COVID-19

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Jan. 12, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis, a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about COVID-19 vaccines and allergic reactions, including anaphylaxis.

- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of January 6, 2022, more than 17.7 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 57 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

  CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, three confirmed cases of TTS following mRNA COVID-19 vaccination (Moderna) have been reported to VAERS after more than 496 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 17.7 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 294 preliminary reports of GBS identified in VAERS as of January 6, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.

- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of January 6, 2022, VAERS has received 2,077 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines.

  Most cases have been reported after receiving Pfizer-BioNTech or Moderna, (mRNA COVID-19 vaccines) particularly in male adolescents and young adults. Through follow-up, including medical record reviews, CDC and FDA have verified 1,175 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.

- **Reports of death after COVID-19 vaccination are rare.** FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's

unclear whether the vaccine was the cause. **Reports of adverse events to VAERS following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem.** More than 520 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through January 10, 2022. During this time, VAERS received 11,225 reports of death (0.0022%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

A review of reports indicates a causal relationship between the J&J/Janssen COVID-19 vaccine and TTS. CDC scientists have conducted detailed reviews of TTS cases and made the information available to healthcare providers and the public:

- US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021
- Case Series of Thrombosis with Thrombocytopenia Syndrome following COVID-19 vaccination—United States, December 2020–August 2021
- Updates on Thrombosis with Thrombocytopenia Syndrome (TTS) [1.3 MB, 39 Pages]

Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

› Safety of COVID-19 Vaccines

› Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Jan. 12, 2022
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

COVID-19

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Jan. 18, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis, a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about COVID-19 vaccines and allergic reactions, including anaphylaxis.

- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of January 13, 2022, more than 17.8 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 57 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

  CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, three confirmed cases of TTS following mRNA COVID-19 vaccination (Moderna) have been reported to VAERS after more than 505 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 17.8 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 301 preliminary reports of GBS identified in VAERS as of January 13, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.

- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of January 13, 2022, VAERS has received 2,103 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines.

  Most cases have been reported after receiving Pfizer-BioNTech or Moderna, (mRNA COVID-19 vaccines) particularly in male adolescents and young adults. Through follow-up, including medical record reviews, CDC and FDA have verified 1,213 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.

- **Reports of death after COVID-19 vaccination are rare**. FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's unclear whether the vaccine was the cause. **Reports of adverse events to VAERS**

following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem. More than 529 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through January 18, 2022. During this time, VAERS received 11,468 reports of death (0.0022%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

A review of reports indicates a causal relationship between the J&J/Janssen COVID-19 vaccine and TTS. CDC scientists have conducted detailed reviews of TTS cases and made the information available to healthcare providers and the public:

- US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021
- Case Series of Thrombosis with Thrombocytopenia Syndrome following COVID-19 vaccination—United States, December 2020–August 2021
- Updates on Thrombosis with Thrombocytopenia Syndrome (TTS) [1.3 MB, 39 Pages]

Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

› Safety of COVID-19 Vaccines

› Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Jan. 18, 2022

Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

COVID-19

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Jan. 24, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis, a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about COVID-19 vaccines and allergic reactions, including anaphylaxis.

- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of January 20, 2022, more than 18.0 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 57 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

  CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, three confirmed cases of TTS following mRNA COVID-19 vaccination (Moderna) have been reported to VAERS after more than 513 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 18.0 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 302 preliminary reports of GBS identified in VAERS as of January 20, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.

- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of January 20, 2022, VAERS has received 2,132 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines.

  Most cases have been reported after receiving Pfizer-BioNTech or Moderna, (mRNA COVID-19 vaccines) particularly in male adolescents and young adults. Through follow-up, including medical record reviews, CDC and FDA have verified 1,233 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.

- **Reports of death after COVID-19 vaccination are rare.** FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's unclear whether the vaccine was the cause. **Reports of adverse events to VAERS**

following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem. More than 535 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through January 24, 2022. During this time, VAERS received 11,657 reports of death (0.0022%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

A review of reports indicates a causal relationship between the J&J/Janssen COVID-19 vaccine and TTS. CDC scientists have conducted detailed reviews of TTS cases and made the information available to healthcare providers and the public:

- US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021
- Case Series of Thrombosis with Thrombocytopenia Syndrome following COVID-19 vaccination—United States, December 2020–August 2021
- Updates on Thrombosis with Thrombocytopenia Syndrome (TTS) [1.3 MB, 39 Pages]

Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

- Safety of COVID-19 Vaccines
- Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Jan. 24, 2022
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

COVID-19

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Feb. 7, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis, a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about COVID-19 vaccines and allergic reactions, including anaphylaxis.

- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of February 3, 2022, more than 18.2 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 57 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

  CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, three confirmed cases of TTS following mRNA COVID-19 vaccination (Moderna) have been reported to VAERS after more than 522 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.
- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 18.2 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 306 preliminary reports of GBS identified in VAERS as of February 3, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.
- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of February 3, 2022, VAERS has received 2,204 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines.

  Most cases have been reported after receiving Pfizer-BioNTech or Moderna, (mRNA COVID-19 vaccines) particularly in male adolescents and young adults. Through follow-up, including medical record reviews, CDC and FDA have verified 1,295 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.
- **Reports of death after COVID-19 vaccination are rare**. FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's unclear whether the vaccine was the cause. **Reports of adverse events to VAERS**

following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem. More than 543 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through February 3, 2022. During this time, VAERS received 12,122 preliminary reports of death (0.0022%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

A review of reports indicates a causal relationship between the J&J/Janssen COVID-19 vaccine and TTS. CDC scientists have conducted detailed reviews of TTS cases and made the information available to healthcare providers and the public:

- US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021
- Case Series of Thrombosis with Thrombocytopenia Syndrome following COVID-19 vaccination—United States, December 2020–August 2021
- Updates on Thrombosis with Thrombocytopenia Syndrome (TTS) [1.3 MB, 39 Pages]

Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

- Safety of COVID-19 Vaccines
- Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Feb. 7, 2022
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

COVID-19

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Feb. 15, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis, a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about COVID-19 vaccines and allergic reactions, including anaphylaxis.
- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood

vessels and low platelets (blood cells that help form clots). As of February 10, 2022, more than 18.2 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 57 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, three confirmed cases of TTS following mRNA COVID-19 vaccination (Moderna) have been reported to VAERS after more than 526 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 18.2 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 310 preliminary reports of GBS identified in VAERS as of February 10, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.

- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of February 10, 2022, VAERS has received 2,239 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines.

  Most cases have been reported after receiving Pfizer-BioNTech or Moderna, (mRNA COVID-19 vaccines) particularly in male adolescents and young adults. Through follow-up, including medical record reviews, CDC and FDA have verified 1,307 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.

- **Reports of death after COVID-19 vaccination are rare**. FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's unclear whether the vaccine was the cause. **Reports of adverse events to VAERS following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem.** More than 547 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through February 14, 2022. During this time, VAERS received 12,304 preliminary reports of death (0.0022%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

  A review of reports indicates a causal relationship between the J&J/Janssen COVID-19 vaccine and TTS. CDC scientists have conducted detailed reviews of TTS cases and made the information available to healthcare providers and the public:

  - US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021
  - Case Series of Thrombosis with Thrombocytopenia Syndrome following COVID-19 vaccination—United States, December 2020–August 2021

- Updates on Thrombosis with Thrombocytopenia Syndrome (TTS) [1.3 MB, 39 Pages]

Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

- Safety of COVID-19 Vaccines
- Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Feb. 15, 2022
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

COVID-19

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Feb. 25, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis,

a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about COVID-19 vaccines and allergic reactions, including anaphylaxis.

- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of February 17, 2022, more than 18.3 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 57 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

  CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, three confirmed cases of TTS following mRNA COVID-19 vaccination (Moderna) have been reported to VAERS after more than 530 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 18.3 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 303 preliminary reports of GBS identified in VAERS as of February 17, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.

- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of February 17, 2022, VAERS has received 2,248 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines.

  Most cases have been reported after receiving Pfizer-BioNTech or Moderna, (mRNA COVID-19 vaccines) particularly in male adolescents and young adults. Through

follow-up, including medical record reviews, CDC and FDA have verified 1,321 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.

- **Reports of death after COVID-19 vaccination are rare.** FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's unclear whether the vaccine was the cause. **Reports of adverse events to VAERS following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem.** More than 550 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through February 22, 2022. During this time, VAERS received 12,612 preliminary reports of death (0.0023%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

A review of reports indicates a causal relationship between the J&J/Janssen COVID-19 vaccine and TTS. CDC scientists have conducted detailed reviews of TTS cases and made the information available to healthcare providers and the public:

- US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021
- Case Series of Thrombosis with Thrombocytopenia Syndrome following COVID-19 vaccination—United States, December 2020–August 2021
- Updates on Thrombosis with Thrombocytopenia Syndrome (TTS) [1.3 MB, 39 Pages]

Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

- Safety of COVID-19 Vaccines
- Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Feb. 25, 2022
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Mar. 1, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis, a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about

COVID-19 vaccines and allergic reactions, including anaphylaxis.

- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of February 24, 2022, more than 18.4 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 57 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

  CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, three confirmed cases of TTS following mRNA COVID-19 vaccination (Moderna) have been reported to VAERS after more than 532 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 18.4 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 303 preliminary reports of GBS identified in VAERS as of February 24, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.

- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of February 24, 2022, VAERS has received 2,261 preliminary reports of myocarditis or pericarditis among people ages 30 years

in male adolescents and young adults. Through follow-up, including medical record reviews, CDC and FDA have verified 1,328 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.

- **Reports of death after COVID-19 vaccination are rare**. FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's unclear whether the vaccine was the cause. **Reports of adverse events to VAERS following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem.** More than 553 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through February 22, 2022. During this time, VAERS received 12,775 preliminary reports of death (0.0023%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

  A review of reports indicates a causal relationship between the J&J/Janssen COVID-19 vaccine and TTS. CDC scientists

have conducted detailed reviews of TTS cases and made the information available to healthcare providers and the public:

- US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021
- Case Series of Thrombosis with Thrombocytopenia Syndrome following COVID-19 vaccination—United States, December 2020–August 2021
- Updates on Thrombosis with Thrombocytopenia Syndrome (TTS) [1.3 MB, 39 Pages]

Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

- Safety of COVID-19 Vaccines
- Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Mar. 1, 2022
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

COVID-19

Selected Adverse Events Reported after COVID-19 Vaccination

Updated Mar. 3, 2022

Safety of COVID-19 Vaccines

Some people have no side effects. Many people have reported side effects that are generally mild to moderate and go away within a few days.

What You Need to Know

- COVID-19 vaccines are **safe and effective**.
- CDC recommends everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications. CDC has updated its recommendation for COVID-19 vaccines with a preference for mRNA vaccines (Pfizer-BioNTech and Moderna).
- Millions of people in the United States have received COVID-19 vaccines under the most intense safety monitoring program in U.S. history.
- CDC, the U.S. Food and Drug Administration (FDA), and other federal agencies continue to monitor the safety of COVID-19 vaccines.
- Adverse events described on this page have been reported to the Vaccine Adverse Event Reporting System (VAERS) .
- VAERS accepts reports of any adverse event following vaccination.

Serious adverse events after COVID-19 vaccination are rare but may occur.

CDC is providing timely updates on the following serious adverse events of interest:

- **Anaphylaxis after COVID-19 vaccination is rare** and has occurred in approximately 5 people per one million vaccinated in the United States. Anaphylaxis,

a severe type of allergic reaction, can occur after any kind of vaccination. If it happens, healthcare providers can effectively and immediately treat the reaction. Learn more about COVID-19 vaccines and allergic reactions, including anaphylaxis.

- **Thrombosis with thrombocytopenia syndrome (TTS) after Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccination is rare.** TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of March 3, 2022, more than 18.4 million doses of the J&J/Janssen COVID-19 vaccine have been given in the United States. CDC and FDA identified 59 confirmed reports of people who got the J&J/Janssen COVID-19 vaccine and later developed TTS.

  CDC has also identified nine deaths that have been caused by or were directly attributed to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49 years, especially, should be aware of the increased risk of this rare adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

  - To date, four confirmed cases of TTS following mRNA COVID-19 vaccination (3 after Moderna, 1 after Pfizer-BioNTech) have been reported to VAERS after more than 535 million doses of mRNA COVID-19 vaccines administered in the United States. Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

- **Guillain-Barré Syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare.** GBS is a rare disorder where the body's immune system damages nerve cells, causing muscle weakness and sometimes paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After more than 18.4 million J&J/Janssen COVID-19 vaccine doses administered, there have been around 305 preliminary reports of GBS identified in VAERS as of March 3, 2022. These cases have largely been reported about 2 weeks after vaccination and mostly in men, many in those ages 50 years and older.

  Based on the data, the rate of GBS within the first 21 days following J&J/Janssen COVID-19 vaccination was found to be 21 times higher than after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). After the first 42 days, the rate of GBS was 11 times higher following J&J/Janssen COVID-19 vaccination. Analysis found no increased risk of GBS after Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines). CDC and FDA will continue to monitor for and evaluate reports of GBS occurring after COVID-19 vaccination and will share more information as it becomes available.

- **Myocarditis and pericarditis after COVID-19 vaccination are rare.** Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest and felt better quickly. As of March 3, 2022, VAERS has received 2,282 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines.

  Most cases have been reported after receiving Pfizer-BioNTech or Moderna, (mRNA COVID-19 vaccines) particularly in male adolescents and young adults. Through

follow-up, including medical record reviews, CDC and FDA have verified 1,337 reports of myocarditis or Learn more about myocarditis and pericarditis, including clinical considerations, after mRNA COVID-19 vaccination.

- **Reports of death after COVID-19 vaccination are rare.** FDA requires healthcare providers to report any death after COVID-19 vaccination to VAERS, even if it's unclear whether the vaccine was the cause. **Reports of adverse events to VAERS following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem.** More than 555 million doses of COVID-19 vaccines were administered in the United States from December 14, 2020, through March 7, 2022. During this time, VAERS received 12,989 preliminary reports of death (0.0023%) among people who received a COVID-19 vaccine. CDC and FDA clinicians review reports of death to VAERS including death certificates, autopsy, and medical records.

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Continued monitoring has identified nine deaths causally associated with J&J/Janssen COVID-19 vaccination. CDC and FDA continue to review reports of death following COVID-19 vaccination and update information as it becomes available.

Related Pages

› Safety of COVID-19 Vaccines

› Vaccine Adverse Event Reporting System (VAERS): What Reports Mean and How VAERS Works

Last Updated Mar. 3, 2022
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases