

Why are so many people worried about the coronavirus vaccine?

Written by Ms Oram for KSA students.

Over the past year a strain of coronavirus has spread across the globe. The virus is causing many people to become unwell and, in order to help the NHS, the government decided to hold a national lockdown.

The first UK nationwide lockdown saw a surge of volunteering, claps for carers and an encouraging amount of rule following. As restaurants, schools and cinemas started to re-open, it became clear that the virus was spreading more than people hoped. The government made the decision to have another national lockdown (in England).

Over the last couple of weeks, I have had many questions from students about when this will be over. 'Why can't I go to the gym?' 'Can I go and see my grandparents now?'. I am afraid that I (or anyone else it seems) do not have all the answers.

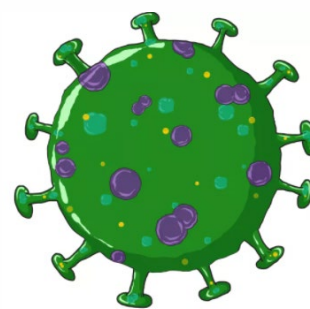
It seems that now the most promising prospect of a return to normality comes in the form of a vaccine and more importantly a wide spread vaccination programme. However, this too has posed many questions in students and adults alike. There is a scary amount of 'fake news' surrounding the vaccine and some of it seems to have infiltrated the minds of the KSA student body. There is, of course, some 'real news' that is equally as scary to read. I have used multiple sources of reliable scientific information to try and summarise where the world is regarding a vaccination programme.

I hope to convince you that the world will not turn into zombies once people start getting vaccinated and this is not 'the zombie apocalypse' or 'the microchip revolution' or a 'government conspiracy' (*quotes taken from anonymous KSA students*).

What is coronavirus?

Coronavirus is the name given to a family of viruses that have the distinct crown-like shape. These types of viruses have been around in populations for a long time. However, a new 'novel' virus was found in humans earlier this year. The new virus was called SARS-CoV-2. The virus causes a disease called CoVid-19.

Usually, when people are infected by viruses like this they can get better on their own. Our body has cells called white blood cells (lymphocytes) that can destroy foreign pathogens and remove viruses that enter our body. Some people have weaker immune systems (older people, people who take immunosuppressant drugs, pregnant people) and so they are sometimes more ill than others.



The reason why this coronavirus is more serious than others is because it is new to humans. Our white blood cells have not experienced this virus before and so they do not have the memory cells to fight the virus. It has therefore taken them longer to destroy the virus. Most healthy people can get better on their own however, for some, the virus is replicating more quickly than the white blood cells can destroy it. In others, the white blood cells are trying too hard and begin to accidentally destroy your healthy cells. This is causing people to get very sick and some to even die.

What is a vaccine?

A vaccination is a type of medicine which uses understanding of the body's immune system to promote immunity to certain diseases in individuals. There are many vaccinations that have had huge successes. Some have been so successful that they

have completely eradicated diseases (e.g. small pox).

Viral vaccines can work in four main ways. They all use a modified version of the actual virus to trick the immune system into providing immunity. The virus is modified enough that it won't cause the disease.

Different types of vaccine

1. A dead or weakened virus. This can cause the white blood cells to produce antibodies which can remember the virus and cause immunity.
2. Protein-based vaccines. This uses fragments of proteins that mimic the virus and trigger the immune response.
3. Viral vector vaccines. Scientists can change the virus so that it does not cause a disease (genetic engineering). When this is injected into the blood stream it triggers an immune response.
4. RNA and DNA vaccine. This uses a genetically engineered RNA or DNA which prompts and immune response.

Last week a pharmaceutical company called Pfizer/BioNtech published the results from a clinical trial of a new coronavirus vaccine. The vaccine they were working on uses a small part of the virus' genetic code to train our immune system to produce cells that defend us from the virus.

In stage 3 of their clinical trial they showed that:

1. It stops more than 90% of people developing Covid symptoms.
2. About 43,000 people have had the vaccine, with no serious side effects or safety concerns.

The vaccine is still in clinical trial stages and so there are many questions that need to be answered before people in the public will be able to have it. Mainly, scientists are still unsure how long immunity from the vaccine will last.

There are very strict rules in place to ensure than the coronavirus vaccine is safe. The vaccine will go through a multi-stage testing process including trials that involve tens of thousands of people, including people that are high risk such as older people. There is a Global Advisory Committee on Vaccines Safety who review all safety evidence before manufacture can begin. All of this is then taken to an external panel of experienced advisors who check all the safety evidence.

What is the 'fake news'?

The world Health Organisation (WHO) has described the rise in dangerous fake news as an 'infodemic'. There is a huge demand for information about the virus which has led to various accounts of strange conversations in the corridors of KSA. Here are my highlights:

1. *"Miss, I heard if you inject disinfectant into your blood, it will make you immune to coronavirus"*- Anonymous Y10 student.

I think we can blame Donald Trump for this one. During a White House coronavirus task force briefing, President Donald Trump said 'And then I see disinfectant where it knocks it out in a minute. One minute. And is there a way we can do something like that, by injecting inside or almost cleaning'.

This created a huge media storm with many people outraged by the president's comments. Pulmonologist



Dr Vin Gupta told BBC news "This notion of injecting or ingesting any type of cleaning product into the body is irresponsible and it's dangerous. It's a common method that people utilise when they want to take their own lives".

Needless to say- This is certainly **FAKE NEWS**.

2. *"I heard that the Russian President -Vladimir Putin let out thousands of Lions onto the streets of Moscow to keep Russian people inside during lock down"- Anonymous Y11 student.*

This one was even re-tweeted by some celebrities; no wonder some of our students were confused.

With a little bit of fact checking, it turns out this image is from a film production shoot in Johannesburg. This one is certainly **FAKE NEWS**.

3. *"The vaccine has been rushed through trials, it has not been tested properly and it has caused side effects in loads of people"- friend of Ms Oram.*



While it is true that RNA vaccines are relatively new technology, RNA cannot alter the DNA inside our cells. DNA is found inside our nucleus and changing that DNA would mean infiltrating the nucleus. A vaccination does not do that. Similarly, Pfizer/BioNTech have reported no severe side effects to the vaccine with only 3.8% of patients in the trial experiencing fatigue. Although there are still trials ongoing this one is proven **FAKE NEWS**.

4. *"I heard, the vaccine is a cover up for the government and Bill Gates to implant small microchips into our bodies and track us forever'- Anonymous Y13 student.*

There is no evidence to support this claim. Bill Gates has said "I have never been involved in any sort of microchipping-type thing. It is almost hard to deny this stuff because it's so stupid or strange". Although the Gates foundation is researching potential digital vaccine information systems which would help doctors access patients medical record to see what vaccinations they had in the past, there is no evidence to suggest that The Gates foundation or Bill Gates is involved in a microchip vaccine. In fact, there is no evidence to suggest that there is such thing as a microchip vaccine at all. This one is **FAKE NEWS**.

It is not difficult to see why these news stories spread so much. They are strange, shocking and sometimes even funny. I hope that I can convince you to fact-check some of the things you read on Instagram, TikTok and Facebook. Science is amazing, and we should trust that medical researchers across the world are doing everything they can to stop the virus from disrupting our lives even more. I fully believe in the power of science, I think you should too.

"Science works! Planes fly. Cars drive. Computers compute. If you base medicine on science, you cure people. If you base the design of planes on science, they fly. If you base the design of rockets on science, they reach the moon. It works!"

Prof Richard Dawkins. Evolutionary Biologist and Author.



Some reliable interest sources to get information/news:

1. BBC News.
2. The Guardian News.
3. Nature- Science Journal.
4. World Health Organisation.
5. NHS website.
6. The Times.
7. New Scientist- Journal.
8. [Gov.uk](https://www.gov.uk)
9. ONS- Office of National Statistics.
10. National Bureau of economic research.

References

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- World Health Organisation. International. Newsroom. Corona-virus vaccine.
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- Nick Flemming 2020 Corona Virus misinformation and how scientists can prevent it spreading. Nature/articles.
<https://www.nature.com/articles/d41586-020-01834-3>