NEW ZEALAND PFIZER VACCINE EFFICACY & SAFETY

Cases, Hospitalisations & Deaths

The graphics on this page are produced using the regular updates on the Ministry of Health website. Where population data is required, it is sourced from Statistics NZ. The spreadsheets are here. The Seven Day Averages are updated weekly, and the remainder of the graphs are updated most days (update: in September 2022 the MoH dropped to weekly data updates instead of daily).

Note: On July 7th there were some significant anomalies in the MoH data. They affect all data following this date. The anomalies are explained here.

Note (16/10/22): The update scheduled by the MoH for the 10th October is still not available. A note on the page explains:

Update 10 October 2022: *We are currently reviewing our hospitalisations data. As a result, this page will be updated later this week.*

When there was a delay in the data in July, the trend for increased hospitalisation risk in the vaccinated started to reverse. For a brief period, the increased risk shifted back to the unvaccinated, however more recently the trend has reversed back to an increased risk for the vaccinated. It doesn't make sense for the data to be flipping back and forth like this, so it is most likely attributable to changes made to the way data is categorised or presented by the MoH. It will be interesting to see what the trend is following this latest data delay. Note (17/10/22): The data is now updated. The vaccinated are 2.3 times more likely to be a case than the unvaccinated. The risk for hospitalisation is the same for both groups. Case numbers haven't increased noticeably, but hospitalisations have gone up dramatically. The MoH have changed some aspect of their categorisation (apparently they had missed c30,000 hospitalisations??).

Note (29/10/22): The MoH stopped providing comprehensive data on the vaccination status of the population. Vaccination uptake had slowed sufficiently by this point, that the lack of updated data ought not make an appreciable difference to percentages in each group.

I HAD MY ANTIBODIES MEASURED & WROTE ABOUT SEROLOGY, & VACCINATED vs NATURAL IMMUNITY HERE.

Note: The MoH stopped reporting comprehensive data regarding vaccination stats after September 2022, so the vaccine data in my spreadsheet will be less accurate following this period. It seems unlikely that the proportion of population who had elected to remain unvaccinated by the end of 2022 would change much moving forward, so the graphs are probably not too far off, despite the lack of accurate vax data.

OBSERVATIONAL DATA AND INTERVENTIONAL DATA

The graphs on the page use **observational data** provided by the MoH: We are watching this play out in real-time, we don't get to decide who receives the vaccine, and we are unable to control for all the potential confounding variables which may affect the data.

An example of how confounding variables may affect the data: The elderly have the highest rate of receiving boosters, so this may make boosters look worse, because elderly people are more likely to die than young people, regardless of any effect from the booster. However, Māori and Pacific Islanders are less likely to be vaccinated. We are told that these communities have poorer health outcomes across the board, so we would expect this to create an appearance of poor outcomes in the unvaccinated. Confounding variables could be working both for and against the appearance of vaccine efficacy.

This MoH does not release sufficient data for us to adequately describe confounding variables, so we are left to **interpret the data at face value** - we must bear in mind that this interpretation is weakened by the lack of comprehensive data. If the vaccine were effectively reducing infection and severe illness to the degree that we were promised, one would expect the blue and red columns (cases and hospitalisation) to be smaller than the yellow columns (percentage of population by vaccination status) for the vaccinated.

Randomised controlled trials (RCTs) provide **interventional data**: A carefully selected group is given an intervention, and a comparable 'control' group is given a placebo, and the two are compared for outcomes. The groups are 'blinded' - individuals do not know whether they have received the intervention or the placebo. This is because, in most cases, knowing that you have received an intervention makes a significant difference to the outcomes. It is unfortunate that the original Pfizer trials were unblinded only a couple of months after they started, so we have no high quality long term efficacy or safety data. It is much easier to control for confounding variables in an interventional study.

At face value, it is hard to marry what we see in the data with the 'pandemic of the unvaccinated' rhetoric.

MISCATEGORISATION

Before we look at the MoH data, we need to understand how they miscategorise vaccine recipients. **The Ministry does not count an individual as having received a vaccine until a week after they have had the injection.**

Miscategorisation One: Stacking the data

In the first week after receiving a vaccination there is evidence that people become *more* likely to contract covid. This may be because of a **transient vaccine-induced alteration of haematological parameters leading to immunosuppression**. This involves a significant increase in the neutrophil:lymphocyte ratio - which is also a consistent finding in severe and fatal covid cases. It may be that catching covid during this period of immunosuppression could result in more severe outcomes, in which case it would be prudent to advise recently vaccinated individuals to isolate for a week or two. I am working on some further notes on this topic here.

Because the vaccination is not counted for the first week after it is administered, the individual will still be counted as a covid case in their previous category - thus unfairly stacking the lower categories.

For example: An individual is counted as unvaccinated until a week after their first dose; and an individual is counted in the two-dose category until a week after they receive their booster. Figures 1 and 2 illustrate how cases are moved down a category - leaving the boosted looking like they are doing better, and the unvaccinated like they are doing worse.

Figure 1

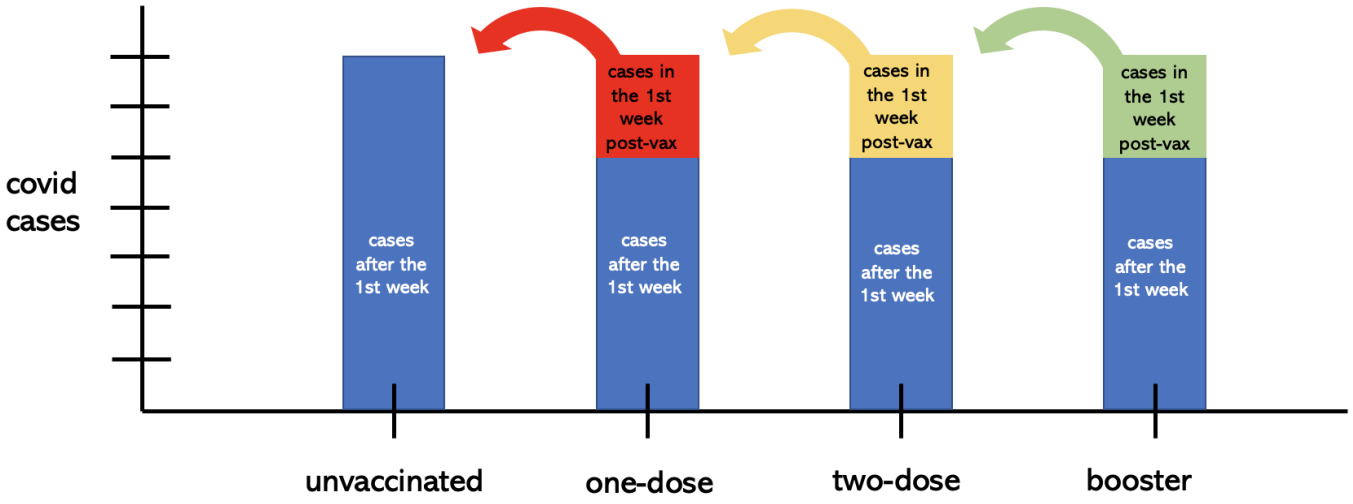
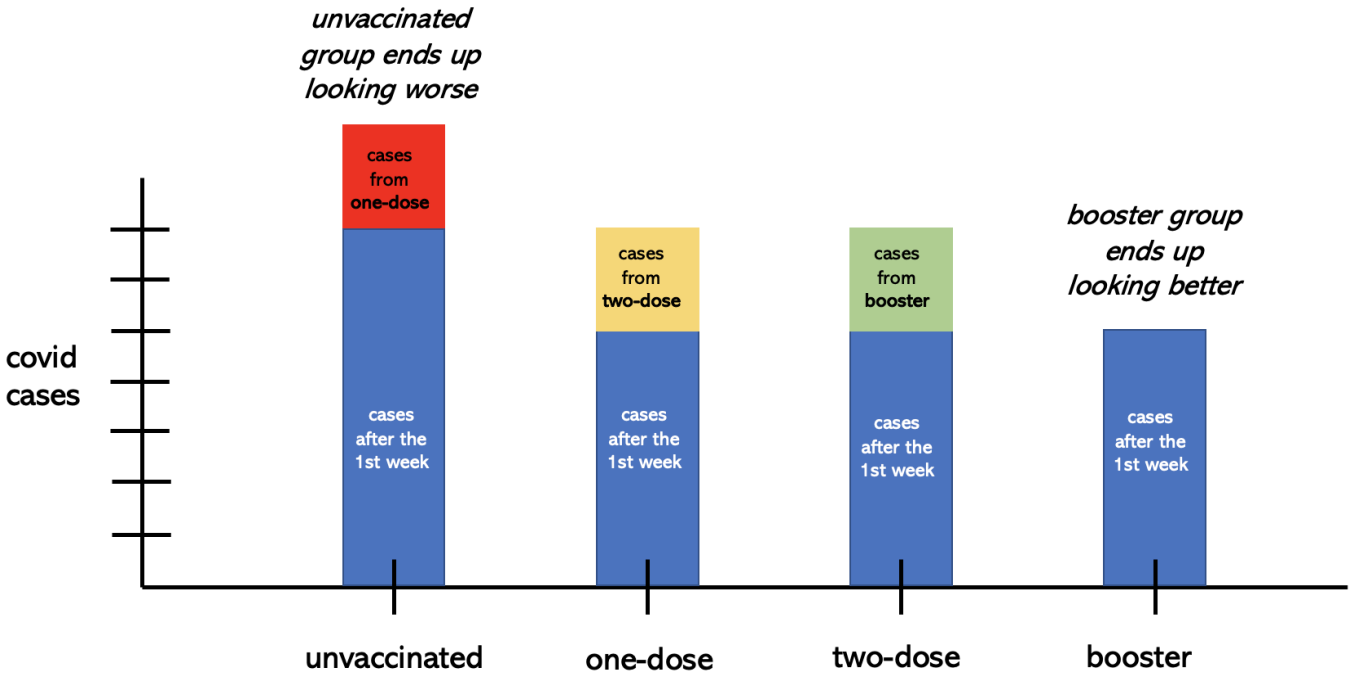


Figure 2



The justification for the week-long delay is that the immune protection from the vaccine does not kick in right away. But this only considers the benefits of the vaccines. As well as the potentially greater risk of infection in the first week, there will also be adverse events - the majority of which occur in the first 48 hours. The effects of the vaccine should be considered from the time of injection.

Professor Norman Fenton (Emeritus Professor of Risk, Queen Mary University of London) demonstrates beautifully how this miscategorisation creates an illusion of vaccine efficacy, where none exists. His article is arguably one of the most important covid reads.

Miscategorisation Two: Ignoring the children

If a vaccinated 5-11 year old (of which there are over a quarter of a million) becomes a covid case, hospitalisation or death the MoH counts them all to the unvaccinated category.

SEVEN DAY AVERAGES

(*The MoH moved to weekly data releases in September 2022, so the 7 day averages are no longer needed and will be replaced with a 7 day snapshot)*

Figure 3: Seven day ~~averages~~ snapshots

Figure 3 shows seven day ~~averages~~ snapshots for:

- the **proportion of the population in each vaccination group** (yellow)
- the **proportion of total case numbers** (blue)
- the **proportion of hospitalisations** (red)
- The group called '**any vax'** includes anyone who has had *at least* one dose. In order to accurately measure how the unvaccinated are tracking, we need to be able to compare them against anyone who is *not* unvaccinated.

- Example: For the ‘dose2’ group: 29% of the population have had 2 doses, they make up 12.6% of covid positive hospitalisations, and 19.1% of cases are in people who have had 2 doses. A group is doing well when its red and blue columns are shorter than its yellow column (i.e. they are under-represented in hospitalisations and cases).

Figure 3

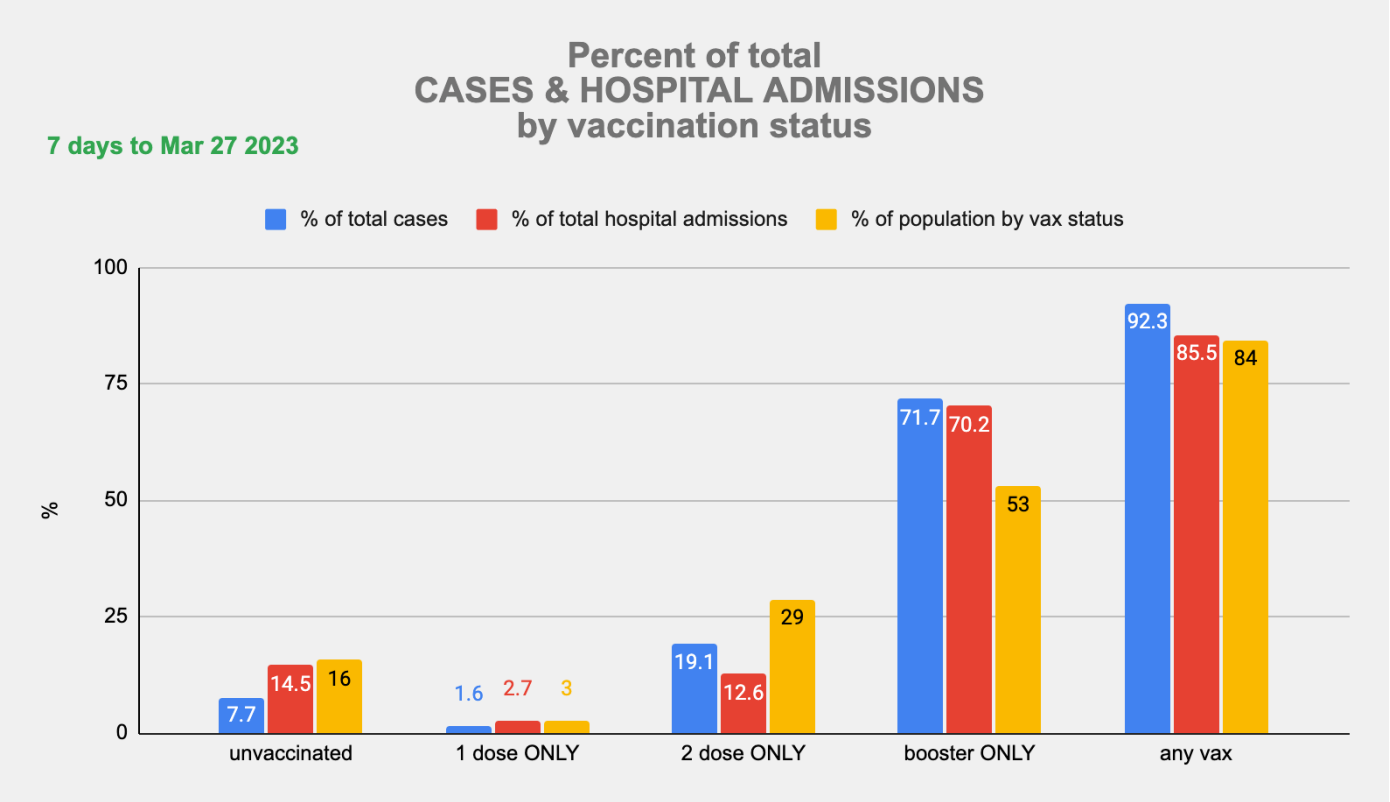


Figure 4: Cases and hospitalisations rates /100,000 in each category

Case rates are highly unreliable, because some people are more or less likely to test, or to report an infection than others. Hospitalisation rates are more reliable, because everyone who goes into hospital gets tested. The MoH does not tell us how many people are being admitted *because* of covid, rather than *with covid,* so the actual numbers are a misrepresentation, however these graphs are still useful for:

- identifying trends,

- and comparing the performance of the different categories.

Figure 4

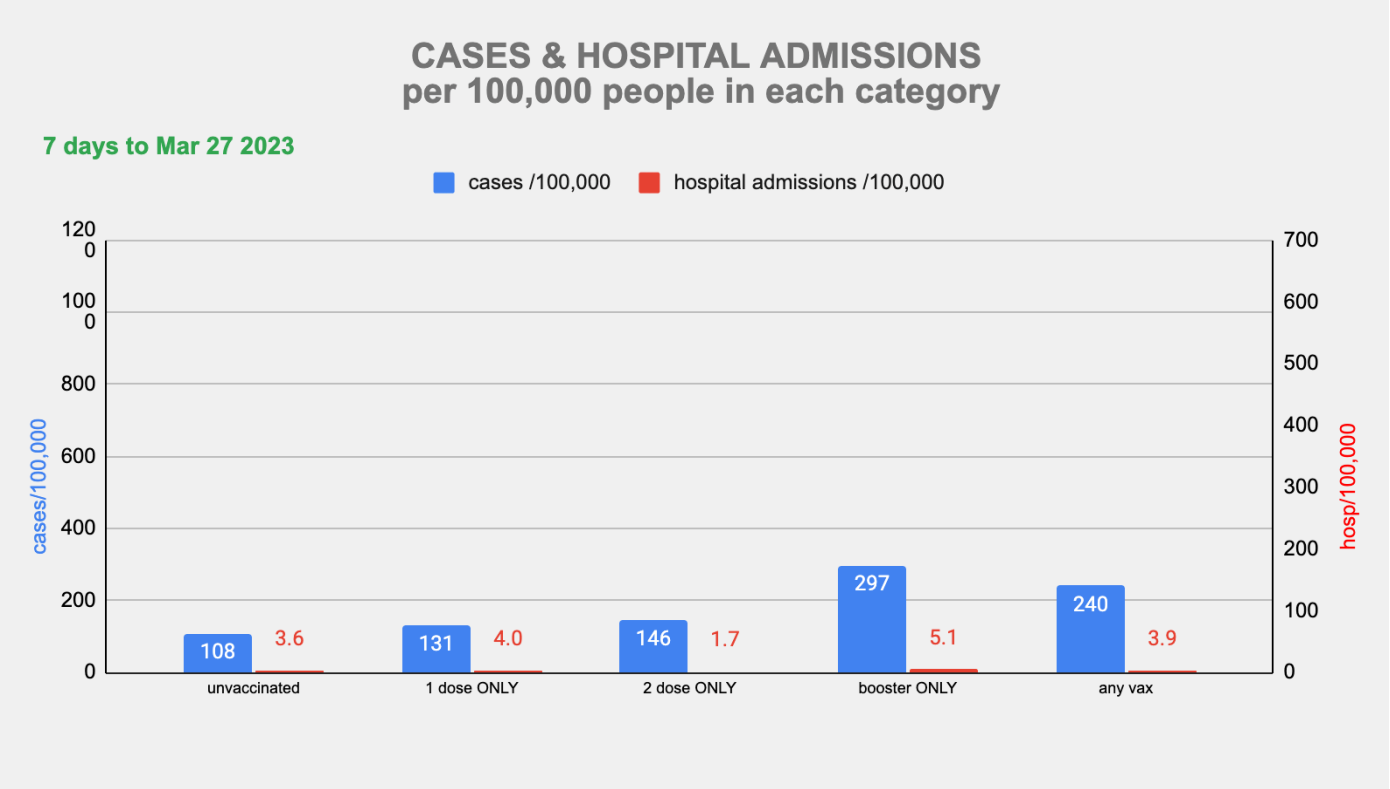
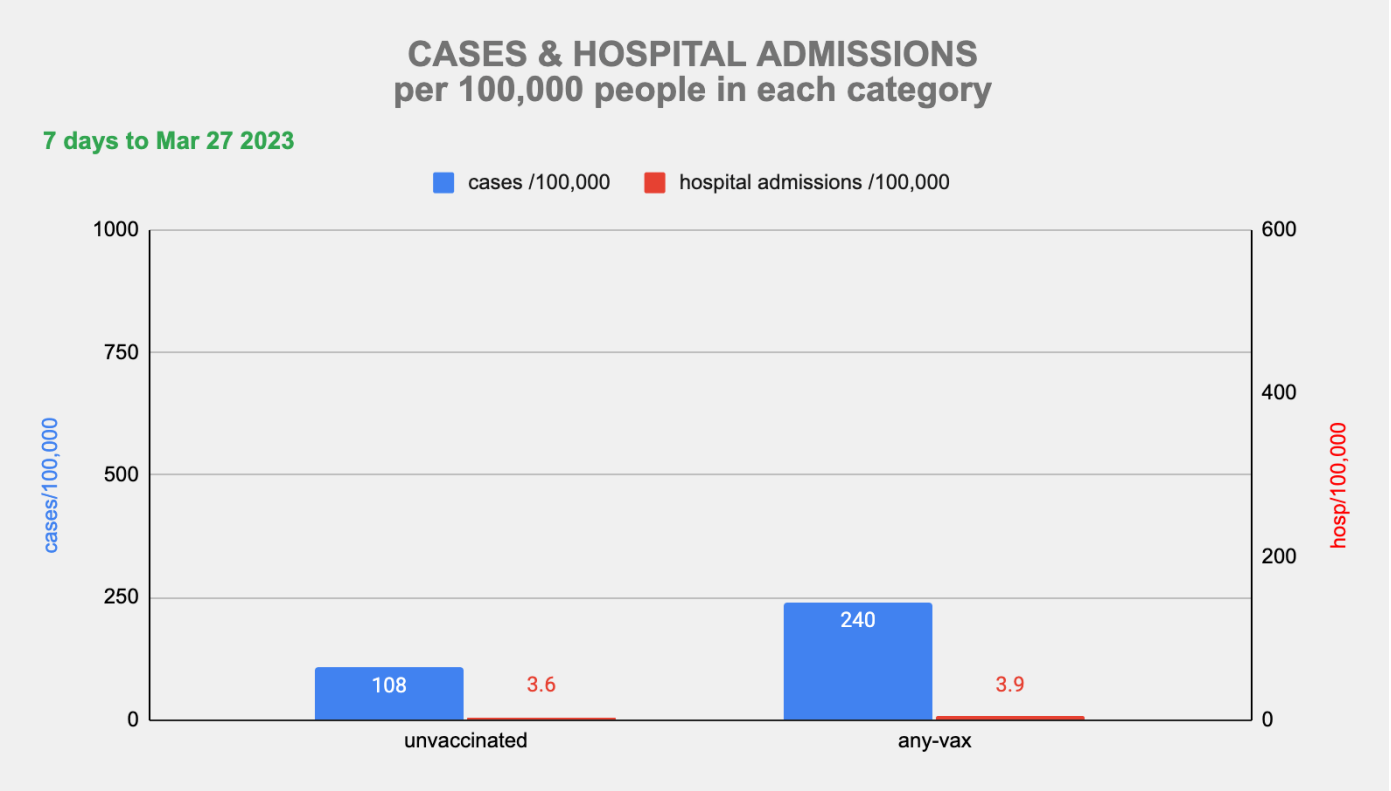


Figure 5: Unvaccinated vs vaccinated

The unvaccinated are compared with everyone who has received at least one dose.

Figure 5



DAILY SNAPSHOTS & TRENDS

The MoH shares the data in a cumulative fashion. Snapshots can be elicited by subtracting each day from the next.

Note: The MoH changed some of their classification methods in July - it is unclear exactly how the parameters were moved, but you can see that the trends shift somewhat following the change. Around 6000 hospitalisations were removed from the vaccinated tallies, and just under 500 were removed from the unvaccinated. The boosted group was diverging significantly for cases and hospitalisations, but they are now tending towards convergence. This is at odds with the covid mortality data which shows the convergence continuing at an increasing pace.

Figure 6: Fluctuation in case numbers by vaccination status

Initially, data stacking (described above) enhanced any transient vaccine efficacy, meaning that the boosted category looked like it was doing really well, but the dose-two category looked bad.

Figure 6

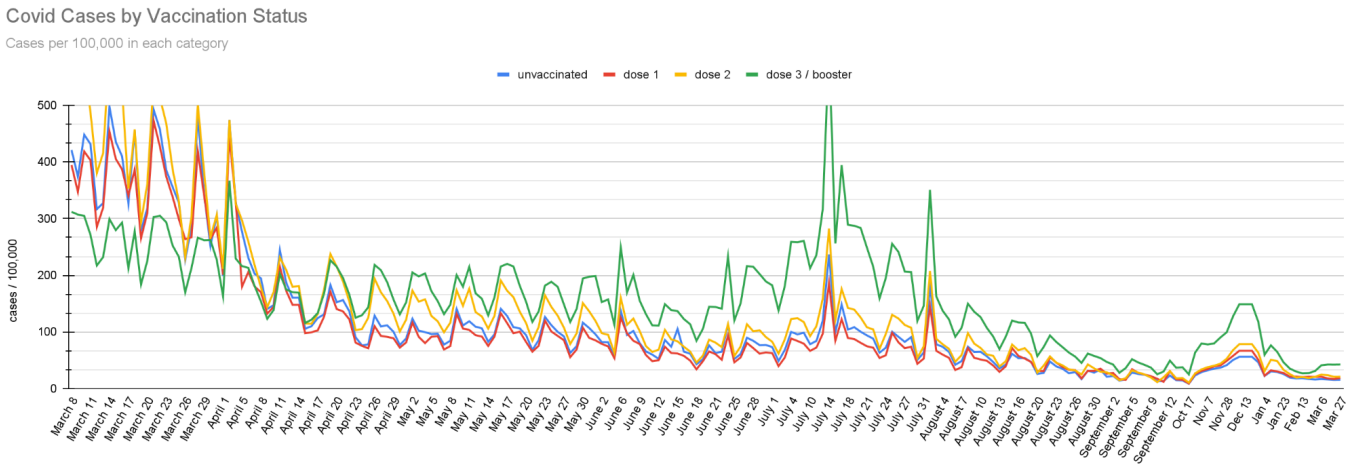


Figure 7: Unvaccinated vs vaccinated

Trend lines are plotted so that we can see more clearly where the data is heading. They crossed in early-mid April at which point vaccine efficacy for cases became negative (the vaccinated became more likely to catch covid). The same thing happened with hospitalisations about ten days later.

Figure 7

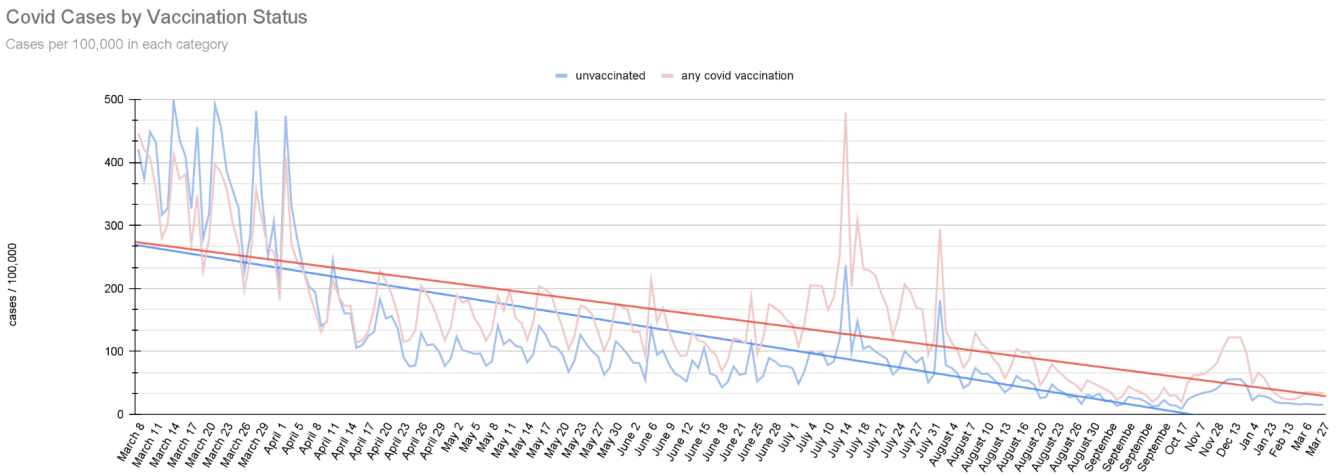


Figure 8: Fluctuation in hospitalisation numbers by vaccination status

Note: MoH found a lot of 'missing' hospitalisation data in early October, hence the uptick.

Figure 8

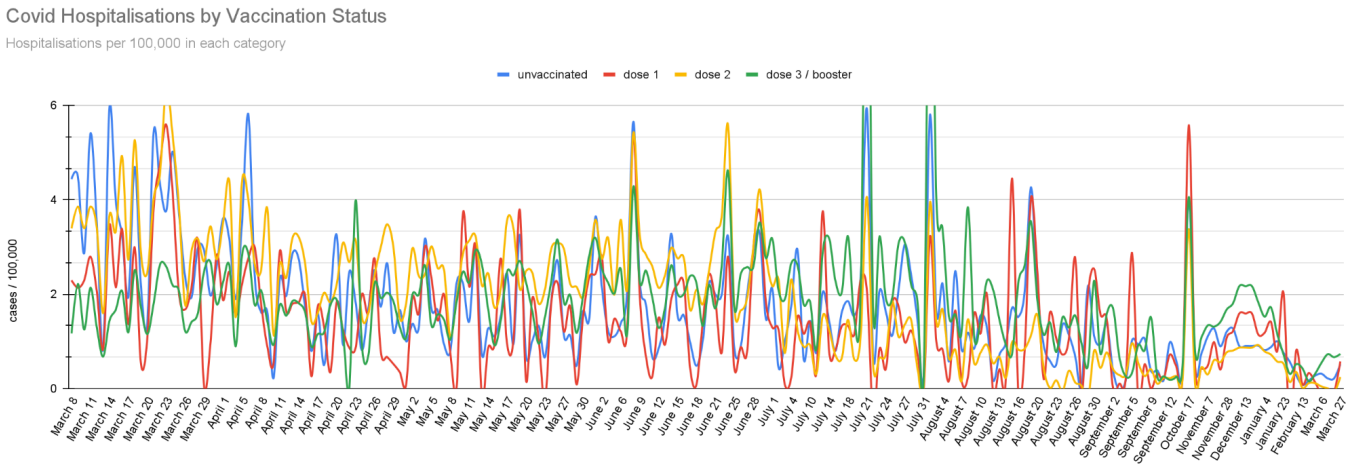
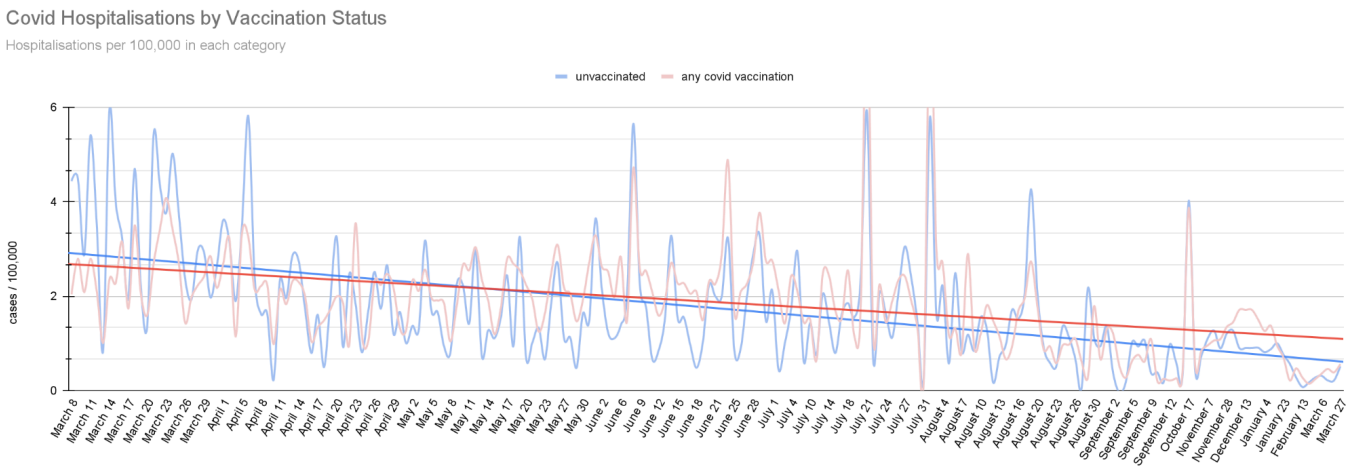


Figure 9: Unvaccinated vs vaccinated

Note: MoH found a lot of 'missing' hospitalisation data in early October, hence the uptick.

Figure 9 includes trend lines. The trend lines crossed in mid-late April at which point vaccine efficacy for hospitalisations became negative (the vaccinated became more likely to become hospitalised with/from covid).

Figure 9



DEATHS

Deaths WITH covid

The MoH counts all deaths as covid-deaths if they occur within 28 days of being 'reported as a case.' Deaths from unrelated conditions (for example, they include a man who was shot in his driveway whilst being covid positive) are included in the count as long as the individual was reported as a case within the last 28 days. **The media and the MoH routinely refer only to the deaths *with* covid when addressing the public. This creates an impression of greater mortality due to covid.** (N.B. The MoH recently announced that they would shift the focus to

deaths *from* covid. Despite this announcement, they still only provide vaccination status for deaths *with* covid - so I will continue to use these deaths in my graphs - the raw numbers will be debatable, however the graphs are still useful for monitoring trends).

For deaths *with* covid the MoH combines the unvaccinated group with the one-dose group. These two groups are not equivalent. It is possible that people in the one-dose group did not get further vaccinations because they suffered more adverse reactions than the other groups - thus they may be sicker overall. This would make the unvaccinated group appear to do worse. Regardless, it is unnecessary and inaccurate to put vaccinated deaths into the unvaccinated group.

Deaths FROM covid

The MoH provides the deaths *from* covid: **the number of deaths for which Covid-19 is coded as the underlying cause** (currently running at a little under half the 'deaths *with* covid' count). Deaths *from* covid can occur more than 28 days after being reported as a case.

An OIA request revealed that, prior to the August 2021 cluster, 5 of the 22 covid deaths never tested positive for covid (one was not tested, and four tested negative). Thus, it appears that **an individual can be coded as a death *from* covid even if they have tested negative to covid.**

Figure 10: Proportion of deaths relative to proportion of people in each vaccine category

Figures 10 shows:

- % of the **population** who are **boosted/dose 3** (pale green)
    - % of **deaths** in the **boosted** (dark green)
- % of the **population** who are **dose 2** (pale yellow)

- % of **deaths** in the **dose 2** (dark yellow)

- % of the **population** who are **unvaccinated** or **dose 1** (pale blue)
  - % of **deaths** in the **unvaccinated** or **dose 1** (dark blue)

The vaccine appeared to have initial efficacy against death, especially back in March 2022. This efficacy dropped over the next few months, and by the end of June, **unvaccinated people are underrepresented in covid-related deaths.**

The boosted are showing increasing negative efficacy. **Boosted people are the most likely to die from/with covid.** This may be due in part to a higher number of elderly people in the boosted group, however this effect will likely be somewhat tempered by the overrepresentation of Māori (who have higher all-cause mortality than other groups) in the unvaccinated group. Detailed data would be required to analyse the extent to which confounding variables are affecting the outcomes.

Figure 10

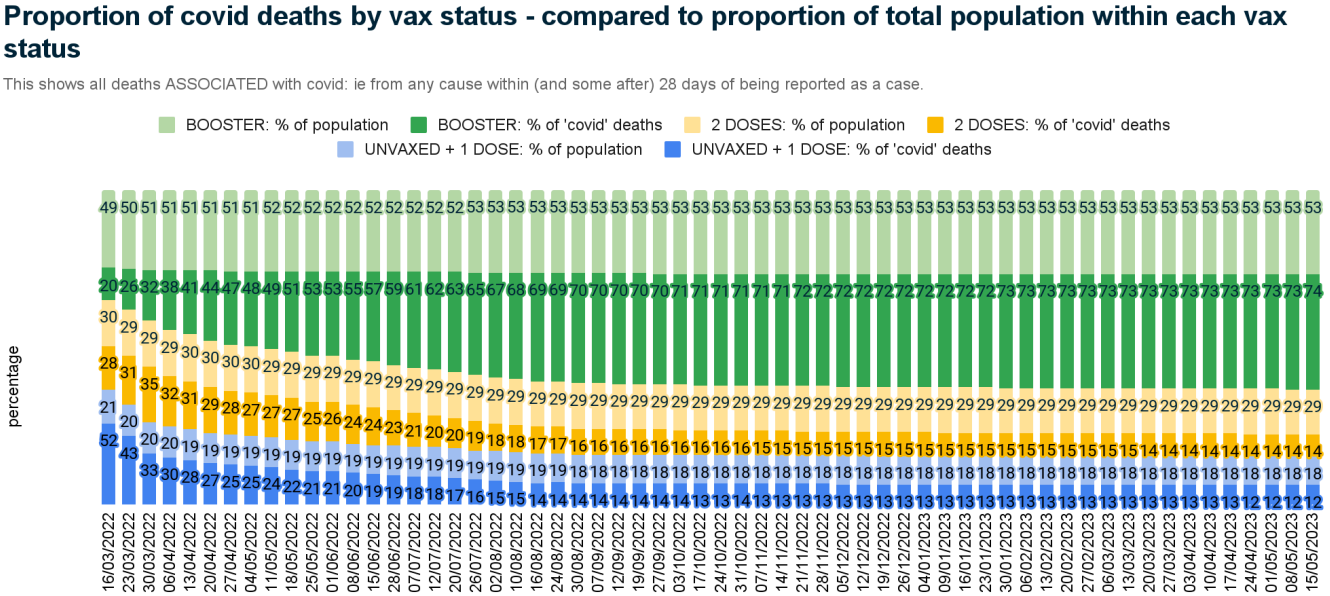


Figure 11: Unvaccinated deaths

The MoH combined the deaths of the unvaccinated with the one-dose deaths. In figure 11, the two groups are separated out by taking the proportion of the population in each group, and assigning that proportion to the deaths - thus shifting some deaths from the 'unvaxed + dose 1' group into a 'dose 1 + dose 2' group, and leaving a clean 'unvaccinated group.' This is a crude attempt to make up for the data fudging, and cannot be relied upon to be wholly accurate. It does, however, demonstrate that combining the unvaccinated and the one-dose group is likely to be somewhat misleading.

Figure 11

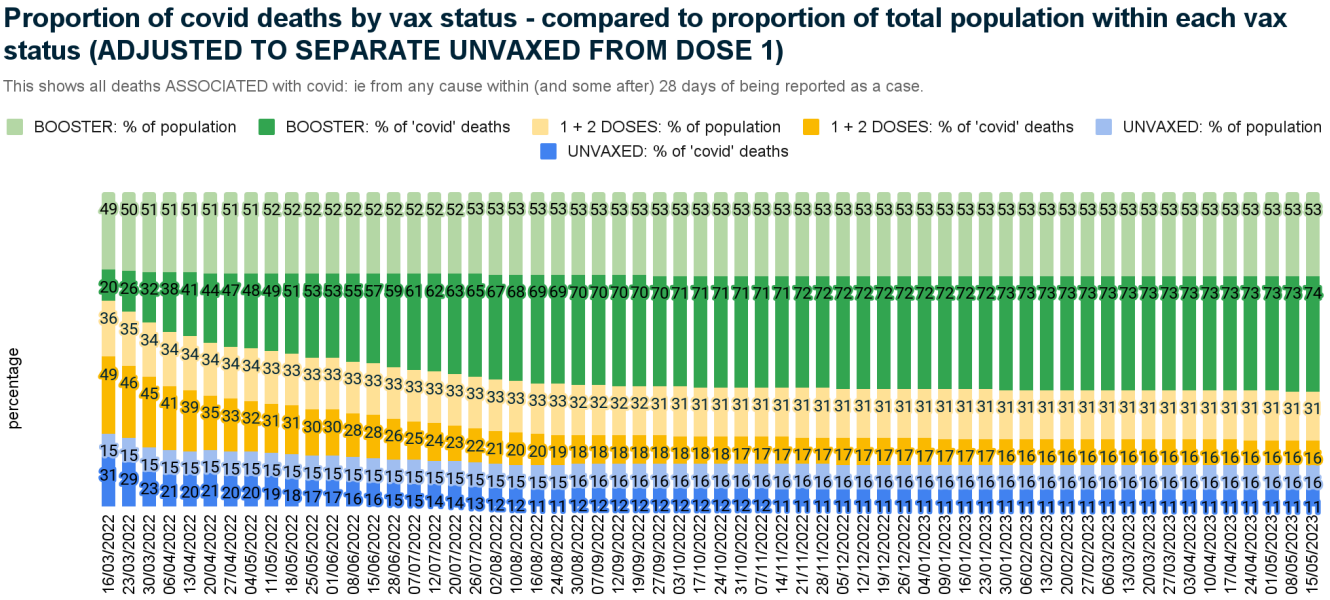
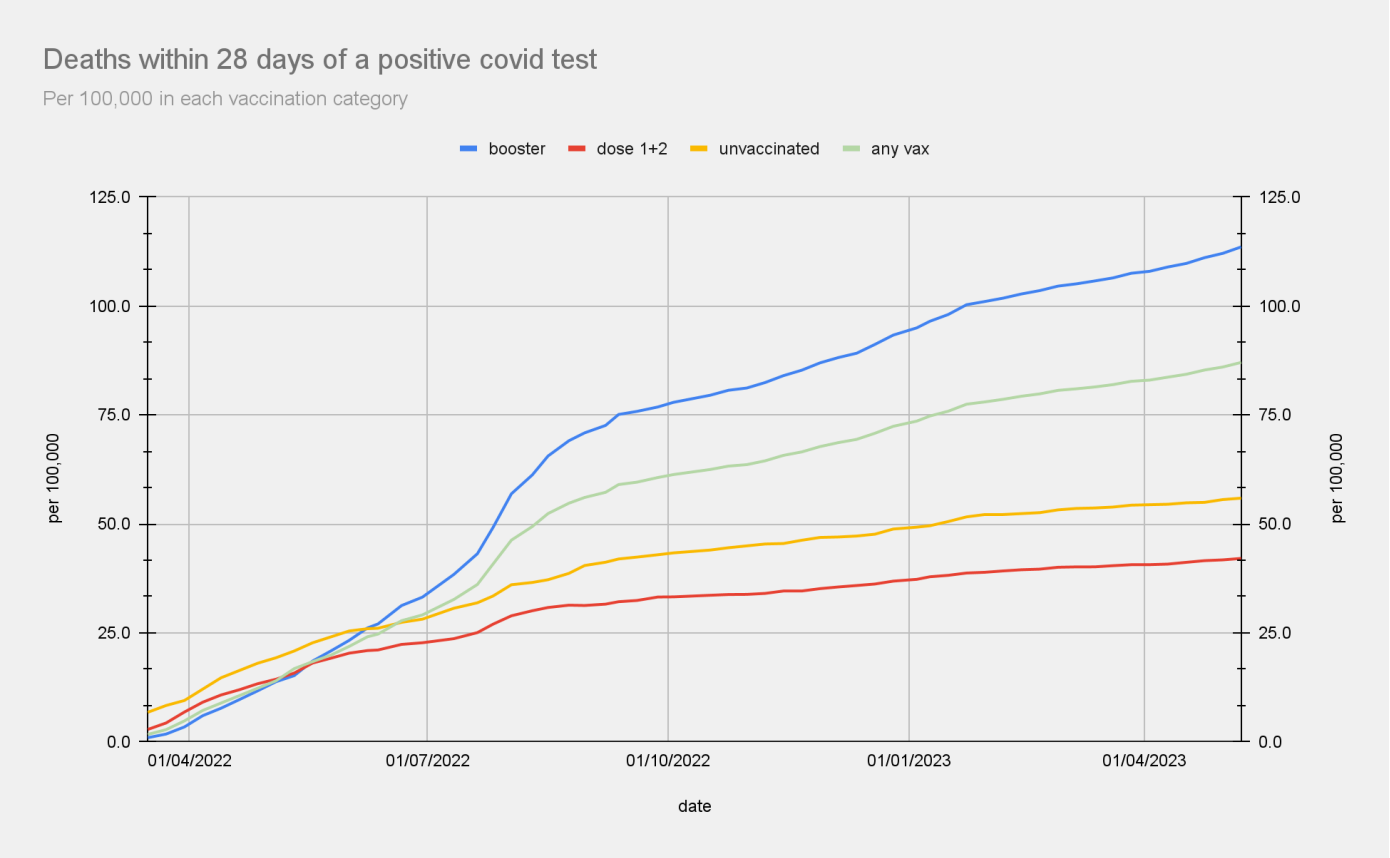


Figure 12: Deaths per 100,000 in each category

Figure 12



NEW ZEALAND PFIZER VACCINE SAFETY - PAEDIATRIC MYOCARDITIS

Timeline

December 2020: The original Pfizer trial, upon which approval was based, had the following outcomes:

- In the intervention group (vaccine recipients) there were 20 deaths, 9 of which were cardiovascular.
- In the placebo group there were 14 deaths, 5 of which were cardiovascular.

June 2021: Peter Doshi (Associate Professor of the University of Maryland School of Pharmacy, and Senior Editor of the British Medical Journal) pointed out that the increased risk of myocarditis in children following the mRNA vaccines was known about in April of 2021.

September 2021: 12-15 year olds included in New Zealand's vaccine rollout.

September 2021: Starship hospital published guidelines for health professionals regarding diagnostic procedures for post-vaccinal myocarditis. It included a chart showing the expected cases-per-million for post-vaccinal myocarditis across age groups. The numbers in this chart are dwarfed by the actual figures reported by Medsafe in New Zealand.

October 2021: Dr Jin Russell (a New Zealand paediatrician who has been a high profile promoter of covid vaccination for children) reassured parents that post-vaccinal myocarditis only affects about 1 in every 25,000 young people and that:

> *"The important thing to say about myocarditis after the Pfizer vaccine is that it is rare and it's generally mild and self-limiting. In other words, it doesn't need any specific treatment people do recover [sic]...However, what people need to know is that the risk of having myocarditis after being infected by Covid-19 is much higher."*

Russell expressed her concern about *"misinformation spreading on social media."* Jacinda Ardern has repeated the "*mild and self-limiting*" reassurance in her communications with parents.

December 2021: A study from Oxford University showed that the risk of myocarditis from the Pfizer vaccination outweighed the risk of myocarditis following SARS-CoV-2 infection in anyone under 40 years old. The risk was most concentrated in young men in their teens and twenties.

December 2021: Director General of Health, Dr Ashley Bloomfield, sent an urgent warning letter to health care providers, urging them to promptly diagnose and treat post-vaccinal myo- and pericarditis, which he described as a *serious* adverse event.

January 2022: New Zealand rolled out the Pfizer vaccine to children aged 5-11. Over a quarter of a million children in this age group have received at least one dose. The uptake of a second dose has been considerably lower in this group relative to other ages.

Is myocarditis mild and self-limiting?

Myocarditis is inflammation of the myocardium (heart muscle) with necrosis (death) of cardiomyocytes (heart muscle cells). The dead cells are replaced by fibrous tissue (scarring). The non-contractile scarring replaces previously functioning contractile muscle, thus reducing the functioning of, and increasing the load on the heart. The heart has a limited lifespan. If the load is increased, the lifespan of the heart will decrease. This is apparent in studies investigating the prognosis for children who suffer myocarditis.

A review in the Journal of Cardiovascular Development and Disease (2016) reported on a long-term study examining the prognosis of children who suffered from myocarditis. The study found that at 20 years post-diagnosis 44% of children had either required a heart transplant, or died.

> *"According to Peta and co-workers' 20-year study of 175 children with myocarditis, survival free from death or transplantation was 74% at one year, 65% at five years, 62% at 10 years, and 56% at 20 years."*

Early diagnosis and treatment will preserve more functioning heart muscle. The symptoms of myocarditis mimic other conditions such as anxiety and reflux. When he sent his letter, Dr Bloomfield was no doubt aware that young people were presenting with these symptoms, and not being worked up for a myocarditis diagnosis. Many people will have experienced symptoms such as a fluttering heart beat, or fatigue, and not sought or received medical help. There may be a significant number of undiagnosed and subclinical myocarditis cases in the community, which could have important impacts on future disease morbidity and mortality.

The Medsafe Safety Report #41

Safety Report #41 included a section on myocarditis and pericarditis. This section is absent in the other reports. Report 41 explains that:

- Most myocarditis is from viral infection.
- The New Zealand data from the Global Vaccine Data Network (GVDN) indicates a background rate of non-infective myocarditis (*thus potentially vaccine-induced)* from 2011-2019 of 1.81/100,000 person-years. The GVDN provides data from 2008-2019, for

which the overall expected rate was 1.95. I have used the 2008-2019 range for the comparisons below.

- CARM had received **360** reports of myocarditis / pericarditis / myopericarditis (up to March 1st 2022). Reports were only accepted if they happened within 30 days of vaccination.

Safety Report #41 lumped myo- and pericarditis together, so the suggested background rate for myocarditis in the report is of little use unless we tease out the myocarditis data.

According to the **Medsafe AEFI data sheet** (accessible via the link at the end of Safety Report #41, current to 28th February, 2022) there were actually **687** reports (262 myocarditis, 347 pericarditis, and 78 myopericarditis). This is considerably more than the 360 reports mentioned in Safety Report #41. It is unclear as to what has caused the discrepancy, and I can not find an explanation. The AEFI data is summarised below:

Medsafe AEFI data	
myo only	262
peri only	347
myo+peri	78
total	687

The data for myocarditis and pericarditis from the Medsafe AEFI data sheet can be viewed here. It shows a considerable increase in myocarditis risk (relative to expected rates) following the Pfizer vaccination. This has been seen in other countries around the world. A Nordic study was published in JAMA last month demonstrating the increase in observed rates in Denmark, Sweden, Finland and Norway:

> *"Results of this large cohort study indicated that both first and second doses of mRNA vaccines were associated with increased risk of myocarditis and pericarditis. For individuals receiving 2 doses of the same vaccine, risk of myocarditis was highest among young males (aged 16-24 years) after the second dose. These findings are compatible with between 4 and 7 excess events in 28 days per 100 000 vaccinees after BNT162b2, and between 9 and 28 excess events per 100 000 vaccinees after mRNA-1273."*

The following two figures, from Safety Report #41, are a summary of myo/pericarditis following Pfizer vaccination in New Zealand, according to Medsafe.

Figure 3: Ages of people reported with myocarditis/pericarditis after Comirnaty vaccination in New Zealand, by dose number, up to 1 March 2022

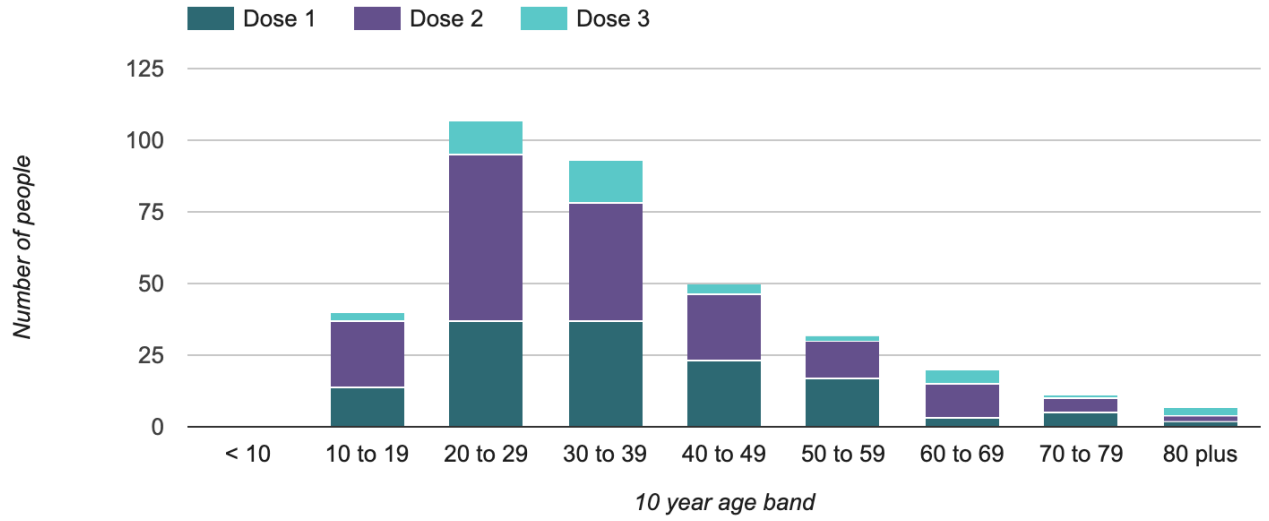
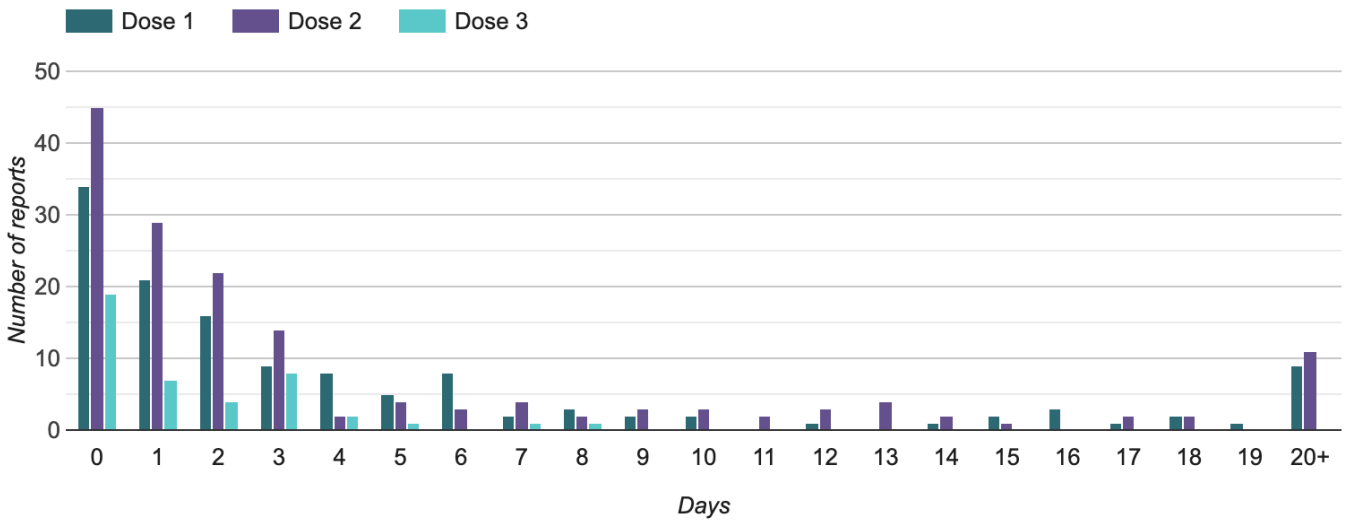


Figure 4: Time to onset of symptoms of myocarditis/pericarditis after Comirnaty vaccination in New Zealand, by dose number, up to 1 March 2022



The Medsafe AEFI Spreadsheet Data

AEFI stands for ‘Adverse Events Following Immunisation’. Presumably this data relates to adverse events following vaccination, rather than just immunisation. Vaccination precedes immunisation, and immunisation does not necessarily occur following vaccination. Bear in mind that there is an Underreporting Factor (URF) inherent in adverse event data collection. In his letter to health

professionals, Bloomfield warned that the true incidence is unknown due to being *"potentially underreported."* There is enough international research on adverse event reporting to know that underreporting is a certainty. This means that the observed rates graphed below will be an underestimate.

Figure 1: Observed myocarditis rates /100,000 within 30 days of Pfizer vaccination

While the distribution is similar to the graphic published in Safety Report #41, the numbers are considerably higher. Most countries seem to have found a higher risk in males. This risk difference is small in New Zealand. Is this because males are less likely to develop this adverse event in New Zealand, or less likely to report it?

Figure 1

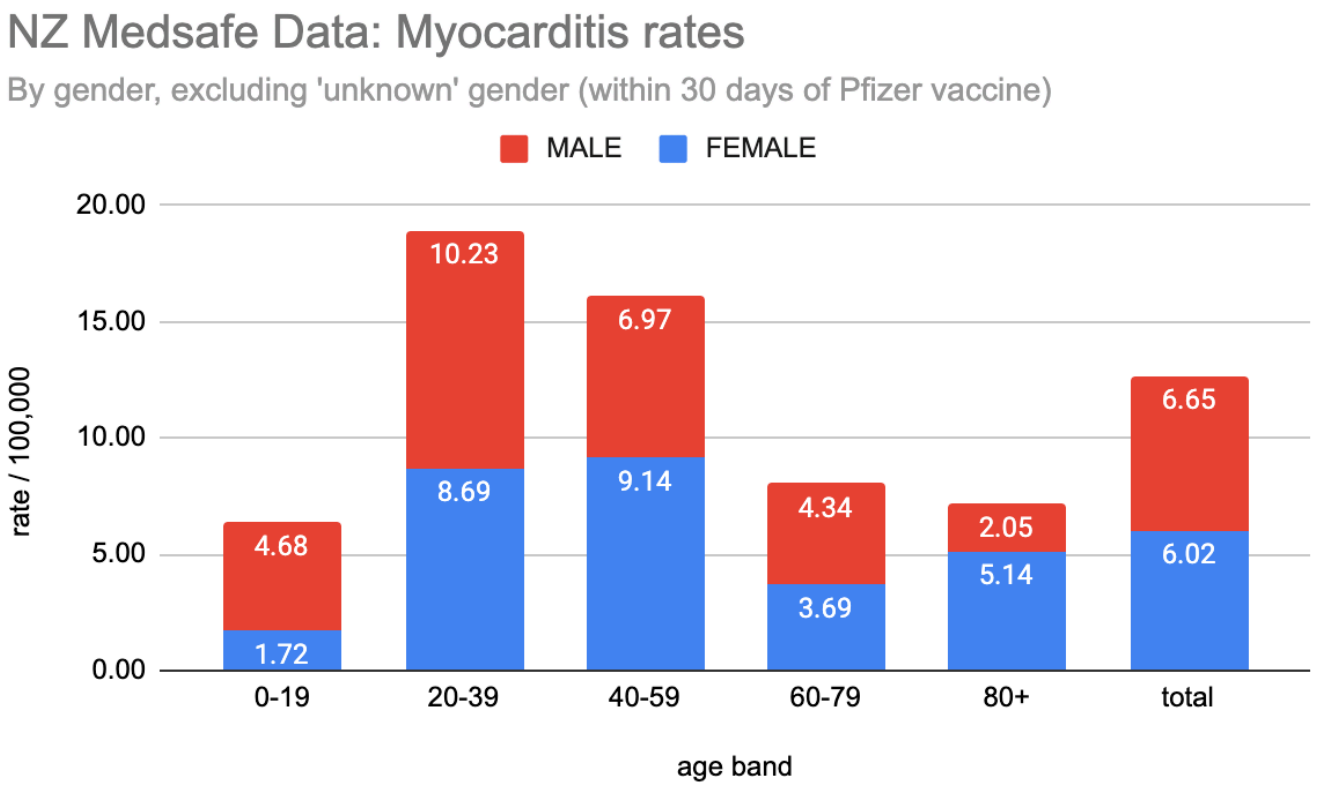


Figure 2: Observed rates by dose number

Fewer people have received dose 3 at this stage, so these proportions may change over time.

Figure 2

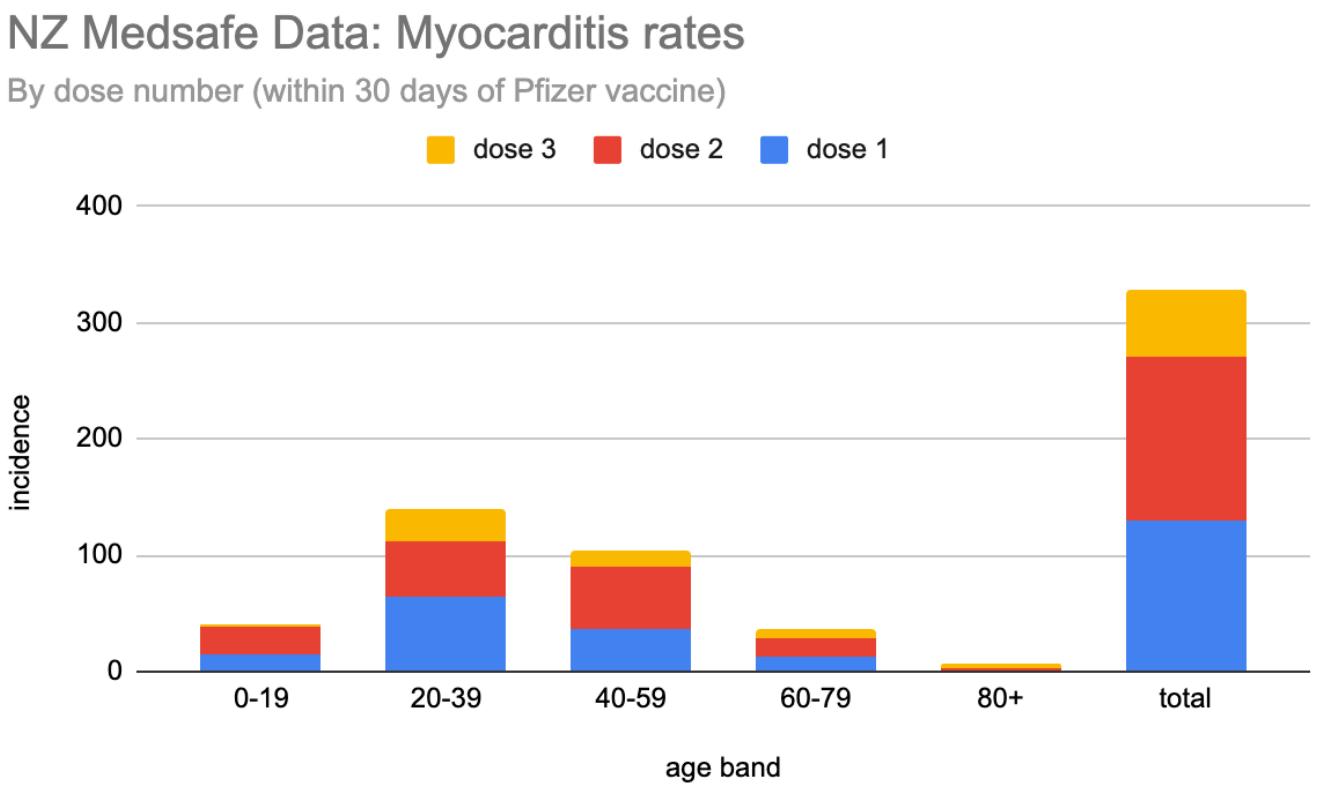


Figure 3: OBSERVED rates alongside EXPECTED rates of myocarditis

Observed rates are from the Medsafe AEFI report. Expected rates are from the GVDN New Zealand data (2008-2019).

Every age group saw an increased risk. Young people were disproportionately affected.

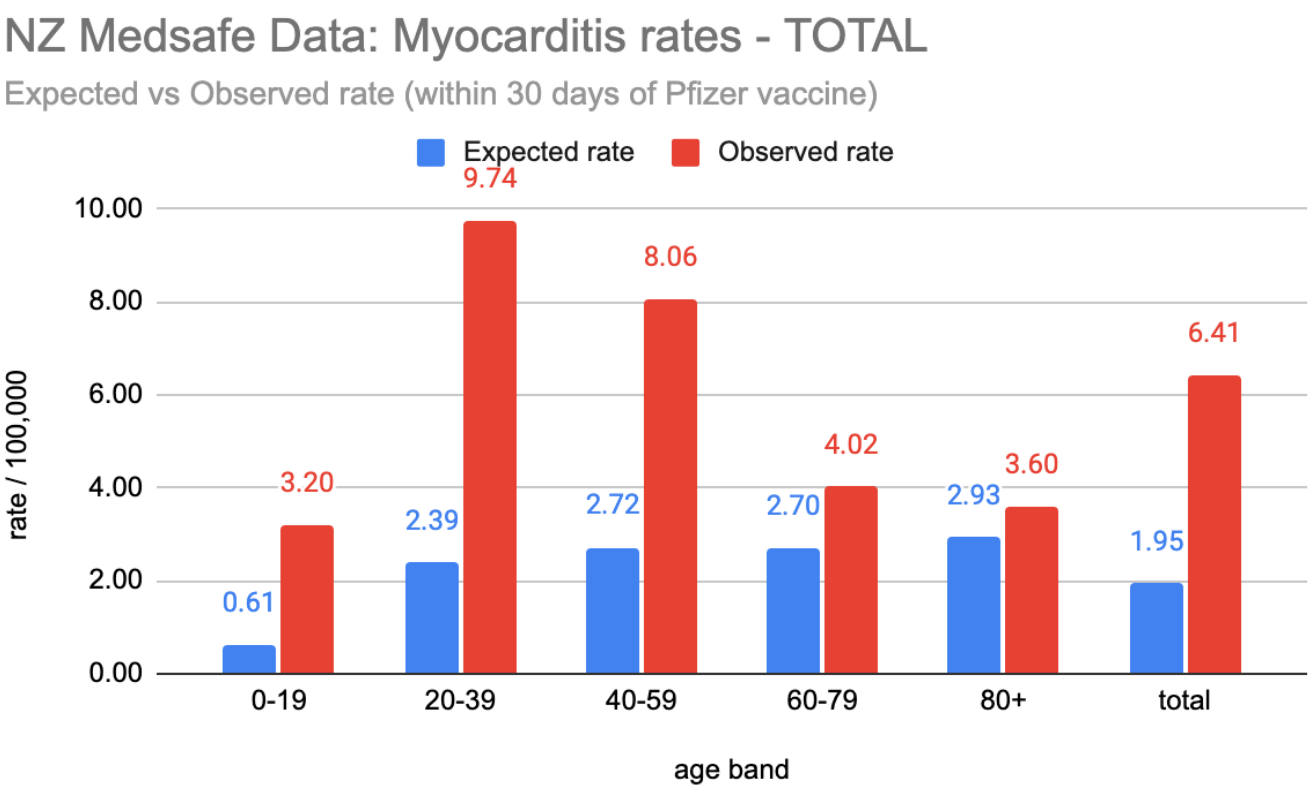
Figure 3 is an important graph. It shows that myocarditis has been reported at a rate many times more than what was expected. Bear in mind that only a small percentage of myocarditis cases are reported to Medsafe - thus the observed rate would be many times higher if we had the true data. A recent study presented at the European Society of Cardiology found that 2.8% of people experienced myocardial injury (as evidenced by troponin levels) following receipt of the booster. Most cases were mild, however neither the long term implications, nor the cumulative effect of continual vaccinations are known. On a per-dose basis in NZ that would translate to over 300,000 incidences of heart damage so far. It will be interesting to see in coming years whether there is an uptick in cardiovascular related deaths.

We can see in Figure 3 that there were 6.41 reports of myocarditis per 100,000 doses. If the true incidence were actually 2.8% we would have seen 2,800 reports. This would mean that we are undercounting by a factor of 437 times. We do not know what the true figure is in New Zealand, so these calculations are highly speculative at this point.

The MoH repeatedly reassures us that the incidence of myocarditis following the mRNA vaccine is significantly less than the incidence of myocarditis subsequent to Covid-19 infection. A statement to that effect can be found in multiple places on their website. A large study published in the Journal of Clinical Medicine (2022) looked at nearly 800,000 unvaccinated people. The authors compared the incidence of myocarditis and pericarditis in those who had experienced a Covid-19 infection with those who had not. There was no difference between the groups. The conclusion: "*Our data suggest that there is no increase in the incidence of myocarditis and pericarditis in COVID-19 recovered patients compared to uninfected matched controls."* This was a large and well-run study. It calls into question the veracity of the MoH's information. I have been unable to find an instance in which the MoH have provided a reference for their belief that Covid-19 is a significant cause of myocarditis, so it is unclear as to where they are getting their evidence.

Figure 3

THIS IS AN IMPORTANT GRAPH (bear in mind the significant under-reporting factor)



Figures 4 and 5: Female and Male rates

Figure 4

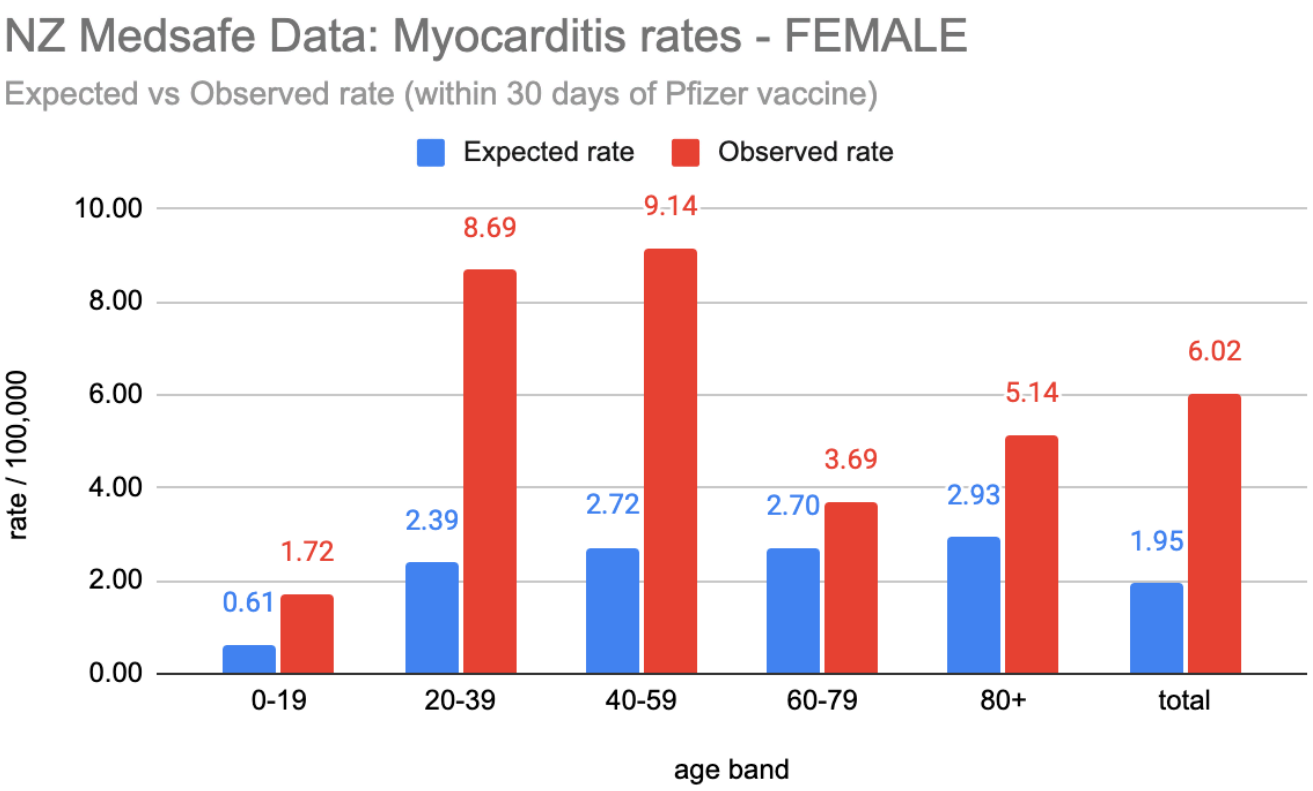

NZ Medsafe Data: Myocarditis rates - FEMALE
Expected vs Observed rate (within 30 days of Pfizer vaccine)
Expected rate
Observed rate
rate / 100,000
10.00
8.00
6.00
4.00
2.00
0.00
0.61
1.72
2.39
8.69
2.72
9.14
2.70
3.69
2.93
5.14
1.95
6.02
0-19
20-39
40-59
60-79
80+
total
age band

Figure 5

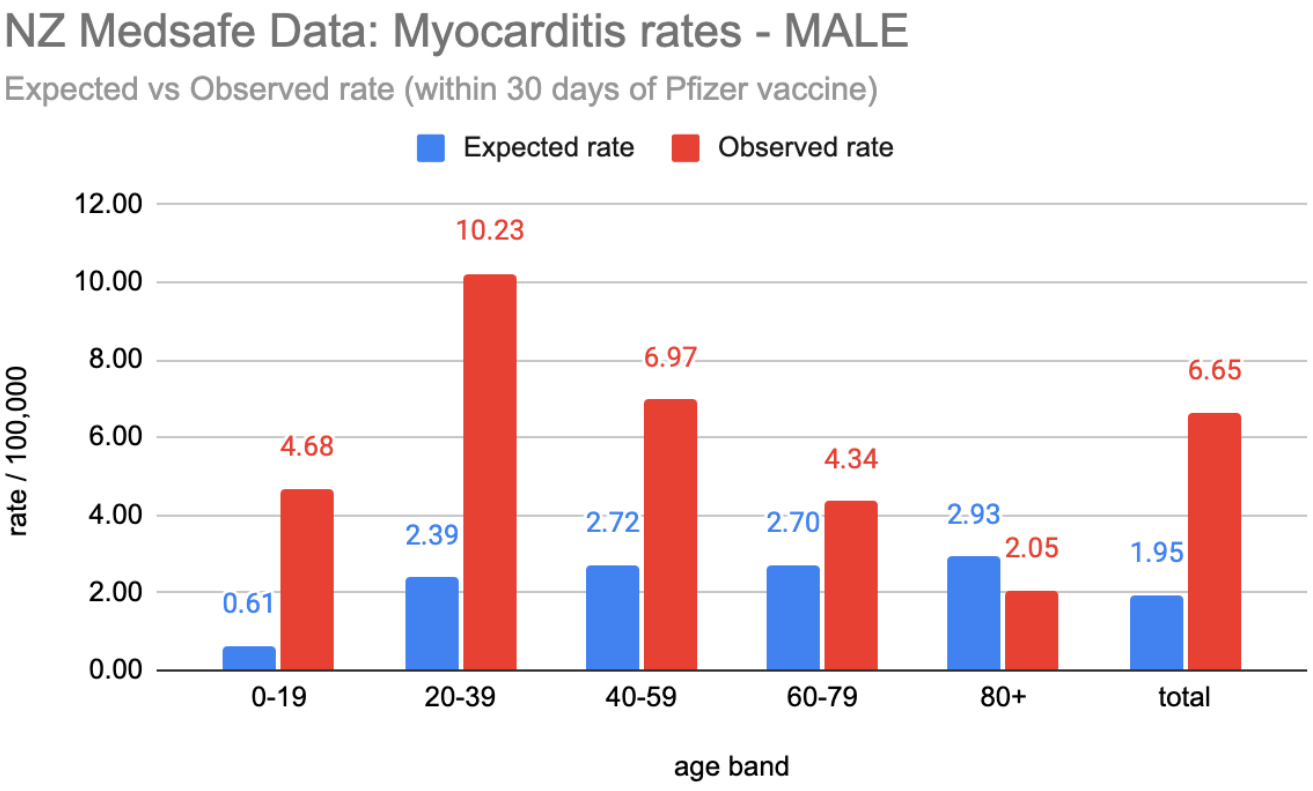
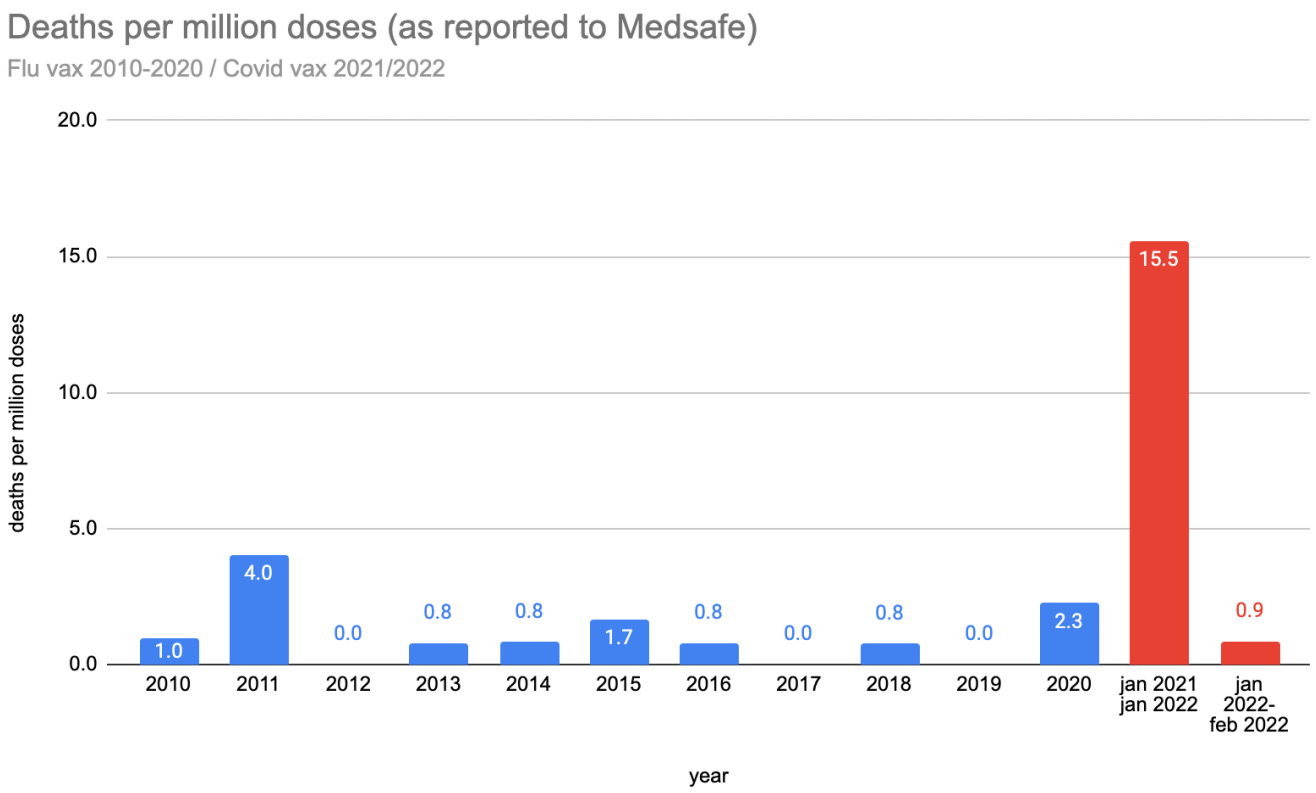

NZ Medsafe Data: Myocarditis rates - MALE
Expected vs Observed rate (within 30 days of Pfizer vaccine)
Expected rate
Observed rate
rate / 100,000
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.61
4.68
2.39
10.23
2.72
6.97
2.70
4.34
2.93
2.05
1.95
6.65
0-19
20-39
40-59
60-79
80+
total
age band

Figure 6: All adverse event MORTALITY reports

Figure 6 graphs the Medsafe adverse events reports of deaths following the Pfizer vaccine (for 2021, and for the first two months of 2022) alongside the last 12 years of post-vaccine deaths following the flu jab in New Zealand (this data is also from the Medsafe website). The deaths are converted into 'per million doses' so that they can be easily compared.

Figure 6



WHAT EFFECT DOES VARYING VACCINE EFFICACY (AGAINST CASES & DEATHS) HAVE ON COVID-19 MORTALITY RISK?

The Pfizer vaccine appears to be associated with increased rates of infection. If we assume for a moment that this vaccine does reduce covid mortality, then this benefit will be lost once a certain level of increased infection is reached. I borrowed and simplified an idea from substacker El Gato Malo - this section is speculative, but interesting to play around with.

https://docs.google.com/spreadsheets/d/1S2xKXgEhoUkzQRWoInm4ptlg7SPd2sJgBGusYioXtp4/edit#gid=1548452370

Vaccination efficacy wears off rapidly, and becomes negative - leaving vaccinated individuals at an increased risk of COVID-19.

In England, this increased risk is between 2-4 x (compared to unvaccinated) depending on age category (older people have more increased risk).

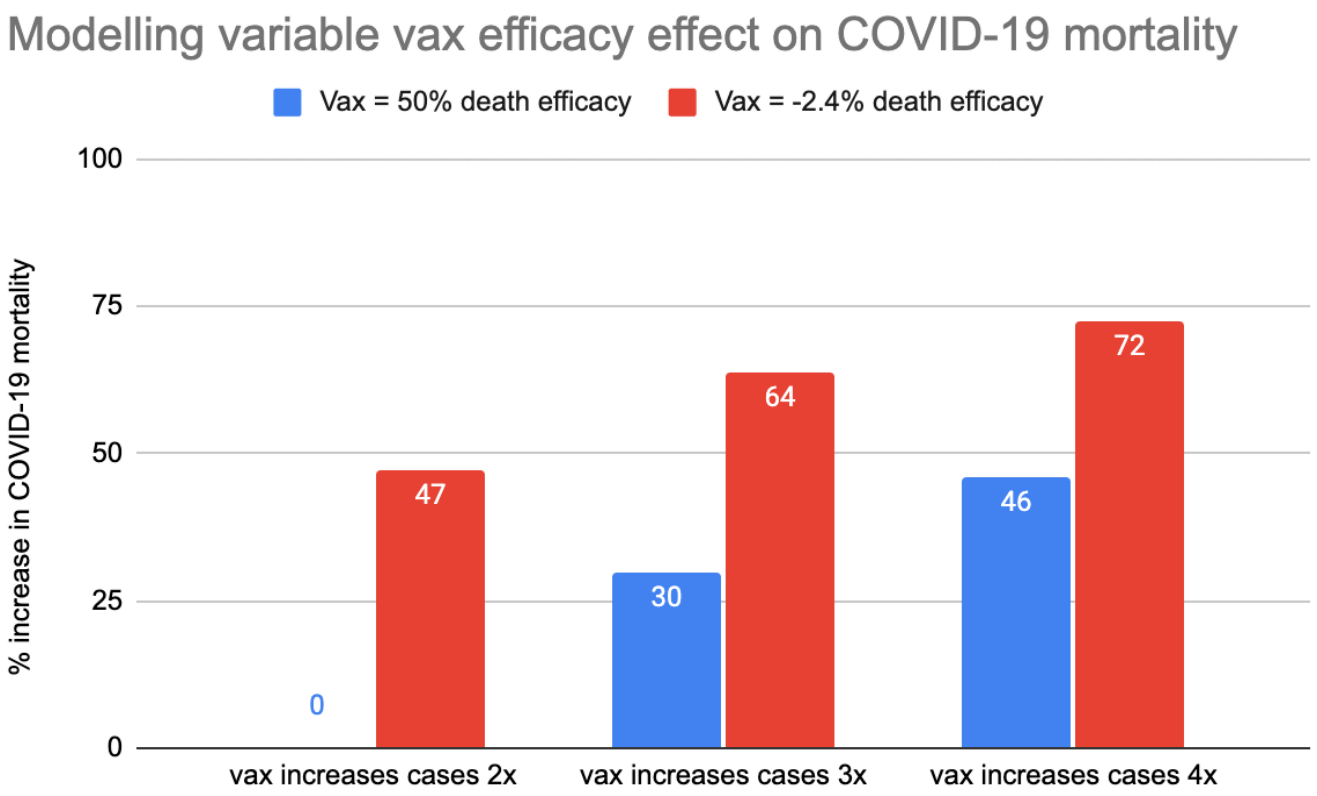
The argument in favour of vaccination is that, despite the increased risk of becoming a case, it reduces the risk of death. However - even if vaccination was reducing covid mortality risk for an individual, if it also drives up case numbers there comes a point at which the vaccine starts to cause an increase in population covid mortality overall.

We can explore that through a very simple model. It is fairly crude, but it illustrates how a neutral or detrimental outcome can easily be sold as a beneficial one.

We will utilise the following data and assumptions:

- For simplicity, we will assume vaccination is the only variable affecting covid outcomes (obviously not true in reality)
- 85% of people are vaccinated (approx 85% of the total NZ pop is vaxxed).
- Vaccination increases the risk of catching COVID-19 by 2-4 times according to UK data. On July 2nd the vaccinated were just over 2x more likely to be a case. NZ's vax rollout is a little behind the UK temporally.

- Assume 10% of unvaccinated people catch covid (and therefore 20, 30 and 40% respectively of the vaccinated). For the sake of this model, it doesn't matter what this figure is as it will not change the final change in percentage of mortality.
- IFR of 0.5% (this is on the high end, but as above, it won't affect our outcomes).
- Vaccination reduces mortality by 50% (this is very generous, given that the boosted are experiencing disproportionately high mortality relative to the unvaccinated, and given that an all-cause mortality benefit of -0.3% has been demonstrated with the mRNA vaccines).
- Vaccination increases mortality by 2.4%: This is the face value data for NZ as of July 2nd (see Deaths: figure 11) - bear in mind that this data does not include adjustment for any variables, so the true figure will likely differ.



Interpretation

It is now apparent that vaccination is followed by an increase in covid case numbers.

The argument in favour of vaccination is that, despite the increased risk of becoming a case, it reduces your risk of death.

However - even if vaccination was reducing covid mortality risk for an individual, if it also drives up case numbers there comes a point at which the vaccine starts to cause an increase in population covid mortality overall.

I have made an **optimistic assumption**: the vaccine is 50% efficacious in reducing covid deaths…
…and a **pessimistic assumption**: the vaccine has a -2.4% efficacy against death - this is what is currently seen in the unadjusted (adjustment would give us more accurate results) NZ data.

Assume vaccination leads to a **2 x increase in cases** (*vax is associated with just over a 2 x increase in NZ at present*):

- **Optimistic**: Vaccination ⇒ **0%** incr in covid mortality.
- **Pessimistic**: Vaccination ⇒ **47%** incr in covid mortality. **The assumptions that lead to a 47% incr best reflect NZ's current situation.**

Assume vaccination leads to a **3 x increase in cases** :

- **Optimistic:** Vaccination ⇒ **30%** incr in covid mortality.
- **Pessimistic**: Vaccination ⇒ **64%** incr in covid mortality.

Assume vaccination leads to a **4 x increase in cases** (*this is the case in older age groups in the UK at present*):

- **Optimistic**: Vaccination ⇒ **46%** incr in covid mortality.
- **Pessimistic**: Vaccination ⇒ **72%** incr in covid mortality.

MY NOTES ON SEROLOGY, & VACCINATED vs NATURAL IMMUNITY HERE.