

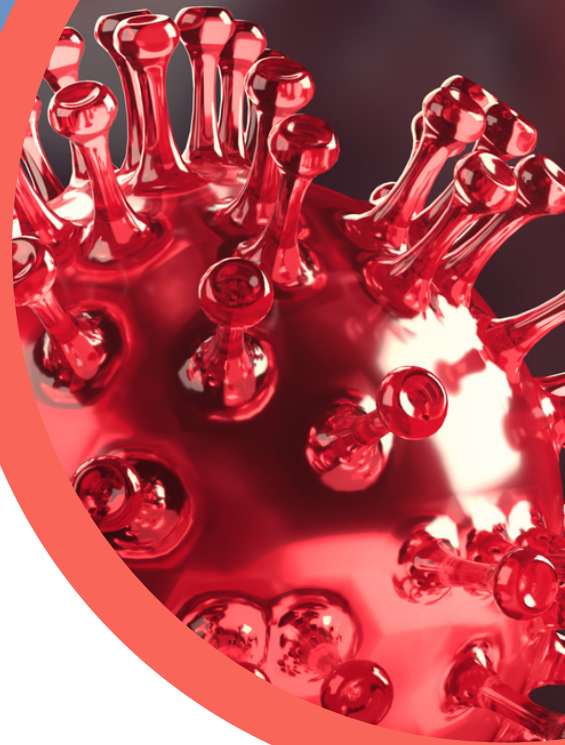
Understanding Covid Vaccination

FROM A SCIENCE & CHRISTIAN PERSPECTIVE

Covid-19: to be or not to be vaccinated?

By James Ussher & Gareth Jones

Vaccination against COVID-19 will be made available to most of us in the coming months (some frontline health workers in our midst have already been vaccinated). For various reasons, this vaccine has caused a great deal of consternation in various communities, including some Christian ones. Some of us in DCBC feel we should provide information to enable you to make up your own minds on this matter. One of us works on vaccines and the other has written extensively on bioethical and Christian issues.



Why do we need vaccines?

The virus, SARS-CoV-2, has caused a massive number of deaths worldwide and left many more sick. As at the 19th May 2021, almost 164 million people around the world had been diagnosed with COVID-19, and more than 3.39 million people have died (both figures are likely to be underestimates). To put it in context, 1 in every 559 people in the US has died from COVID-19 (in New York state it is 1 in 367), and in Brazil 1 in 479. The appalling catastrophe currently playing out in India is a stark reminder that the virus can do untold damage to the health and welfare of any society. Even the United States came close to being devastated by it; although now that 37.9% of Americans are fully vaccinated the rates of infection are falling substantially. While infection is asymptomatic or mild in the majority of people (~85%), the remaining ~15% develop moderate to severe disease, with many requiring admission to intensive care. Patients with COVID-19 are five times more likely to die during hospitalisation than patients admitted with influenza. The risk of death varies markedly by age and underlying illnesses. In the US, approximately 80% of deaths have occurred in those >65 years old. It should be noted however that 50% of hospitalisations have been people <65 years of age, and 50% of those in people less than 50 years old. Persistent symptoms and reduced quality of life ("long COVID") is common, occurring in 30% of patients who have recovered from COVID-19. While mostly a mild illness in children, it can rarely (<1% of infections) cause a severe multisystem inflammatory syndrome that may require admission to intensive care.

Once NZ opens its borders to quarantine-free travel (which it is likely to do early in 2022), the virus will rapidly cross the border and will infect those who are not immune through either past infection or immunisation. Due to underlying health conditions and their treatment, some people may not be able to be protected by vaccination and are at high risk of severe infection. Getting immunised not only protects you against infection but also protects others by reducing the risk of passing the virus on to other people.

Have the vaccines been adequately tested?

The safety and efficacy of the vaccines have been rigorously assessed. The vaccines have all been tested through the normal process of testing in animals, and then through the three phases of testing in humans (clinical trials).

Vaccine development has been greatly facilitated by:

- previous research to understand coronaviruses (such as the original SARS coronavirus that emerged in 2002/2003) and what is needed to make an effective vaccine
- years of research into novel vaccine platform technologies (such as RNA and viral vectors) that can be used to rapidly develop vaccines against emerging threats
- conducting preclinical and clinical trials in an overlapping fashion, as opposed to the traditional approach where results from one stage are awaited before progressing to the next stage of testing
- building manufacturing capacity before clinical trial results were available to allow rapid deployment if the trials were successful and approved by the regulators (see below)
- unprecedented investment from governments and vaccine developers



During the human clinical trials each vaccine has been tested on tens of thousands of volunteers for safety and efficacy (in the case of the Pfizer/BioNTech vaccine, 43,548 people participated in the clinical trials). In these trials, participants are randomised to receive the vaccine (a test group) or a mimic agent (placebo group). To protect against any possible bias, both the trial participants and the trial investigators are blinded to group allocation until the results are analysed; safety and efficacy results are reviewed by an independent group of scientists, clinicians, and statisticians. Clinical trials of COVID-19 vaccines were undertaken in different countries where there were high infection rates, enabling the rapid assessment of the efficacy of vaccines. While the studies have already answered the question about the safety and efficacy of the vaccines, data continues to be collected to provide further information on the ongoing safety and efficacy of vaccines over time.

How can vaccines be approved so quickly?

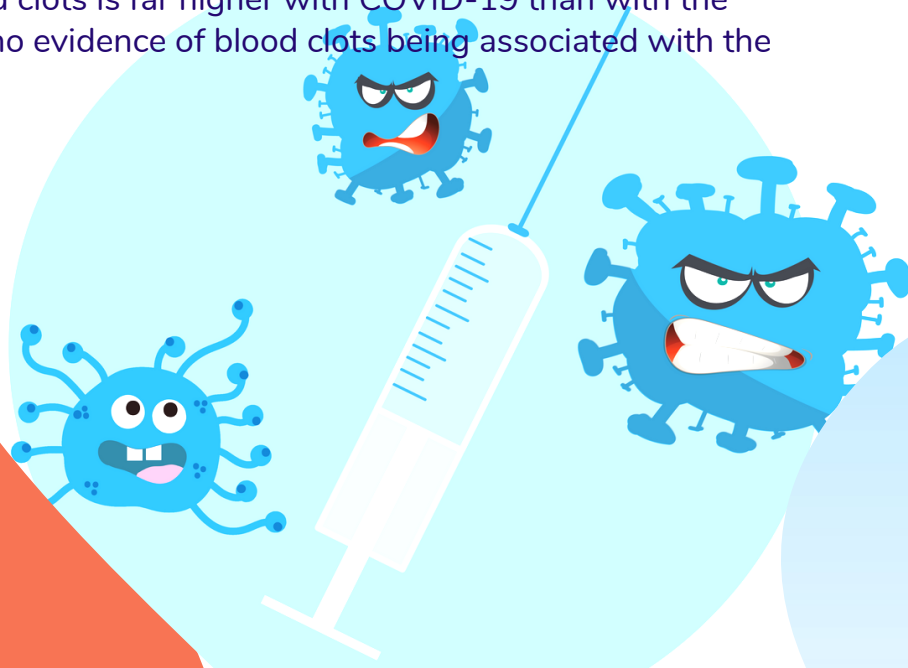
Before vaccines can be used in the general community, they must first undergo a rigorous assessment by each government's regulatory agency (in New Zealand, this agency is Medsafe). The regulatory agency's role is to carefully check all the manufacturer's data on the vaccine, including safety and efficacy data from clinical trials, as well as data on manufacturing and quality control processes, to ensure it is safe and effective. The phenomenal speed of approval has been made possible by governments and research funding agencies throwing vast sums of money and people at the enterprise and with considerable global sharing of data. After all, this is the first worldwide pandemic to devastate the world since the flu epidemic of 1918 (when around 50 million people died). The production of a number of effective vaccines in a remarkably short period of time has been a truly spectacular result, especially since no corners have been cut. Each batch of vaccine that gets released for use has to go through the manufacturer's own quality controlled testing regime that has been reviewed and approved by the regulatory authority.

How safe are vaccines?

These vaccines are extremely safe. Globally, as of the 19th May, more than 1.5 billion doses of vaccine have been given (enough to vaccinate 9.9% of the world's population; unfortunately, there are huge disparities between countries, with a striking divide between continents).

In the US alone, over 147 million doses of the Pfizer vaccine have been administered. Safety continues to be monitored through post-marketing surveillance and safety monitoring systems. We now have a massive amount of experience with the safety of these vaccines. As identified in the clinical trials, these vaccines can cause discomfort (pain at the injection site) and systemic symptoms (most commonly tiredness) for 1 to 3 days.

With the Pfizer vaccine, which is the only one currently available in New Zealand, rare allergic reactions (5 per million doses) have been identified. These are easily managed at the vaccination clinic. With the AstraZeneca and Johnson & Johnson (J&J) vaccines (neither currently available in New Zealand), blood clots have been identified as a rare (~5 in a million doses) adverse effect. The risk of blood clots is far higher with COVID-19 than with the AstraZeneca or J&J vaccines. There is no evidence of blood clots being associated with the Pfizer vaccine.



How effective is the Pfizer vaccine?

The original clinical trial report found the Pfizer vaccine to be 95% effective at preventing symptomatic infection (i.e. COVID-19). A recent update found that the vaccine remained >91% effective up to 6 months after injection. Furthermore, the vaccine was >95% effective in protecting against severe disease. Outside clinical trials, similar efficacy has been seen against both symptomatic and asymptomatic infections. Importantly, several recent studies have demonstrated that vaccination prevents transmission of the virus to unvaccinated contacts.



Is it true that the COVID-19 vaccines contain tissues from aborted fetuses?

The two adenovirus vaccines (from AstraZeneca and J&J) are grown in cell lines that were derived from a single aborted foetus in 1972 (AZ) and 1985 (J&J). Neither foetus was aborted to derive these cell lines. None of the cell lines is present in the purified vaccines.

The Vatican has put out a position statement suggesting that the benefit outweighs any moral harm from the use of these vaccines. Similar views have been expressed by a number of leading evangelical biomedical scientists and theologians.

The RNA vaccines (Pfizer, Moderna) and Novavax's protein vaccine do not use human cell lines for production; it is the Pfizer vaccine that is currently being made available in NZ.

Even with the AstraZeneca and J&J vaccines, one has to ask whether the benefit far outweighs any perceived moral risk (which is for an event that occurred 4-5 decades ago and had nothing to do with the production of vaccines).



Christian perspectives

When asked what is the greatest commandment Jesus reminded his listeners that it is to love God with every element of their being and to love their neighbour as themselves, with its basis in Old Testament law. On another occasion, in response to the question of who is my neighbour, Jesus responded with the parable of the Good Samaritan. The surprising and even shocking aspect of this story is that those who would have been expected to assist walked passed, leaving an alien, a Samaritan, to help and look after him. Together, these two incidents highlight the importance of looking after others, our neighbours, whoever they may be, those who may be affected by our actions and our attitudes, in our communities and farther afield.

The applications of this teaching for the COVID-19 pandemic are legion. The wellbeing of the community is to be our first priority; we are to do everything possible to protect our neighbours from a rampant viral infection because we are all members of the community. As Christians, we are all members of the body of Christ. While this cannot be applied directly to those outside the church, it reminds us that if one suffers all parts of a community suffer. It also points to the contribution all are to make to the well-being of the community.

No one is safe until everyone is safe. The question we have to ask, therefore, is what is best for the community? And not only my community, but the communities of the whole world, since we are all in this pandemic together and viruses do not respect community boundaries. This is obvious when you reflect on the appalling catastrophe currently playing out in India, that could so easily spread to other countries, including Australia and New Zealand.

For Christians considering whether to be vaccinated, there are two pressing questions. The first is whether it is safe and this is best answered by the scientific and clinical community. The second is a Christian one that stems from a love for God and for each other, and this asks "how can I best protect the community and love my neighbour?"



A blackboard with the word "COMMUNITY" written in white chalk. A red heart is placed in the center, replacing the letter 'O'. The blackboard is set against a background of orange and red curved shapes.

Take home lessons

Lesson 1:

We live in a broken world, and the important question for Christians is to ask what humans can do to rectify that which has gone wrong, and correct these problems to the best of our abilities. Humans, as God's creation, are in a position to contribute – at least to a limited degree. We are to help where we can help, and correct where we can correct. We should thank God for the awe-inspiring power of our bodily immune system, and for the doctors and researchers who have developed vaccines to strengthen our immune system. This has prevented countless early deaths and needless suffering over many years, and COVID-19 is no exception.

Lesson 2:

A scientific approach is crucial when confronted with a creation that is broken and is groaning in its brokenness. In Christian terms, public health and allied measures contribute to a partial restoration of creation, including the partial redemption of the bodies of human beings. Consequently, Christians should support these efforts, no matter where they find themselves, as members of society, pastors, teachers or lawyers. Those in public health, epidemiology, or virology should be encouraged to utilize their expertise to inform decision-makers as best they can.

Lesson 3:

Most Christians accept that, historically, vaccination has transformed whole societies for the better. A world in which diseases like smallpox, polio, measles, rubella, and rabies have either been eradicated or controlled is preferable to a world in which diseases like these are rampant. Christians rejoice as they recognize God working through the creativity of scientists and the expertise of the medical profession.

This follows from God's own creative nature, and from Paul's plea that the followers of Christ are to be transformed by the renewal of their minds (Rom 12:2). Their thinking is to be transformed, and they are to gladly accept the healing of the body and mind through medical intervention, and the protection of whole populations by scientifically-based responses to a pandemic. The COVID-19 pandemic fits into a long tradition of illnesses that Christians have had to face over the centuries, and have done their best to cope with them.

Lesson 4:

Christians should love the truth. For instance, the apostle John described Jesus as "full of grace and truth" (Jn 1:14), while Jesus identified himself with the truth: "I am the way, and the truth, and the life" (Jn 14:6).

In preparing to take leave of his disciples, he promised the Holy Spirit, three times denoting the Spirit as "the Spirit of truth" (Jn 14:17; 15:26; 16:13).

A scientific approach to overcoming a viral pandemic is an illustration of discovering that which is truthful and factual. As a result, Christians should be the first to oppose falsehoods, including 'fake news' and conspiracy theories, since they should be grateful for the scientific abilities made possible by God as a reflection of his providence.

Here at Dunedin City Baptist Church we are blessed to have some very qualified people to help answer these questions and share their Christian perspectives.

This pamphlet was the basis for an evening forum with these people:
Simon Walker (Chairperson – Bioethicist)
James Ussher (Medically trained Scientist & Researcher)
Gareth Jones (Bioethicist)
Susan Grindlay (GP Doctor)
Blair Donkin (Senior Nurse)
Andre van Rij (Surgeon)

May 2021



Recommended further reading about the pandemic, and especially Christian responses to it:

Tom Wright, God and the Pandemic
SPCK, 2020 (ebook available)

John Lennox, Where is God in a coronavirus world?
The Good Book Company 2020 (ebook available)

Kristi Mair and Luke Cawley (eds), Healthy Faith and the Coronavirus Crisis
IVP/UK, 2020 (ebook available)



We are happy for this document to be used more widely.