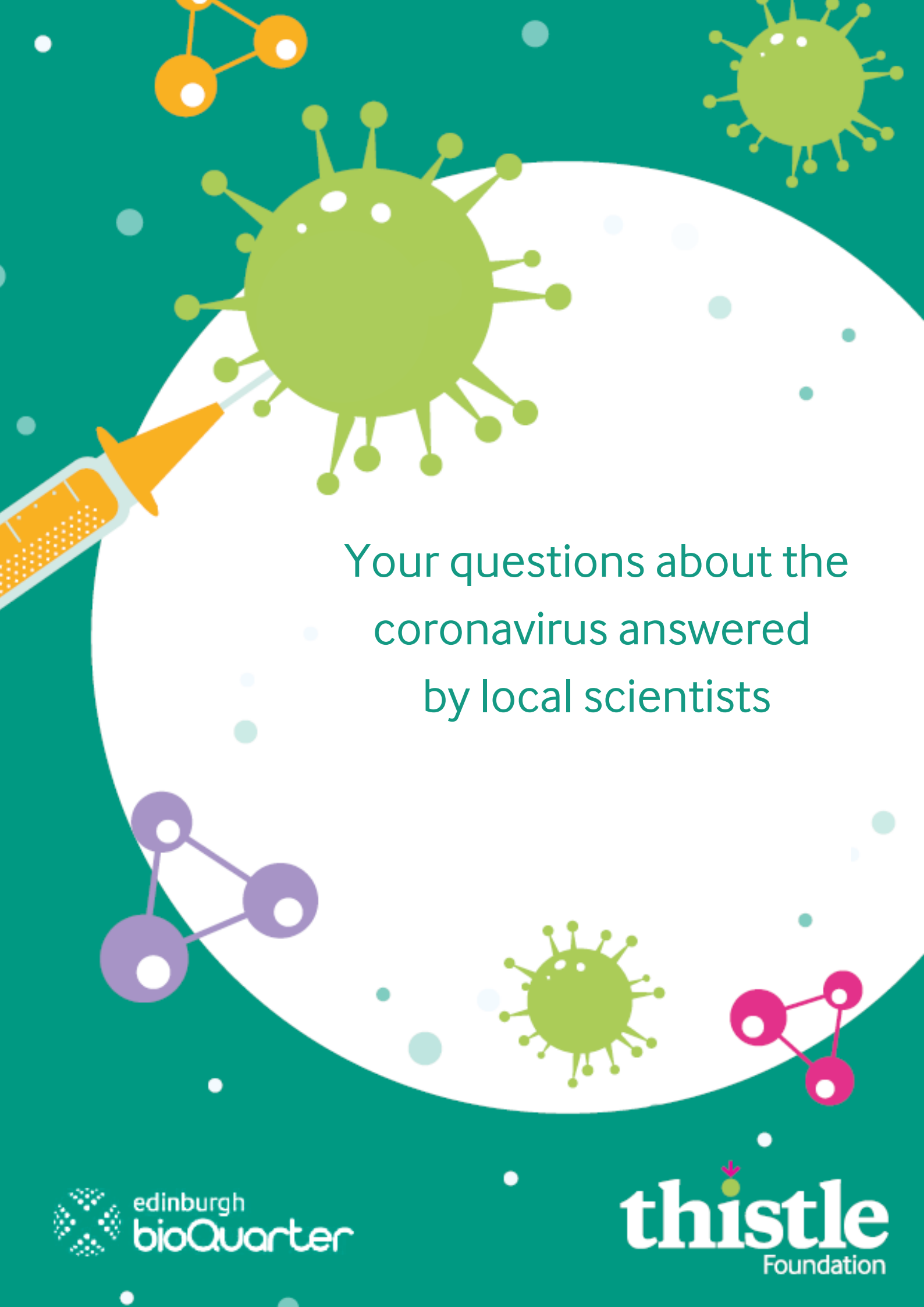

Your questions about the coronavirus answered by local scientists

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In March 2021, we invited you to submit your questions about coronavirus and the Covid-19 vaccine to local scientists from the Edinburgh BioQuarter.

We shared your questions with Dr Thomas Christie Williams, Paediatrician and Clinical Lecturer at the University of Edinburgh and Dr Samantha Griffiths, Senior Research Fellow, Infection Medicine at the University of Edinburgh.

You can read their answers in this document, or watch online at www.thistle.org.uk/blog_articles/covid-vaccines-q-and-a

9 April 2021.

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Do those who react to the vaccine have better functioning immune system?

"Certainly. We often see a stronger immune response in younger people, producing more antibodies, who often have more side effects, than in older people."

Answered by Dr Thomas Christie Williams

Why do some people react more and have more unpleasant side effects to the vaccine than others?

"More side effects could be an indication of a stronger immune response. This is more common after a second vaccine, for example, and in people who have already had COVID-19."

Answered by Dr Thomas Christie Williams

If you react to the 1st dose are you less likely to react to the second dose?

"No, you are more likely to see side effects after the second dose as your immune response can be stronger."

Answered by Dr Thomas Christie Williams

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If you have an allergy, should you be worried about taking the COVID-19 vaccination?

"The advice is that if you have an allergy to a known trigger or if there is a family history of anaphylaxis, the vaccine does not cause a problem.

The exception to this is if you have an allergy to one of the vaccine ingredients or had an allergic response to the first dose (see the NHS information below).

Your health care practitioner will be able to advise on this.

However, if you have any doubts and to put your mind at rest you should consult with a pharmacist or a doctor."

Answered by Dr Thomas Christie Williams

If you've had COVID and still have loss of smell and taste, will taking the vaccine effect this?

"The vaccine creates an immune response, which is what creates the symptoms, if you get any, from the vaccine.

Changes to smell and taste are because of the effect of the virus on your cells when you were infected.

As the vaccine does not infect you with the virus then it will not affect your smell and taste in the same way."

Answered by Dr Thomas Christie Williams

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A number of countries stopped using the Oxford AstraZenica vaccine due to reports of blood clots, what evidence was there for this?
Why do countries respond differently?

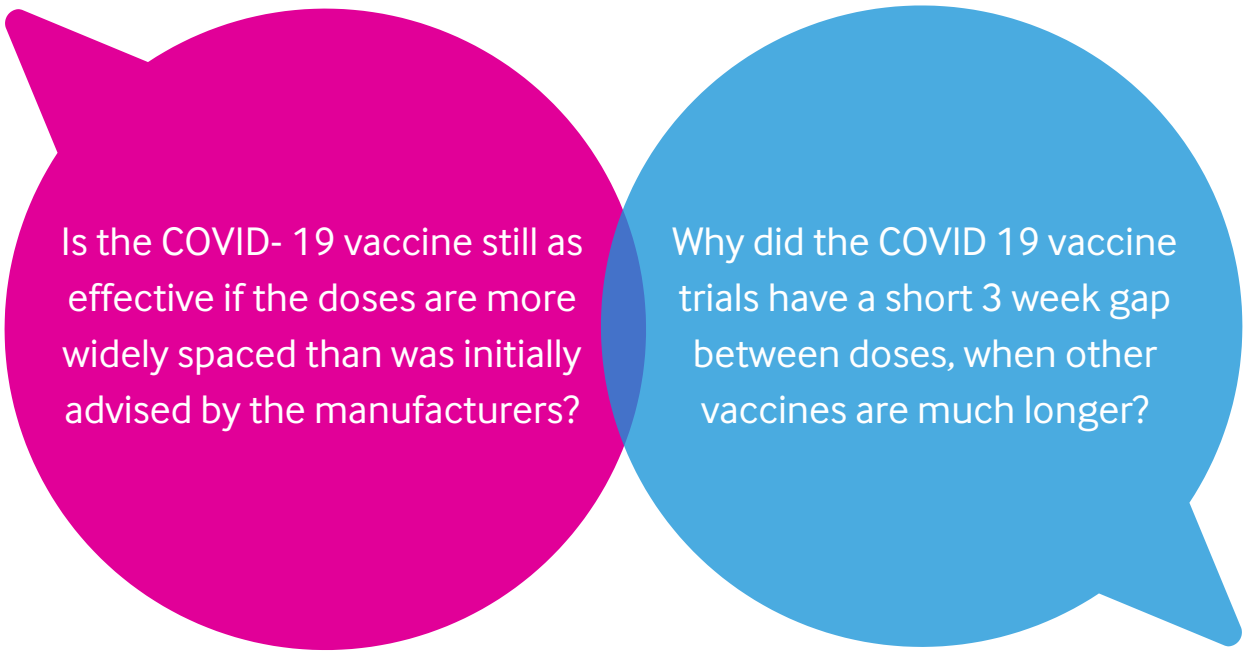
"The connection between the Oxford-AstraZenica vaccine and rare blood clots is still being fully investigated.

As the review continues its a fast-evolving topic so it's important to check information that is regularly updated at www.nhsinform.scot

Weighing up the risks versus the benefits of vaccination is what is important. From the evidence the MHRA looked at from over 20.2 million that have been vaccinated with the vaccine the risk is about 1 in a million, so is extremely rare. They continue to look at the risk factors for those that did get blood clots. This is balanced against the risk of serious illness caused by getting COVID-19.

The UK Medicines Authority - the MHRA - works closely with the European Medicines Agency - the EMA- when reviewing the reports and evidence so that they look at all the data available."

Answered by Dr Thomas Christie Williams



"Ideally the vaccine would be introduced into a community when COVID isn't circulating so you could vaccinate everyone and everyone would be protected. This wasn't the case at Christmas though; case rates and hospitalisations were rising. There was a limited supply of vaccine and we needed to protect those vulnerable. By using one dose we could prevent serious illness and death in more vulnerable people. This made public health sense at the time, and now the data supports it. We know that even a single dose can reduce infection and severe illness and we have vaccinated twice as many people as we could have done giving double doses.

The reason that there was such a short recommended gap from manufacturers between the first and second dose was because of the effectiveness data from the trials.
There was pressure to find a working vaccine – the world was locked down and we needed solutions. Using this short gap in the clinical trials would be quicker than if the trial had selected to leave months between doses (compare with other vaccines of years between doses).
It doesn't mean that that this gap between doses was the only way the vaccine would work, it was just the best strategy at the time."

Answered by Dr Thomas Christie Williams

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What is long covid and what are its symptoms?

"Long Covid is a collection of symptoms people are experiencing in the weeks or months after infection with the virus that causes COVID-19 (SARS-CoV-2)

It is relatively common with up to one fifth of people having ongoing symptoms for five weeks or more, and 1 in 10 affected for twelve weeks or more. Middle-aged women seem worst affected.

Different clusters of symptoms include fatigue, breathlessness, sleeping difficulties and changes in sense of taste and smell.

How long this lasts depends on the symptom and the individual, but it could be months or years. "

Answered by Dr Thomas Christie Williams

Why do some people who catch Covid lose their sense of taste or smell?

"For most people, smell, taste and taste sensation return within weeks of infection. For others it can take a very long time for these senses to return, as the damaged cells need time to repair themselves and learn how to detect smells again.

For 1 in 5 people it can last over 5 weeks, and more than 12 weeks in 1 in 10 people. As the sense of smell and taste recover, people can often smell really bad smells (parosmia) as these smell cells learn to 'smell' again.

Unfortunately it is one of those things that we can't do much about – we just have to wait for the cells to mend. But there are some scientist England and America who are finding ways to help our cells learn to smell faster – by smell training! This is where people smell specific scents regularly to relearn them faster. This is important because whilst a sense of taste and smell isn't life-threatening, it can really affect peoples' mental wellbeing if they can't taste food, smell their children, or tell when food is bad."

Answered by Dr Samantha Griffiths

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What is immunity?

"Immunity, or resistance to infection, means we have antibodies against that bacteria or virus.

These are proteins in the blood which recognise and kill a specific virus. These antibodies can stay in the body for a long time, so if we see that virus again, the antibodies can kill it and we won't get too poorly.

We get antibodies in two ways: by catching the virus, or by getting vaccinated against that virus.

A vaccine tricks your body into thinking it is infected, so you make antibodies and are prepared to fight if you do catch the virus. Some people can't have vaccinations, for example if they have some cancers, allergies, or other diseases that means they would get very ill from a vaccination. It is really important that we achieve herd immunity, because it means we can help protect those vulnerable people. "

Answered by Dr Samantha Griffiths

What is herd immunity?

"Herd Immunity is a phrase that means most of a population is immune to a disease. I'm going to talk about viruses, but the same applies to bacteria.

It is important to achieve herd immunity because if most people can't be infected with the virus, it has nowhere to go and will disappear. Not every person needs to be immune, because if enough people are resistant to infection, then the whole group has protection – the infection rate is reduced, and the disease dies out.

This is called 'breaking the chain of transmission', which you may have heard on some TV adverts for COVID regulations."

Answered by Dr Samantha Griffiths

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How long does it take to get herd immunity?

"When we achieve herd immunity depends on the virus - how fast it reproduces and how many people get infected from one other person. This is the R number you have probably all heard about.

Without measures in place, for COVID-19, every person infected can infect 3 people (R = 3), and while we don't know for sure yet, it is thought that at least 50-70% of the population need to be resistant to infection before herd immunity starts and infection rates go down.

As a comparison, for the measles virus we need 95% of the population to be immune to protect that last 5%, whereas for the polio virus we only need 80% of the population to be immune."

Answered by Dr Samantha Griffiths

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Will we ever achieve herd immunity if the virus mutates?

"All viruses mutate, or change, when they replicate, and many of these changes won't affect how the virus behaves. But every now and then one of the changes can make the virus grow or spread better (better transmission) or make it cause more severe disease.

The more people that are infected, the more viruses there are and the more mutations that can happen

SARS-CoV2 actually changes quite slowly, and there are many scientists around the world looking at all the changes and mutations that happen, and how those changes affect transmission and disease severity.

We are in a very fortunate position of having several successful vaccines for CoV2. All of them, as happens with other vaccines, have been designed around the most common virus strain. There have been many studies done with the vaccine and whether they stop growth and transmission of some of the mutants that have appeared, such as the South African and Brazilian strains.

So far, it looks like the vaccines are not as effective against some of these variants.

But, and this is a big but, a lot of the people in those studies were under 60 and relatively healthy, and in fact showed only mild disease. As the aim of the vaccine is to reduce severity of disease and hospitalisation, it is hard to tell whether the participants would have had severe disease anyway.

However, the way many of these new vaccines are made means it is relatively quick and easy to make a new vaccine specific to a different variant sequence. This means it should be not too much time and work to make a new vaccine specific to a new circulating strain of COVID."

Answered by Dr Samantha Griffiths

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There are plans to have a local festival in August 2021. Is it likely that this will be allowed, as plans are to include outdoor events, like a picnic in the park, though socially distanced?

"Any plans for a local festival in August will depend upon the level of COVID restrictions at the time.

Even if socially distanced mass gatherings are allowed, it is important that people follow the current recommendations for preventing and reducing transmission of COVID –washing hands, sanitising hands, wearing masks, and maintaining the recommended social distance from people."

Answered by Dr Samantha Griffiths

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Are we expecting to live with Coronavirus (or indeed any other pandemic disease) going forward?

"A pandemic is defined as a disease that is present across a whole country or the world.

In the past 20 years there have been three significant disease outbreaks – SARS (2002), MERS, (2009) and SARS-CoV2, or COVID19 (2019/2020).

All of these are coronaviruses, and all have passed into humans from another species.

One of the reasons COVID19 has been so devastating is because it is a new virus to humans – our bodies have never seen it before, so we have no immunity against it.

Scientists generally think that COVID19 will eventually become endemic, which means it is always present. But, as more people catch it or are vaccinated against COVID19, transmission and disease severity will reduce. In that way it will become more like flu – where most people are fine if they catch it, but as some people may get very ill or die, regularly vaccinations will continue.

It's important to realise that we already have coronaviruses that infect – there are four main strains - and they cause nothing more severe than a cold. In fact, 1 in 5 colds are caused by coronaviruses. I think the ultimate hope is that COVID19 will eventually become like these other coronaviruses – but this will take time."

Answered by Dr Samantha Griffiths

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If so, from your perspective, what changes to our culture and infrastructure would you like to see?

"That's a really interesting question.

As I said, I think we will be living with COVID19 forever, but hopefully in a much milder form. Obviously, lockdowns aren't a practical long-term solution, but I suspect many of the measures that have been introduced may continue. For example, a heightened awareness of handwashing, social distancing, or just giving and creating more space are easy to do and effective at preventing disease.

I would imagine that many businesses and companies will maintain a higher level of working from home, but hopefully with more flexibility, or with a blended office and home working pattern.

The main change I would like to see really is more preparedness – as a nation and a global community.

I think we need to be able to respond quickly and effectively to disease outbreaks by measures such as prompt airport closures, and by ensuring our healthcare system has the money and capacity for a rapid response. Unfortunately, I think we will experience more pandemics in the future, and it is essential we are prepared to respond."

Answered by Dr Samantha Griffiths

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Find out more

We have put together some links to reliable sources of information about COVID-19 to help you find out more and make informed decisions.
When we say reliable, we mean they use the latest scientific evidence and reason.
Understanding of COVID-19 is fast evolving so it's a good idea to check the date and only rely on more recent posts.

For up to date information about coronavirus and vaccines visit:
Scottish Government guidance and restrictions:
https://www.gov.scot/coronavirus-covid-19/
The vaccine programme in Scotland: https://www.nhsinform.scot/covid-19-vaccine

About vaccines

A handy booklet about vaccines from The British Immunological Society, including how they work and common questions:
https://www.immunology.org/sites/default/files/BSIresource_A_guide_to_vaccinations_for_COVID19.pdf

Latest information from the MHRA - UK Medicines and Healthcare products Regulatory Agency (they oversee what medicines and products are used in the UK including vaccines). Also, the place to report side effects of medicines:
https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency

Weighing up risks and benefits from the BBC: AstraZeneca vaccine: How do you weigh up the risks and benefits? https://www.bbc.co.uk/news/explainers-56665396

Symptoms and effects of COVID-19 infection

Animations about how our immune system works and responds to infection:
https://www.ed.ac.uk/inflammation-research/information-public/videos-resources/immune-memory-coronavirus
How COVID-19 causes problems with smell and taste:
https://abscent.org/insights-blog/blog/vaccine-questions-answered

Long term effects of COVID-19 – a blog from John Hopkins Hospital in US:
https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/covid-long-haulers-long-term-effects-of-covid19

About the pandemic:

World Health Organisation: Coronavirus disease (COVID-19) (who.int)

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