



EUROPEAN MEDICINES AGENCY  
SCIENCE MEDICINES HEALTH

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## Comirnaty

COVID-19 mRNA vaccine (nucleoside modified)

### What is Comirnaty and what is it used for?

Comirnaty is a vaccine for preventing coronavirus disease 2019 (COVID-19) in people aged 16 years and older.

Comirnaty contains a molecule called messenger RNA (mRNA) with instructions for producing a protein from SARS-CoV-2, the virus that causes COVID-19. Comirnaty does not contain the virus itself and cannot cause COVID-19.

Detailed information about this vaccine is available in the [product information](#), which includes the package leaflet.

### How is Comirnaty used?

Comirnaty is given as two injections, usually into the muscle of the upper arm, at least 21 days apart.

Arrangements for the supply of the vaccine will be the responsibility of national authorities. For more information about using Comirnaty, see the package leaflet or consult a healthcare professional.

### How does Comirnaty work?

Comirnaty works by preparing the body to defend itself against COVID-19. It contains a molecule called mRNA which has instructions for making the spike protein. This is a protein on the surface of the SARS-CoV-2 virus which the virus needs to enter the body's cells.

When a person is given the vaccine, some of their cells will read the mRNA instructions and temporarily produce the spike protein. The person's immune system will then recognise this protein as foreign and produce antibodies and activate T cells (white blood cells) to attack it.

If, later on, the person comes into contact with SARS-CoV-2 virus, their immune system will recognise it and be ready to defend the body against it.

The mRNA from the vaccine does not stay in the body but is broken down shortly after vaccination.

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## **What benefits of Comirnaty have been shown in studies?**

A very large clinical trial showed that Comirnaty was effective at preventing COVID-19 in people from 16 years of age.

The trial involved around 44,000 people in total. Half received the vaccine and half were given a dummy injection. People did not know whether they received the vaccine or the dummy injection.

Efficacy was calculated in over 36,000 people from 16 years of age (including people over 75 years of age) who had no sign of previous infection. The study showed a 95% reduction in the number of symptomatic COVID-19 cases in the people who received the vaccine (8 cases out of 18,198 got COVID-19 symptoms) compared with people who received a dummy injection (162 cases out of 18,325 got COVID-19 symptoms). This means that the vaccine demonstrated a 95% efficacy in the trial.

The trial also showed around 95% efficacy in the participants at risk of severe COVID-19, including those with asthma, chronic lung disease, diabetes, high blood pressure or a body mass index  $\geq 30$  kg/m<sup>2</sup>.

## **Can people who have already had COVID-19 be vaccinated with Comirnaty?**

There were no additional side effects in the 545 people who received Comirnaty in the trial and had previously had COVID-19.

There were not enough data from the trial to conclude on how well Comirnaty works for people who have already had COVID-19.

## **Can Comirnaty reduce transmission of the virus from one person to another?**

The impact of vaccination with Comirnaty on the spread of the SARS-CoV-2 virus in the community is not yet known. It is not yet known how much vaccinated people may still be able to carry and spread the virus.

## **How long does protection from Comirnaty last?**

It is not currently known how long protection given by Comirnaty lasts. The people vaccinated in the clinical trial will continue to be followed for 2 years to gather more information on the duration of protection.

## **Can children be vaccinated with Comirnaty?**

Comirnaty is not currently recommended for children below 16 years of age. EMA has agreed with the company on a plan to trial the vaccine in children at a later stage.

## **Can immunocompromised people be vaccinated with Comirnaty?**

There are limited data on immunocompromised people (people with weakened immune systems). Although immunocompromised people may not respond as well to the vaccine, there are no particular safety concerns. Immunocompromised people can still be vaccinated as they may be at higher risk from COVID-19.

## **Can pregnant or breast-feeding women be vaccinated with Comirnaty?**

Animal studies do not show any harmful effects in pregnancy, however data on the use of Comirnaty during pregnancy are very limited. Although there are no studies on breast-feeding, no risk for breast-feeding is expected.

The decision on whether to use the vaccine in pregnant women should be made in close consultation with a healthcare professional after considering the benefits and risks.

## **Can people with allergies be vaccinated with Comirnaty?**

People who already know they have an allergy to one of the components of the vaccine listed in section 6 of the package leaflet should not receive the vaccine.

Allergic reactions (hypersensitivity) have been seen in people receiving the vaccine. A very small number of cases of anaphylaxis (severe allergic reaction) have occurred since the vaccine started being used in vaccination campaigns. Therefore, as for all vaccines, Comirnaty should be given under close medical supervision, with the appropriate medical treatment available. People who have a severe allergic reaction when they are given the first dose of Comirnaty should not receive the second dose.

## **How well does Comirnaty work for people of different ethnicities and genders?**

The main trial included people of different ethnicities and genders. Efficacy of around 95% was maintained across genders, racial and ethnic groups.

## **What are the risks associated with Comirnaty?**

The most common side effects with Comirnaty in the trial were usually mild or moderate and got better within a few days after vaccination. These included pain and swelling at the injection site, tiredness, headache, muscle and joint pain, chills and fever. They affected more than 1 in 10 people.

Redness at the injection site and nausea occurred in less than 1 in 10 people. Itching at the injection site, pain in the limb, enlarged lymph nodes, difficulty sleeping and feeling unwell were uncommon side effects (affecting less than 1 in 100 people). Weakness in muscles on one side of face (acute peripheral facial paralysis or palsy) occurred rarely in less than 1 in 1,000 people.

Allergic reactions have occurred with Comirnaty, including a very small number of cases of severe allergic reactions (anaphylaxis) which have occurred when Comirnaty has been used in vaccination campaigns. As for all vaccines, Comirnaty should be given under close supervision with appropriate medical treatment available.

## **Why has EMA recommended the authorisation of Comirnaty?**

Comirnaty offers a high level of protection against COVID-19 which is a critical need in the current pandemic. The main trial showed that the vaccine has a 95% efficacy. Most side effects are mild to moderate in severity and are gone within a few days.

The Agency therefore decided that Comirnaty's benefits are greater than its risks and that it can be recommended for authorisation in the EU.

EMA has recommended a conditional marketing authorisation for Comirnaty. This means that there is more evidence to come about the vaccine (see below), which the company is required to provide. The Agency will review any new information that becomes available and this overview will be updated as necessary.

## **What information is still awaited for Comirnaty?**

As Comirnaty is recommended for a conditional marketing authorisation, the company that markets Comirnaty will continue to provide results from the clinical trial, which is ongoing for 2 years. This trial and additional studies will provide information on how long protection lasts, how well the vaccine prevents severe COVID-19, how well it protects immunocompromised people, children and pregnant women, and whether it prevents asymptomatic cases.

In addition, [independent studies](#) of COVID-19 vaccines coordinated by EU authorities will also give more information on the vaccine's long-term safety and benefit in the general population.

The company will also carry out studies to provide additional assurance on the pharmaceutical quality of the vaccine as the manufacturing continues to be scaled up.

## **What measures are being taken to ensure the safe and effective use of Comirnaty?**

Recommendations and precautions to be followed by healthcare professionals and patients for the safe and effective use of Comirnaty have been included in the summary of product characteristics and the package leaflet.

A risk management plan (RMP) for Comirnaty is also in place and contains important information about the vaccine's safety, how to collect further information and how to minimise any potential risks. A [summary of the RMP](#) is available.

Safety measures will be implemented for Comirnaty in line with the [EU safety monitoring plan for COVID-19 vaccines](#) to ensure that new safety information is rapidly collected and analysed. The company that markets Comirnaty will provide monthly safety reports.

As for all medicines, data on the use of Comirnaty are continuously monitored. Suspected side effects reported with Comirnaty are carefully evaluated and any necessary action taken to protect patients.

## **Other information about Comirnaty**

Comirnaty was recommended by EMA's human medicines committee (CHMP) on 21 December 2020 for a conditional marketing authorisation valid throughout the EU. The European Commission will issue a decision shortly.

Detailed recommendations for the use of this product are described in the [product information](#), which will be available in all official European Union languages after a decision on the marketing authorisation has been issued by the European Commission.