

# Association of British Neurologists

## Guidance on Vaccination for COVID-19 and Neurological Conditions

### Summary

- All COVID-19 vaccines are safe for neurology patients. The ABN recommends you take up whichever vaccination you are offered without delay regardless of your age, state of health or medication that you're receiving, unless you have a specific contraindication such as severe allergy. The vaccine protects individuals and society, and they are recommended for household contacts of immunocompromised adults.
- None of the COVID-19 vaccines are 'live' and therefore cannot cause infection.
- Because the vaccines have not been tested in pregnancy, they are not routinely recommended, however it is recognised that the potential benefits of vaccination are particularly important for some pregnant women who should take advice on the best course of action ([click here](#)).
- There is no information on the safety of COVID-19 vaccines in breastfeeding or on the breastfed infant. Despite this, COVID-19 vaccines are not thought to be a risk to the breastfeeding infant, and the benefits of breast-feeding are well known. Because of this, it is recommended that the vaccine can be received whilst breastfeeding.

Many patients and their families are approaching neurologists to ask about vaccination against COVID-19. In general, other than for severely allergic people, there is no good reason to be worried about vaccination. This document attempts to answer the questions that are commonly asked. People with more unusual medical problems should ask their GPs, who may refer you on to your neurologist. The government is rolling out vaccination and aiming to vaccinate those at greatest risk first ([click here](#)).

### What is COVID-19 and what is the risk?

COVID-19 is a coronavirus, related to one of the common cold viruses, which is easier to pass between people through droplets in the air and because it can survive on surfaces. It sometimes triggers inflammation and blood clotting, causing some people to become very unwell. Patients at highest risk of hospital admission with COVID-19 are more likely to be overweight, to belong to black or ethnic minority groups, have diabetes, high blood pressure, and higher cholesterol levels.

The risk of death with COVID-19 is strongly related to age and is roughly 1% for those aged between 50 and 60, 2.5% for those aged 60 to 70, 6% for those aged 70 to 80 and could be as high as 15-20% for those aged over 80. People with neurological diseases have an additional risk. There is limited information available on the risk of death in people with specific neurological diseases, however the risk from age is higher than the risk from most neurological diseases (<https://doi.org/10.1136/bmj.m3731>).

Data on the risk of death from COVID-19 is now out of date, because new treatments for COVID-19 have been introduced. The world-wide survival rate for people hospitalised with COVID-19 increased from 66% in March 2020 to 84% in August 2020. Despite this progress, the risk from infection is substantial, and many people with neurological diseases are staying at home irrespective of the tier in which they live. It seems that the best hope of society returning to normal will be with mass vaccination.

## **What is the immune system and how do vaccines work?**

The immune system is designed to recognise substances that are part of the body ('self'), and to identify and attack anything that isn't. The human body consists of chemicals such as proteins, fats and carbohydrates that are often different from those of viruses and bacteria. We are continuously exposed to 'foreign bodies' from breathing in bacteria and viruses that surround us, from eating and drinking, and every time we damage our skin. However, bacteria shouldn't be seen as all bad. Humans have lived in balance with them since the start of time, and there is a lot of evidence that healthy bacteria on our skin and in our intestines are vital to good human health. 'Good bugs' also protect us from 'bad bugs', and the immune system is finely tuned to support this.

Some people have autoimmune conditions, such as multiple sclerosis, myasthenia, some forms of thyroid conditions or rheumatoid arthritis that result from inaccuracy in distinguishing between 'self' and 'non-self'. However, most of the immune system works perfectly normally in protecting people with autoimmune diseases from infections.

When people are exposed to infections, the immune system senses that there are chemicals present that aren't part of their body, and white blood cells respond by producing antibodies and sensitising the immune system to the infection, so that any future exposure to the same infection is responded to very rapidly. That is why it's impossible to catch most viruses twice. It also means that we are regularly being naturally immunised against infections without even realising it. It is a natural process.

In 1796, Edward Jenner introduced the first vaccines in England when people realised that catching cowpox prevented milk maids from catching the much more dangerous smallpox: people were deliberately infected with cowpox to prevent smallpox. Vaccination had been practiced in China, Africa and Turkey for as long as 1,000 years, and we often forget about the deaths and damage from common viruses which occurred in the UK only a few decades ago before routine vaccination was introduced.

## **What is in a vaccine?**

The idea of vaccination is to expose the body to a virus or piece of a virus in a safe form, to trigger the immune defences but without causing infection. The smallpox vaccine is a classic example of giving a mild skin infection to prevent a very much more severe infection. The modern equivalent is to take a virus, treat it to prevent it being able to cause infection (by chemicals or heat) and use it to immunise the patient. In recent decades, people have been immunised with a protein from the surface of a virus. The latest technology is to inject RNA from a virus. It is taken up into the muscle cells which produce the virus protein, which the immune system identifies as foreign.

## **Vaccine side effects**

The Covid-19 vaccines either don't contain a virus (Pfizer-BioNTech and Moderna), or contain a 'dead' virus that cannot replicate [Oxford-AstraZeneca], so it's impossible to catch the virus from the vaccine. Although some vaccines undoubtedly have side effects, the technology has improved substantially so the risk of harm from vaccines is now tiny compared with the risk of the disease. The most common reactions are headaches, arm pain, body aches, chills or fever lasting a few hours to a few days. Taking an over-the-counter painkiller can help ease these.

The details of the side effects in the Oxford-AstraZeneca trial can be found [here](#). The Pfizer/BioNTech details are [here](#). The Moderna vaccine was approved by UK regulators on 8 January 2021 and will be in use soon. Details of side effects can be found [here](#).

Rarely, some people have an allergic reaction to the vaccine which seems to affect severely allergic people who are already bad enough to have an EpiPen. To get around this risk, people are asked if they have allergies before receiving the vaccine and are also requested to wait for half an hour following vaccination before going home. All medications contain a range of ingredients with a low risk of allergy which have been published for each vaccine ([click here](#)).

### **Do some people fail to respond to vaccines?**

In order to respond to a vaccine, people need to have immune systems that detect foreign bodies reliably. People with underactive immune systems such as those taking steroids (20mg or more per day for more than one month) and immunosuppressive drugs may not respond fully to the COVID-19 vaccines. There is no danger to these people from having the vaccine, only that it may not work as well. Doctors are now suggesting that people should be vaccinated against COVID-19 (as well as tetanus, pneumococcus and haemophilus) before starting immunosuppressive treatments, if possible.

### **Who should have a vaccine?**

Anyone at risk because of their age or other illnesses should have a COVID-19 vaccination. We are all at risk of passing on the virus to other people, even if we aren't aware that we have the infection. The Government's guidance on vaccination (The Green Book - [click here](#)) recommends that vaccination should be offered to adult household contacts of people with reduced immunity who are eligible for vaccination, because of the likely lower effectiveness of vaccination in this group, to reduce the chance of transmission to this very vulnerable group.

### **There are all these different vaccines - is one better than the other?**

Vaccines can prevent infection and/or to reduce severity of infection. It's too soon for the vaccines to have been compared, and more vaccines will be licensed soon. There are currently two vaccines available in the UK. The Pfizer/BioNTech reduced infections by 95% and 94% in those aged over 65 but is difficult to store and handle. The Oxford-AstraZeneca vaccine gives 62% protection however nobody who received the vaccine required admission to hospital, so any infection that did occur was very mild.

Information on the Oxford-AstraZeneca vaccine is available in an accessible website ([click here](#)) The full technical details are in Lancet paper ([click here](#)).

We expect more data will be published soon. Data confirms that the best way to keep out of hospital is to receive either one of these vaccines.

### **Is it worth having a single dose of the vaccine?**

Because the aim of a vaccine is to expose the body to a foreign protein to trigger a response, being exposed twice provides slightly better protection than being exposed once. This is the reason for the 'booster' dose that is used for many vaccines. There are many factors that influence the strength of immunisation, such as the interval between the doses and the strength of the vaccine. There is evidence that a single dose of the Oxford-AstraZeneca vaccine gives protection after 22 days but that the second dose lengthens the duration of protection. The government will try to vaccinate as many people as possible

once which will mean delaying the second dose by up to 12 weeks. There's no reason to believe that this isn't an effective approach. In other research, it's been shown that a longer interval between two vaccinations improved the response, though this hasn't yet been looked at for the COVID-19 vaccinations.

### **The pros and the cons**

Once the vaccines have been given to millions of people, rare side effects may be discovered. So far, the longest that anyone has had the vaccine in their bodies is 8 months, so it is too soon to know if rarer side effects may be discovered. At the same time, the death rate from COVID-19 is between 1% and 20% depending on age and general health, so any unknown risk from the vaccine will be tiny compared with the risk of COVID-19 infection and its serious complications.

### **The ABN's response**

The ABN is not able to offer guidance to individual patients but will endeavour to update this guidance as new vaccines are licensed, and more information emerges.

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