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23 May 2022

s 9(2)(a)

By email: s 9(2)(a)
Ref: H202205201

Tēnā koe s 9(2)(a)

Response to your request for official information

Thank you for your request under the Official Information Act 1982 (the Act) to the Ministry of Health (the Ministry) on 6 April 2022 for information regarding remarks made by the Director-General of Health, Dr Ashley Bloomfield about re-infection with COVID-19 and vaccination. Specifically, you asked:

> *"Ashley Bloomfield made the following public statement: "We also know that people can get COVID-19 more than once and the evidence does suggest that vaccination provides better protection than prior infection" Please provide: The evidence upon that Bloomfield is referring to in this claim, and the basis, as a result of analysis, assessment or other consideration of the evidence, for making this claim. In other words, the logical process by which Bloomfield arrived at the conclusion made in his statement above."*

A memo titled, *COVID-19 Vaccine Technical Advisory Group (CV TAG) recommendations: Vaccination after infection with SARS-CoV-2,* was issued from myself on 22 March 2022, after consultation with the CV TAG. The memo is attached to this letter as Document 1 and is released to you in full. This details evidence of COVID-19 reinfection, and vaccination providing better protection than prior infection.

Under section 28(3) of the Act, you have the right to ask the Ombudsman to review any decisions made under this request. The Ombudsman may be contacted by email at: info@ombudsman.parliament.nz or by calling 0800 802 602.

Nāku noa, nā

Dr Ian Town
Chief Science Advisor
COVID-19 Technical Advisory Group

MINISTRY OF HEALTH
MANATŪ HAUORA

Memo

COVID-19 Vaccine Technical Advisory Group (CV TAG) recommendations: Vaccination after infection with SARS-CoV-2

Date:	22 March 2022
To:	Dr Ashley Bloomfield, Director-General of Health
Cc:	Astrid Koornneef, Director, National Immunisation Programme Maree Roberts, DDG, System Strategy and Policy Dr Caroline McElnay, Director of Public Health
From:	Dr Ian Town, Chief Science Advisor
For your:	Consideration

Purpose of report

1. To summarise the COVID-19 Vaccine Technical Advisory Group's (CV TAG) recommendations on COVID-19 vaccination after infection in circumstances when the recommended course of vaccination has not been completed.

Background

2. COVID-19 is an acute viral infection caused by the SARS-CoV-2 virus, which provokes antibody and cellular immune responses.

3. Studies using samples from previously infected (but not vaccinated) people have shown that the level of detectable antibodies varies among individuals. [1-4] However, most of these studies were performed before the emergence of the Delta or Omicron variants, and thus rely on data about infection with earlier variants.

4. The proportion of people with detectable antibody might vary depending on whether infections are symptomatic. In one study, 81% of (symptomatic) COVID-19 outpatients had detectable antibodies after infection. However, this value was only 15% in asymptomatic patients, suggesting that the majority of asymptomatic patients could be susceptible to early re-infection. [4] Other studies have shown that more than 90% of infected individuals have antibody and cellular responses lasting up to 8 months. [1] However, to date, no studies have investigated responses longer than 8 months.

5. The protection gained from infection prior to vaccination has been shown to be inferior compared to protection conferred by COVID-19 vaccination after infection. Individuals who have been infected but not vaccinated are around twice as likely to get re-infected than those who have been fully vaccinated (2 doses). [5] Individuals who have been infected with COVID-19 and then become re-infected are 5.5 times more likely to have a severe infection

necessitating hospitalisation than those who have immunity through vaccination alone, noting this research was done before the emergence of the Omicron variant. [6]

6. The Omicron variant has increasingly been associated with re-infection. It has been noted that approximately 65% of Omicron infections in England occurred in individuals who have previously had COVID-19 infection. [7]

7. There are two sub-lineages of Omicron currently circulating in New Zealand, designated as BA.1 and BA.2. Non-peer reviewed research suggests that infection with one of these sub-lineages has 85-95% effectiveness at preventing reinfection with the other, when evaluated at more than 35 days after infection. [8] However, it should be noted that the median follow-up time was only 2 weeks in this study, so at this stage it is challenging to ascertain how long this immunity lasts or if it will protect from a new variant. Vaccination remains the best way to protect against new variants.

8. COVID-19 vaccination after infection is generally well-tolerated. Previous COVID-19 infection is associated with a slight increase in side effects after subsequent vaccination, particularly fatigue (29% vs 20%), myalgia (30% vs 15%), fever (8% vs 2%) and lymphadenopathy (4% vs 1%),. [9] There are currently no reports of increased post-vaccine related myocarditis in those who have been vaccinated following infection.

Status of overseas jurisdictions regarding COVID-19 vaccination after infection

9. Currently, peak bodies representing Australia, Canada, United Kingdom, United States, and Singapore provide a range of recommendations regarding COVID-19 vaccination after infection.

10. **The Australian Technical Advisory Group for Immunisation (ATAGI) recommend that:** [10]
    - Past SARS-CoV-2 infection is not a contraindication to vaccination. People who have had COVID-19 are advised to receive the same number of COVID-19 vaccine doses as people who have never been infected.
    - People with SARS-CoV-2 infection can be vaccinated when they have recovered following their confirmed infection or can defer for up to 4 months after the onset of the infection (with or without symptoms). Commencement or continuation of further vaccination should not be deferred for more than 4 months. People who have prolonged symptoms of COVID-19 can still be vaccinated but the optimal timing should be determined on a case-by-case basis in consultation with their healthcare provider.
    - Individuals should consider vaccination soon after infection and recovery if they:
        - have a risk factor (e.g. an underlying medical condition) that puts them at high risk of severe disease from COVID-19
        - have a higher risk of being exposed to COVID-19 (e.g. occupational risk factor)
        - have not completed a COVID-19 vaccination primary course
        - are unsure if they have had an infection with SARS-CoV-2
    - Individuals can consider deferring vaccination for up to 4 months after the onset of infection if they are younger and have no risk factors for severe illness from COVID-19 and they have recently completed their COVID-19 vaccination primary course.

- Allowing a longer interval between recovery and vaccination may enhance the immune response to vaccination. Deferring vaccination after infection may also reduce the risk of misattribution of post-vaccination side effects to symptoms from post-COVID-19 complications and vice versa.

11. **The Canadian National Advisory Committee on Immunisation (NACI) recommends**: [11]
    - Individuals who experienced SARS-CoV-2 infection before starting or completing their primary COVID-19 vaccine series may receive their next dose 8 weeks after symptoms started or after testing positive (if no symptoms were experienced).
    - Individuals who are recommended to receive a booster dose and who experienced SARS-CoV-2 infection after completing their primary series may receive a booster dose 3 months after symptoms started or after testing positive (if no symptoms were experienced) and provided it is at least 6 months after completing a primary series.

12. **In the United Kingdom, the Joint Committee on Vaccination and Immunisation (JCVI)** recommend timing of vaccination for: [12]
    - Adults - 4 weeks after onset of symptoms or from the first confirmed positive specimen. This interval may be reduced to ensure operational flexibility when rapid protection is required, for example high incidence or circulation of a new variant in a vulnerable population.
    - Children 17 and under - 12 weeks from onset (or sample date) for those who are not in high-risk groups. This interval may be reduced to 8 weeks in healthy individuals when rapid protection is required.

13. **In the US, the Centers for Disease Control and Prevention (CDC) recommends:** [13]
    - COVID-19 vaccination for everyone ages 5 years and older, regardless of a history of symptomatic or asymptomatic SARS-CoV-2 infection. This includes people with prolonged post-COVID-19 symptoms and applies to primary series and booster doses. This recommendation also applies to people who experience SARS-CoV-2 infection before or after receiving any COVID-19 dose.
    - People with known current SARS-CoV-2 infection should defer any COVID-19 vaccination, including booster vaccination, at least until recovery from the acute illness (if symptoms were present) and criteria to discontinue isolation have been met. Current evidence demonstrates a robust immune response to vaccination after infection, but information is lacking about whether and how the amount of time since infection affects the immune response to vaccination.

14. **The Singaporean Ministry of Health recommends:** [14]
    - Persons who had recovered from COVID-19 and were fully vaccinated before their infection are considered to have completed their primary series. Persons who have not completed their primary vaccination series before recovering from a COVID-19 infection, are recommended to receive a single dose of an mRNA vaccine.
    - If the person is due for vaccination based on the schedules recommended in the national vaccination programme (e.g. to receive a booster dose about 5 months after two doses of mRNA vaccines), the person may receive the next vaccine dose 28 days after infection, although it is recommended to do so three months from the infection for better effectiveness.

Current recommendations in New Zealand

15. In February 2021, CV TAG provided advice regarding a booster dose after infection. It was recommended that for those with PCR-confirmed COVID-19 infection after their primary course, a COVID-19 vaccine booster dose should be offered 3 months after recovery from acute illness.

16. As at 17 February 2022, the New Zealand Immunisation Handbook advises that: [15]
    - Vaccination should be offered regardless of an individual's history of symptomatic or asymptomatic SARS-CoV-2 infection.
    - In a person who has had a previous SARS-CoV-2 infection, an individual is considered fully vaccinated after two doses of mRNA-CV (or another COVID-19 vaccine). In these individuals, vaccination is recommended 4 weeks after recovery, or 4 weeks from the first confirmed positive PCR test if asymptomatic, and when cleared to leave isolation. This also applies to the second dose for individuals who have SARS-CoV-2 infection after their first dose.

17. The Immunisation Advisory Centre (IMAC) currently recommends that COVID-19 vaccination can occur from 3 months after recovery from a COVID-19 infection, regardless of whether the person has not had any vaccination doses, if they were not fully vaccinated (e.g., had one dose only), or if they were fully vaccinated (e.g., had two doses). [16]

Recommendations

18. Given the differences in advice for timing of vaccination after infection, the COVID Vaccine Immunisation Programme and IMAC have requested CV TAG recommendations for clarification on this topic.

19. CV TAG met on 8 March 2022 to discuss recommendations on COVID-19 vaccination after infection in circumstances when the recommended course of vaccination has not been completed.

20. **CV TAG noted that:**
    a) There is variation in the international advice on COVID-19 vaccination after infection.
    b) Vaccination after infection has been shown to produce superior immune responses compared to infection alone and is generally well-tolerated.
    c) For children and adolescents, there has been less time for data to accumulate about vaccination after infection than for adults, and data remain scarce in this age group.

21. **CV TAG recommends that:**
    a) COVID-19 vaccination (as per current schedule and eligibility criteria) can occur any time following infection, from the time of recovery from the acute illness (if symptoms were present) and criteria to discontinue isolation have been met.
    b) An interval of 3 months after infection is recommended as it allows for a better immunological response to develop, particularly for 5-17-year-olds. The interval for 5-17-year-olds should only be shorter in exceptional circumstances, where risk of COVID-19 is clinically determined to outweigh the risk of an earlier vaccination.
    c) Clinical discretion can be applied when considering vaccination prior to 3 months after infection. This may be appropriate for those individuals considered to be at high risk of severe disease from COVID-19 re-infection.

d) This recommendation applies to any dose of the primary course or a booster, for any COVID-19 vaccine currently offered in New Zealand.

22. CV TAG will continue to monitor all relevant information and will update their recommendations as further evidence becomes available.

Dr Ian Town

Chief Science Advisor and

Chair of the COVID-19 Vaccine Technical Advisory Group

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