchers measured the levels of antibodies in the blood (or "concentration") from participants in each group, 1 month after vaccination. They then compared the levels between groups.

GBS Antibodies

Researchers measured the levels of antibodies in the blood for 6 different types (serotypes) of the GBS germ. These types are called Ia, Ib, II, III, IV, and V. The levels of antibodies in the blood for each vaccine group are reported as "geometric mean concentration". Geometric mean is a type of average.

Tetanus, Diphtheria, and Pertussis Antibodies

Researchers evaluated tetanus and diphtheria antibody levels differently. Based on previous studies, researchers know what level of tetanus and diphtheria antibodies in the blood is associated with protection against tetanus and diphtheria germs. So, they looked to see how many participants in each group reached that level 1 month after vaccination.

Since researchers do not know what level of pertussis antibodies in the blood is associated with protection against the pertussis germ, they reported the results as average levels of pertussis antibodies in the blood (geometric mean concentration). They measured the levels of 3 other antibodies that can recognize the pertussis germ and help the immune system kill it. They are called filamentous hemagglutinin, pertactin, and fimbriae antibodies.

Did participants taking GBS6 and Tdap together have as many antibodies as participants taking GBS6 or Tdap alone?

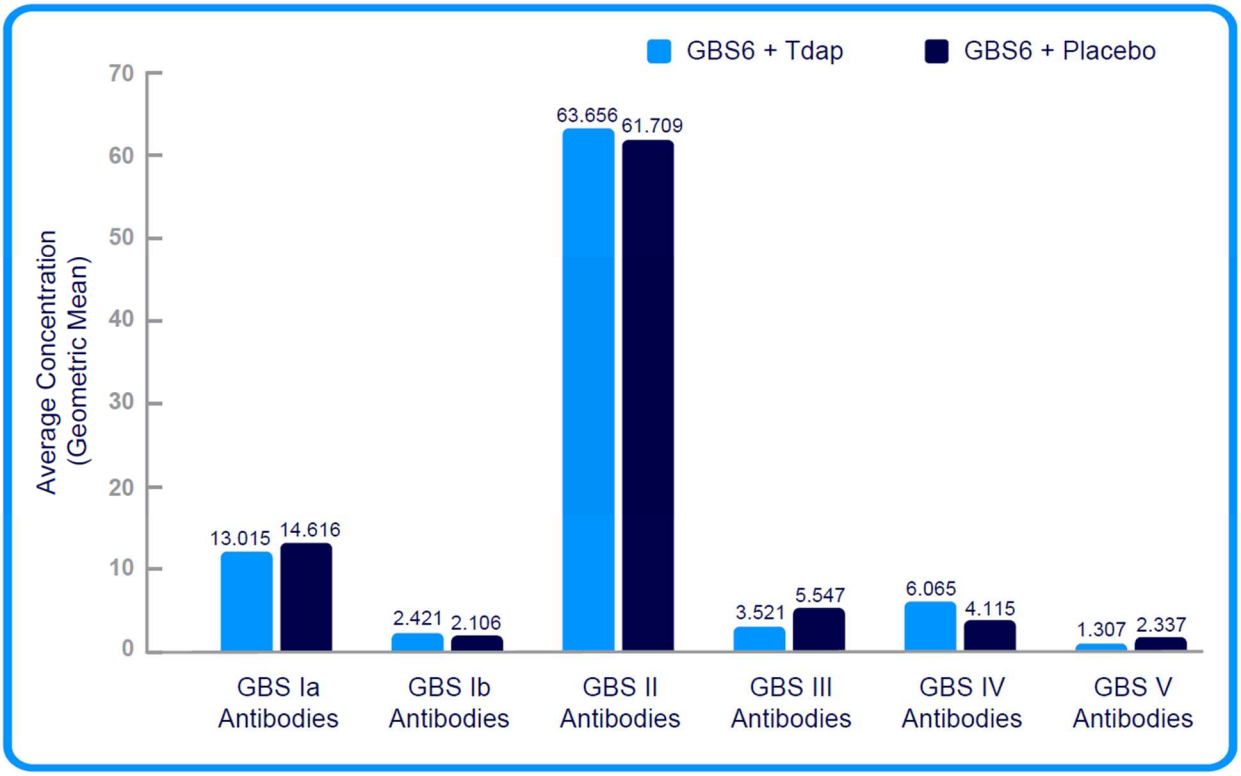
GBS type Ia, Ib, II, III, IV, and V antibody levels

Compared to Day 1 of the study (before vaccination), antibody levels to all 6 GBS types were higher in the GBS6 + Tdap and GBS6 + placebo groups 1 month after vaccination.

However, participants who took GBS6 + Tdap had lower levels of antibodies for GBS types Ia, III, and V, and higher levels of antibodies for

GBS types Ib, II, and IV compared to participants who took GBS6 + placebo. This is shown in Figure 2.

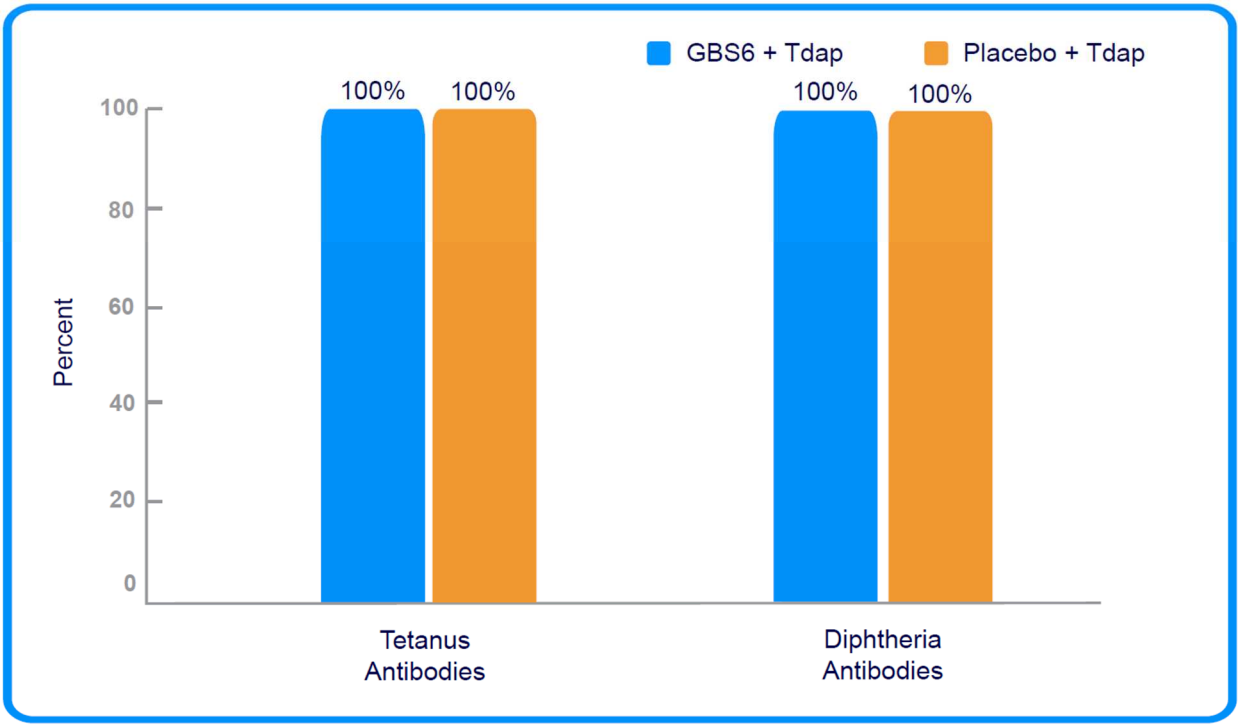
Figure 2. GBS Antibody Levels 1 Month After Vaccination



Tetanus, diphtheria, and pertussis antibody levels

One month after vaccination, 99 out of 99 participants (100%) who received GBS6 + Tdap and 101 out of 101 participants (100%) who received placebo + Tdap had tetanus and diphtheria antibody levels in the blood that were associated with protection against tetanus and diphtheria germs. This is shown in Figure 3.

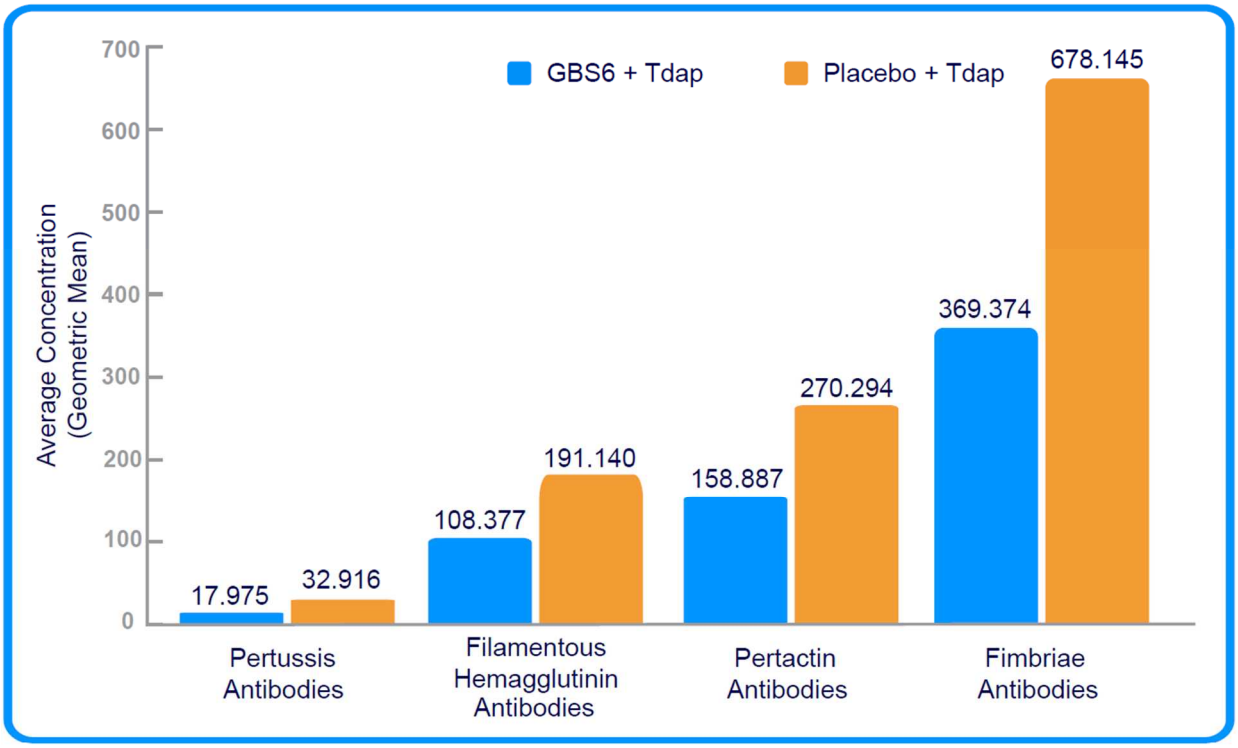
Figure 3. Participants With Tetanus and Diphtheria Antibody Levels That Are Associated With Protection (1 Month After Vaccination)



On average, participants who took GBS6 + Tdap had lower levels of antibodies for pertussis, filamentous hemagglutinin, pertactin, and fimbriae (all parts of the pertussis component of the Tdap vaccine) compared to participants who took placebo + Tdap. This is shown in Figure 4.

Researchers are not sure if this means that participants who received GBS6 + Tdap would not be as protected against the pertussis germ than participants who received placebo + Tdap. This is because researchers do not know what level of these antibodies in the blood is associated with protection against the pertussis germ. Researchers think that this study was not large enough to determine if the differences in pertussis antibody levels that they observed were true.

Figure 4. Pertussis, Filamentous Hemagglutinin, Pertactin, and Fimbriae Antibody Levels 1 Month After Vaccination



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 that are based on the average (geometric mean) responses. Other studies may have different results.

What side effects did participants have during the study?

Did the participants taking GBS6 and Tdap together have more side effects than participants taking GBS6 or Tdap alone?

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

18 out of 304 (5.9%) participants in this study had at least 1 side effect within 1 month after vaccination.

- 6 out of 102 (5.9%) participants taking GBS6 + Tdap had a side effect.
- 8 out of 99 (8.1%) participants taking GBS6 + placebo had a side effect.
- 4 out of 103 (3.9%) participants taking placebo + Tdap had a side effect.

A total of 0 participants left the study because of side effects. The most common side effects – those reported by more than 1 participant – are shown in Table 1.

Below are instructions on how to read Table 1, Table 2, and Table 3.

Instructions for Understanding Table 1.

- The **1st** column of Table 1 lists side effects that were commonly reported during the study. All side effects reported by more than 1 participant are listed.
- The **2nd** column tells how many of the 102 participants taking GBS6 + Tdap reported each side effect. Below this number is

the percentage of the 102 participants taking GBS6 + Tdap who reported the side effect.

- The **3rd** column tells how many of the 99 participants taking GBS6 + placebo reported each side effect. Below this number is the percentage of the 99 participants taking GBS6 + placebo who reported the side effect.
- The **4th** column tells how many of the 103 participants taking placebo + Tdap reported each side effect. Below this number is the percentage of the 103 participants taking placebo + Tdap who reported the side effect.
- Using these instructions, you can see that 2 out of the 102 (2%) participants taking GBS6 + Tdap reported cough. A total of 0 out of the 99 (0%) participants taking GBS6 + placebo reported cough. A total of 0 out of the 103 (0%) participants taking placebo + Tdap reported cough.

Table 1. Side effects reported by more than 1 study participant within 1 month after vaccination

Side Effect	GBS6 + Tdap (102 Participants)	GBS6 + Placebo (99 Participants)	Placebo + Tdap (103 Participants)
Cough	2 out of 102 participants (2.0%)	0 out of 99 participants (0%)	0 out of 103 participants (0%)
Coronavirus disease 2019 infection (COVID-19 infection)	0 out of 102 participants (0%)	2 out of 99 participants (2.0%)	0 out of 103 participants (0%)

The researchers also recorded pre-specified side effects that participants had at the injection site within 7 days after vaccination. These pre-specified side effects are pain, redness, and swelling at the injection site. They are shown in Table 2.

- 41 out of 102 (40.2%) participants in the GBS6 + Tdap group had a side effect at the injection site.
- 45 out of 98 (45.9%) participants in the GBS6 + placebo group had a side effect at the injection site.
- 34 out of 103 (33.0%) participants in the placebo + Tdap group had a side effect at the injection site.

Table 2. Side effects at the injection site within 7 days after vaccination

Side Effect	GBS6 + Tdap (102 Participants)	GBS6 + Placebo (98 Participants)	Placebo + Tdap (103 Participants)
Pain at injection site	40 out of 102 participants (39.2%)	45 out of 98 participants (45.9%)	34 out of 103 participants (33.0%)
Redness at injection site	8 out of 102 participants (7.8%)	2 out of 98 participants (2.0%)	0 out of 103 participants (0%)
Swelling at injection site	4 out of 102 participants (3.9%)	4 out of 98 participants (4.1%)	2 out of 103 participants (1.9%)

Researchers also recorded pre-specified general side effects that are referred to as “systemic side effects”. These include fever, feeling

sick/throwing up, loose stools, headache, feeling tired, muscle pain, and joint pain. Systemic side effects that occurred within 7 days after receiving vaccination are shown in Table 3.

- 73 out of 102 (71.6%) participants in the GBS6 + Tdap group had a systemic side effect.
- 66 out of 99 (66.7%) participants in the GBS6 + placebo group had a systemic side effect.
- 71 out of 103 (68.9%) participants in the placebo + Tdap group had a systemic side effect.

Table 3. Systemic side effects within 7 days after vaccination

Side Effect	GBS6 + Tdap (102 Participants)	GBS6 + Placebo (99 Participants)	Placebo + Tdap (103 Participants)
Fever	1 out of 102 participants (1.0%)	4 out of 99 participants (4.0%)	3 out of 103 participants (2.9%)
Feeling sick/ throwing up	15 out of 102 participants (14.7%)	17 out of 99 participants (17.2%)	15 out of 103 participants (14.6%)
Loose stools	20 out of 102 participants (19.6%)	16 out of 99 participants (16.2%)	22 out of 103 participants (21.4%)
Headache	36 out of 102 participants (35.3%)	48 out of 99 participants (48.5%)	40 out of 103 participants (38.8%)
Feeling tired	52 out of 102 participants (51.0%)	50 out of 99 participants (50.5%)	48 out of 103 participants (46.6%)

Table 3. Systemic side effects within 7 days after vaccination			
Side Effect	**GBS6 + Tdap (102 Participants)**	**GBS6 + Placebo (99 Participants)**	**Placebo + Tdap (103 Participants)**
Muscle pain	31 out of 102 participants (30.4%)	24 out of 99 participants (24.2%)	27 out of 103 participants (26.2%)
Joint pain	18 out of 102 participants (17.6%)	15 out of 99 participants (15.2%)	13 out of 103 participants (12.6%)

In this study, researchers found that the occurrence of side effects was similar between all 3 groups.

Did study participants have any serious side effects?

A side effect is considered “serious” when it is life-threatening, needs hospital care, or causes lasting problems.

1 out of 304 (0.3%) participants had a serious side effect.

- 1 participant in the placebo + Tdap group had a serious side effect of bile duct stone. Researchers do not believe this was related to the vaccine.

No participants died during the study.

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 C1091005

The full scientific report of this study is available online at

www.clinicaltrials.gov	Use the study identifier NCT04766086

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!