Norwegian
Medicines Agency

# Reported suspected adverse reactions to coronavirus vaccines

## About the report:

- A summary is presented below of all assessed reports concerning suspected adverse reactions following coronavirus vaccination from 27 December 2020, the date on which the first vaccine became available.
- The figures are taken from the Norwegian ADR Registry and include reports from health professionals, the general population and vaccine manufacturers in Norway.
- Only reports which have undergone quality assurance and been assessed in the ADR Registry are included in the report. At any one time, there will be reports which are currently being assessed – these reports are not considered further in this summary.
- Reports of serious events are assessed first. The report therefore does not give a true picture of the distribution between serious and non-serious events.
- Symptoms or illnesses that occur after vaccination are reported if there is any *suspicion* of a possible link. As a result, it cannot be assumed that there is a causal link between the suspected adverse reaction and the vaccine.
- This report contains all suspected adverse reactions regardless of any possible causal link.
- The Norwegian Medicines Agency, the European Medicines Agency (EMA), the World Health Organization (WHO) and pharmaceutical companies are continuously conducting analyses of their adverse reaction data. This is known as 'signal detection' and involves both statistical calculations and a review of adverse reaction reports in order to identify unknown adverse reactions. When a signal is identified, a more thorough analysis is carried out to assess whether it could be a new adverse reaction to the drug, or whether any other factors could explain the signal. Based on these analyses, it may be appropriate to update the pharmaceutical information with new adverse reactions or introduce measures aimed at minimising the risks.
- Weekly reports are published which summarise the adverse reactions reported following vaccination with the coronavirus vaccines.

## Summary

**The ADR (adverse drug reaction) reports do not provide a basis for revising the current recommendations regarding the use of the coronavirus vaccines. The benefits of administering the vaccine are considered to outweigh any possible risks.**

There are currently no new indications of unexpected or serious adverse reactions in Norway.
The suspected adverse reactions which have been observed following vaccination are generally in line with what is described in the product information.

Most reports concern transient adverse reactions, such as malaise, fever, fatigue, nausea and pain in the body. These usually appear on the first or second day after vaccination and last around 2-3 days.
The vast majority of those who have been vaccinated appear not to have suffered any adverse reaction to the vaccine.

Amongst the reports that have been assessed, there were 56 deaths with a temporal link to vaccination. All occurred amongst elderly nursing home residents over the age of 70. Many of these reports state that no link to vaccination is suspected. The fact that some nursing home residents die soon after being vaccinated does not mean that there is a causal relationship. In order to analyse whether there could be a causal relationship, other data and advanced analyses are normally required.

In the case of some patients, there is always a possibility that relatively mild adverse reactions following the vaccination of frail elderly people contributed to a deterioration in their general condition or underlying illness, leading to death of the patient.

# Coronavirus vaccines in use in Norway

Three coronavirus vaccines are approved for use in Norway: Comirnaty (BioNTech/Pfizer), COVID-19 Vaccine Moderna (Moderna) and COVID-19 Vaccine AstraZeneca (AstraZeneca). Comirnaty and COVID-19 Vaccine Moderna are mRNA vaccines, while COVID-19 Vaccine AstraZeneca is a virus vector vaccine. All are administered as two doses, a few weeks apart.

As of 2 February 2021, only Comirnaty and COVID-19 Vaccine Moderna have been administered in Norway.

# Statistics concerning reports of suspected adverse reactions as of 2 February 2021

So far, **587** reports of suspected adverse reactions have been received following COVID-19 vaccination. Of these, **282** have been assessed, after over 112,000 people had been vaccinated with the first dose of COVID-19 vaccine, and over 22,000 had been vaccinated with the second dose of COVID-19 vaccine as of 2 February 2021.

## Distribution of reports by gender

| Gender | Female | Male |
|---|---|---|
| Number | 210 | 72 |

*Table 1: Gender breakdown amongst patients in the reports*

## Distribution of reports by age

| Age group | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **18-29** | **30-39** | **40-49** | **50-59** | **60-69** | **70-79** | **80-89** | **90+** | **Unknown age** |
| 23 | 31 | 25 | 12 | 9 | 25 | 73 | 76 | 8 |

*Table 2: Age distribution of patients in the reports*

Residents of nursing homes, persons 85 years of age and older, and selected groups of health professionals and other employees in the health and care services have so far been given priority in the vaccination programme. This is therefore also reflected in the gender and age distribution of the patients in the reports.

The weekly report at FHI.no also shows the number and proportion of persons vaccinated in different age groups and gender distribution nationwide.

## Distribution of reports according to severity for each vaccine

| Vaccine | Date adopted | Total number of reports | Number of reports involving death | Serious reports other than death | Reports of non-serious events |
|---|---|---|---|---|---|
| **Comirnaty (Pfizer/BioNTech)** | 27.12.2020 | 269 | 55 | 43 | 171 |
| **Covid-19 Vaccine Moderna (Moderna)** | 15.01.2021 | 13 | 1 | 1 | 11 |

*Table 3: Distribution of reports of suspected adverse reactions according to severity*

The data concerning the various coronavirus vaccines are not directly comparable. This is partly because they have different adverse reaction profiles, because they have not been used for equal periods of time and because the vaccines have been administered to different numbers of people with different disease profiles and ages.

Reported events following vaccination are classified as serious when:

- *the event resulted in/extended a stay in hospital*
- *the event is considered to be a medically important event*
- *the event resulted in a prolonged reduction in function level*
- *the event resulted in a life-threatening illness (e.g. anaphylaxis) or death*
- *the event resulted in birth defects/congenital malformations*

## Reports on deaths

So far, 56 reports of deaths have been assessed for nursing home residents who had been vaccinated. Many of the nursing home residents who have so far been vaccinated are very frail or terminally ill patients. Every day, an average of 45 people die in Norwegian nursing homes or other similar institutions. It is therefore to be expected that deaths will occur soon after vaccination, without there necessarily being any causal link to the vaccine. The reported deaths have occurred within a period of 1-12 days following vaccination.

The reports on many of these deaths state that no link with vaccination is suspected, and that the death is being reported for the sake of completeness. Many of the patients were also very frail prior to vaccination, and had many medical conditions and were taking many different medicines.

A report that illustrates this is a report of the death of a nursing home resident above 90 years of age. The patient had a number of chronic conditions, including high blood pressure and heart failure, and was taking several medications. A palliative plan had been prepared and was implemented after the patient had been admitted to the nursing home. The general condition of the patient then gradually deteriorated both physically and cognitively, with increasing frailty during the period leading up to vaccination. It was also stated that the patient had contracted a urinary tract infection a few days prior to vaccination, for which the patient was treated. A few days after being vaccinated, the patient developed diarrhoea, vomiting, breathlessness, general malaise and impaired consciousness. The patient died on the evening of the day the symptoms developed.

In general, the cause of death in this patient group is often linked to multiple factors and is difficult to establish with any certainty. In individual cases, it is difficult to know whether the

death was due to the patient's underlying condition or another incidental, concomitant cause. In the case of some of the most frail patients, there is always a possibility that relatively mild adverse reactions to the vaccine could have contributed to serious developments in their underlying illness.

These reports do not currently constitute an indication of an adverse reaction and do not provide a basis for revising the product information for the vaccine.

## Number of suspected adverse reactions according to category

A single adverse reaction report can include a number of suspected adverse reactions or symptoms. Figure 1 and Table 4 show suspected adverse reactions grouped according to the category to which they belong and the types of suspected adverse reactions which have been reported most frequently.

The distribution is categorised according to the origin of the suspected adverse reaction (e.g. the heart), or the cause of the suspected adverse reaction (e.g. infections).
The categories are the highest level in a hierarchical, standardised medical terminology which is used internationally (MedDRA). Using this terminology makes it possible compare reports internationally.

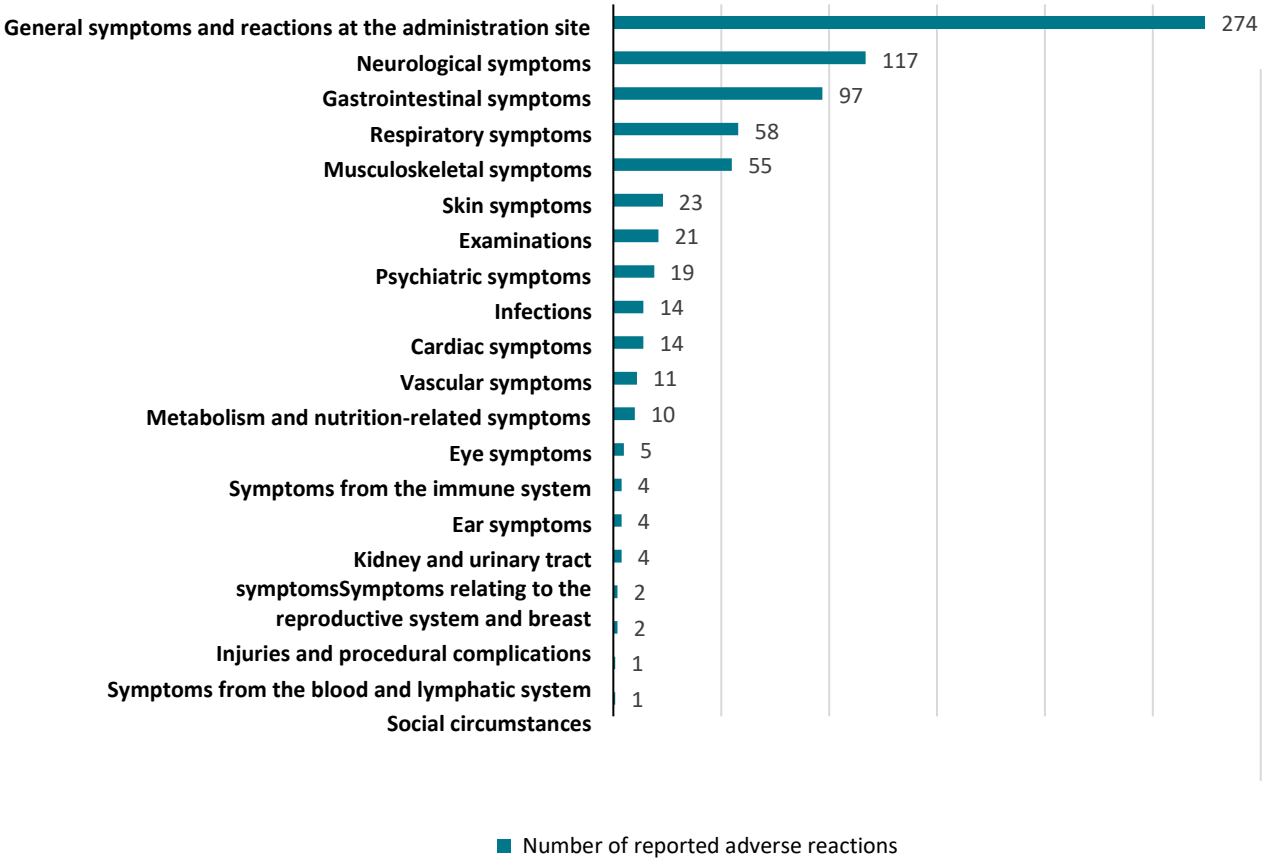


*Figure 1: Reported suspected adverse reactions by category for mRNA vaccines (Comirnaty and Covid-19 Vaccine Moderna)*

| Category | Number of reported adverse reactions |
|---|---|
| **General symptoms and reactions at the vaccine administration site**<br>E.g.: Pain and reactions at the injection site, discomfort, fever, fatigue, decreased general condition | 274 |
| **Neurological symptoms**<br>E.g.: Headache, dizziness, drowsiness, syncope | 117 |
| **Gastrointestinal symptoms**<br>E.g.: Stomach pain, nausea, vomiting, diarrhoea | 97 |
| **Respiratory tract symptoms**<br>E.g.: Difficulty breathing, shortness of breath, cough, irritation of the respiratory tract | 58 |
| **Musculoskeletal symptoms**<br>E.g.: Muscle pain, joint pain, muscle stiffness, pain in the extremities | 55 |
| **Skin symptoms**<br>E.g.: Rash, itching, redness, cold sweats | 23 |
| **Examinations**<br>E.g.: Abnormal and raised heart rate, decreased blood pressure, decrease in oxygen saturation | 21 |
| **Psychiatric symptoms**<br>E.g.: Sleep abnormalities, restlessness, lethargy, hallucination | 19 |
| **Infections**<br>E.g.: Pneumonia, cold symptoms | 14 |
| **Cardiac symptoms**<br>E.g.: Bradycardia, tachycardia | 14 |
| **Vascular symptoms**<br>E.g.: Flushes, pallor, low blood pressure | 11 |
| **Metabolic and nutrition-related symptoms**<br>E.g.: Reduced appetite | 10 |
| **Eye symptoms**<br>E.g.: Blurred vision, twitch | 5 |
| **Immune system symptoms**<br>E.g.: Allergic reaction | 4 |
| **Ear symptoms**<br>E.g.: Discomfort in the ear | 4 |
| **Kidney and urinary tract symptoms**<br>E.g.: Urinary tract infection | 4 |
| **Symptoms relating to the reproductive organs and breast**<br>E.g.: Chest pain | 2 |
| **Injuries and procedural complications**<br>E.g.: Fall | 2 |
| **Symptoms from the blood and lymphatic system**<br>E.g.: Swollen lymph nodes | 1 |
| **Social factors**<br>E.g.: Bedridden | 1 |

*Table 4: Reported suspected adverse reactions by category for mRNA vaccines (Comirnaty and Covid-19 Vaccine Moderna)*

The most frequently reported symptoms primarily consist of known adverse reactions within the general symptoms category, and include reactions at the vaccine injection site, decreased general condition, fever and general malaise. Headache, dizziness and drowsiness after vaccination are also frequently reported, as well as gastrointestinal symptoms such as diarrhoea, nausea and vomiting. The symptoms have arisen within 1-2 days after vaccination and have generally disappeared within a few days. Some reports have been received where the patient has developed infections such as pneumonia and influenza. As the mRNA vaccines are not live, they cannot cause conditions which are being vaccinated against or other infections

## Severe allergic reactions following vaccination with the mRNA vaccine

Four serious allergic reactions have been reported following vaccination with Comirnaty. Severe allergic reactions are extremely rare and occur in around 1-2 cases per 1,000,000 following vaccination with other vaccines.

One of the reports concerned an elderly person who became acutely ill five minutes after being vaccinated. The patient suffered a drop in blood pressure and difficulty breathing. Treatment for suspected anaphylactic shock was immediately started. The patient was treated with several injections of adrenaline, antihistamine and corticosteroid. The patient recovered soon after. After the event, it became apparent that the patient may have had a pre-existing food allergy. One of the lessons to be learned from this report is that elderly patients can experience severe allergic reactions to Covid-19 vaccines. Treatment for anaphylaxis must be readily available, and several injections of adrenaline may be necessary.