133 Molesworth Street
PO Box 5013
Wellington 6140
New Zealand
T+64 4 496 2000

14 April 2022

s 9(2)(a)

By email: s 9(2)(a)
Ref: H202203787

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) on 10 March 2022. I will respond to each part of your request in turn:

> *Can you please advise regarding the 61 deaths (at time of writing) and other related topics:*
>
> *1. The ages, sex and date of death of all deceased persons.*
> *2. The primary cause and, if any, secondary or other contributing factors of death.*
> *3. The number and type of co-morbidities for each person.*
> *4. Whether the persons were admitted to an ICU.*
> *5. What were the ICU's capacity and how many Covid19 patients occupied these ICU's for what duration.*
> *6. Whether the death was recorded as a 'Covid19 ' death because that was the primary cause or whether the death was recorded as a 'Covid19 death' because the person had Covid19 but Covid19 wasn't the primary cause.*
> *7. Whether the deceased persons were vaccinated or not, and to what level (first, second, booster shots).*

Information regarding COVID-19 related deaths can be found at: www.health.govt.nz/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-case-demographics.

The Ministry of Health (the Ministry) does not have details of when and which patients died in hospital and whether the respective ICU/HDUs were full at that time (or if ICU care was suitable).

Additionally, the Ministry does not have information to identify the duration a patient spent in ICU from its data. This information will be held by the hospitals conducting the treatment and may be held by the District Health Boards (DHBs). A list of their websites can be found here: www.health.govt.nz/new-zealand-health-system/key-health-sector-organisations-and-people/district-health-boards/district-health-board-websites.

Detailed data on the health status of recent deaths of people with COVID-19 is not reported nationally in real time. Due to the shift from active management of cases during phase three of the Omicron response, co-morbidities information is now primarily collected in hospitals and is provided to the Ministry by the DHBs within 21 days of the month of discharge. Due to this lag and other reporting processes, the Ministry is processing this data and will release it when it is

able to do so. The Ministry acknowledges the high level of public interest in the release of this information and is looking at providing as much information as possible while preserving privacy. The extent to which COVID-19 contributed to a person's death is recorded on the Ministry's website and these figures will continue to change as these deaths are reviewed.

> *8. What has been the Health Ministry's advice on how to record the cause of death relating to Covid19 patients. If there has been a change, what was the original and subsequent advice.*

Advice for health practitioners on how to certify cause of death for anyone dying from or with COVID-19 is available at: www.health.govt.nz/covid-19-novel-coronavirus/covid-19-information-health-professionals/recording-covid-19 and here www.health.govt.nz/our-work/regulation-health-and-disability-system/burial-and-cremation-act-1964/completing-death-documents/covid-19-deaths.

The Ministry's advice reflects the guidance provided by the World Health Organization (WHO) for certifying cause of death for people who die from, or with COVID-19 and it has not changed during the pandemic. The WHO advice can be found here: www.cdn.who.int/media/docs/default-source/classification/icd/covid-19/guidelines-cause-of-death-covid-19-20200420-en.pdf and here www.who.int/publications/m/item/international-guidelines-for-certification-and-classification-(coding)-of-covid-19-as-cause-of-death.

> *9. How many persons have been admitted to care facilities with Covid19 and how many have made a full recovery.*
> *10. The treatment of persons admitted to care facilities for Covid19 related illness - what drugs / interventions etc.*

The Ministry does not hold information relating to this part of your request as this will be held by the hospitals conducting the treatment. For further information please contact the DHBs at the link provided above.

> *11. Any evidence of 'long covid'.*

Information regarding long COVID-19 can be found at: www.health.govt.nz/covid-19-novel-coronavirus/covid-19-health-advice-public/about-covid-19/long-covid.

> *12. Any evidence of the rate or probability of transmission of Covid19 in relation to (separately) vaccinated and non vaccinated persons.*
> *(for the sake of clarity - is a vaccinated person more or less likely to pass on Covid19. With what probability for either group).*

The Pfizer Comirnaty vaccine is proven to be highly effective in young people after two doses are administered. That means if they do develop COVID-19, they are far less likely to fall seriously ill, and less likely to transmit the virus to others. Across all age groups, studies have shown that about 95 percent of people who received both doses of the Comirnaty vaccine produces an immune response in 5 to 11 year-olds similar to that seen in other age groups. Medsafe has prioritised reviewing COVID-19 vaccines and will only approve a vaccine or medicine for use in New Zealand once it is satisfied that it has met internationally-agreed criteria for quality, safety and efficacy. Medsafe has granted provisional approval for use of the vaccine in this age group following a robust review process of the data provided by Pfizer, which has been trialled in this age group overseas.

A summary of key information from recent Variants of Concern has been compiled, which includes an extensive section on vaccine effectiveness against severe infection. This is published and updated every 2-3 weeks. This document acts as a key summary of the current information that the Ministry of Health holds (at the time of publication) and is publicly available at: www.health.govt.nz/system/files/documents/pages/22_february_2022_-_variants_update.pdf. Pages 18-25 of the document contain references to 133 scientific studies and research about Omicron and effectiveness of the vaccine against severe infection.

13. Any evidence that wearing masks changes the probability of transmission.

Please refer to the updated page on the Ministry website regarding information on the use of face masks in the community: www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-health-advice-public/covid-19-use-face-masks-community.

The Ministry also regularly updates the Science News page for up to date information regarding COVID-19 and the Vaccine: www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-resources-and-tools/covid-19-science-news.

The evidence indicates that the use of masks/face coverings in the community provide benefit in reducing SARS-CoV-2 infection. A rapid review from the Republic of Ireland that found that "the evidence within this rapid evidence update points towards face mask use in the community providing a potentially beneficial effect in reducing SARS-CoV-2 infection, alongside a lack of evidence of significant harm associated with their use. This can be found here: www.hiqa.ie/sites/default/files/2020-12/Use-of-face-masks-in-the-community_Rapid-evidence-update.pdf.

A rapid review from Norway concludes that there is evidence that medical facemasks can protect people from respiratory infections in community settings. A link to this can be found at: www.fhi.no/globalassets/dokumenterfiler/rapporter/2020/should-individuals-in-the-community-without-respiratory-symptoms-wear-facemasks-to-reduce-the-spread-of-covid-19-update-1-report-2020-v1.pdf.

This conclusion was based on 13 observational studies, most of which found a benefit from the use of masks. A scientific brief from the CDC concludes that research supports the use of masks in the community to reduce the spread of SARS-CoV-2 and that the benefit is derived from a combination of source control and personal protection. The scientific brief can be found at: www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/masking-science-sars-cov2.html.

14. Any evidence of the time and proximity to another person required to catch Covid19.

The evidence on time and proximity of transmission depends on many individual factors. The first, is an analysis of virus containing droplets. Large droplets fall to the ground under the influence of gravity. Most large droplets fall to the ground within 2 metres. The longer a person is within this zone, particularly without a mask, the greater the chance of inhaling these droplets and becoming infected. www.bmj.com/content/bmj/370/bmj.m3223.full.pdf.

However, the virus can also spread further through the air. www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2900869-2. Therefore, the longer a person is in a closed environment with an infectious individual the greater the risk of infection.

The second way of assessing the evidence is to review the rate of infection in different situations. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0240205. There are many studies looking at this issue and they consistently identify the proximity and the duration of exposure as two of the most important variables in the risk of transmission.

Guidelines on time and proximity are an attempt to provide the best fit for "how close" and "how long" is safe for individuals going about their daily lives. However, the risk of transmission is influenced by many factors and to provide the most protection it is important to follow the guidance provided.

15. Any evidence that an asymptomatic person has sufficient virus on their breath to effectively pass on the virus.

Please find the attached for information regarding asymptomatic COVID-19 infection.

16. Any evidence of long term (more than 5 years) immunity from the Pfizer vaccine.

As COVID-19 vaccines were first used in 2020, there has not been sufficient time to assess clinical protection (or immunological markers of this) provided five years after vaccination.

However, there is some New Zealand evidence of the duration of protection lasting for at least eight months (see: Whitcombe, A. L. et al. Comprehensive analysis of SARS-CoV-2 antibody dynamics in New Zealand. Clin Transl Immunology 10, e1261 (2021), and international data for 11 months (www.nature.com/articles/s41586-021-03647-4).

17. Any evidence on the long term side effects of the Pfizer vaccine.

Information regarding side effects of the Pfizer vaccine can be found at: https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-vaccines/covid-19-pfizer-vaccine-side-effects-and-reactions.

As COVID-19 vaccines were first used in 2020, there has not been sufficient time to assess any long-term side effects. However, even the rarer side effects such as myocarditis, most people recover completely, either with or without treatment, and have no lasting symptoms or complications. There is more information about safety monitoring at: www.medsafe.govt.nz/COVID-19/monitoring-process.asp.

COVID-19 vaccines have been safely administered to millions of people worldwide. While some people do experience side-effects following vaccination, most side-effects are mild and do not last long. As you may know, in New Zealand, all vaccines are reviewed by Medsafe prior to being approved for use. Even in a pandemic, the stringent requirements vaccines must meet in order to be approved remain in place. More information about the vaccine evaluation and approval process can be found at https://www.medsafe.govt.nz/COVID-19/vaccine-approval-process.asp.

18. What investigation has the ministry undertaken in considering natural immunity as an effective long term solution.

The Ministry is continuing to monitor the extent of protection provided by natural infection.

Data currently available shows the protection gained from infection (without vaccination) is 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 (likely

with Delta variant as this was predominant when study done) than those who have been fully vaccinated (2 doses). [1] 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 also done before the emergence of the Omicron variant. [2]

There are two sub-lineages of Omicron currently circulating in New Zealand, designated as BA.1 and BA.2. Non-peer reviewed research suggests infection with one of these sub-lineages has a 85-95 percent effectiveness at preventing reinfection with the other, when evaluated at more than 35 days after infection. [3] However, it should be noted that the median follow-up time was only two 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. References are listed at Appendix 1.

I trust this fulfils your request. 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.

Please note that this response, with your personal details removed, may be published on the Ministry of Health website at: www.health.govt.nz/about-ministry/information-releases.

Nāku noa, nā

Gill Hall
Group Manager, Science, Surveillance & Insights
COVID-19 Health System Response

Appendix 1: References

1. Cavanaugh, A.M., et al., Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination — Kentucky, May–June 2021. MMWR. Morbidity and Mortality Weekly Report, 2021. 70(32): p. 1081-1083.

2. Bozio, C.H., et al., Laboratory-Confirmed COVID-19 Among Adults Hospitalized with COVID-19-Like Illness with Infection-Induced or mRNA Vaccine-Induced SARS-CoV-2 Immunity - Nine States, January-September 2021. MMWR Morb Mortal Wkly Rep, 2021. 70(44): p. 1539-1544.

3. Chemaitelly, H., et al. Protection of Omicron sub-lineage infection against reinfection with another Omicron sub-lineage. medRxiv 2022; 2022.02.24.22271440]. Available from: http://medrxiv.org/content/early/2022/02/25/2022.02.24.22271440.abstract.

Asymptomatic COVID-19 infection

Key points

- **The rate of asymptomatic COVID-19 for the Omicron variant is approximately 1/3 of cases.**
- **Asymptomatic individuals may be less likely to be infectious than symptomatic individuals, but symptomatology cannot be used to predict infectiousness.**
- **Infection and infectiousness may occur before Rapid Antigen Tests report a positive result.**
- **Asymptomatic individuals return a negative Rapid Antigen Test sooner than symptomatic individuals.**

The development of symptoms can occur a short period of time after development of infection and resolve with resolution of infection. Individuals who become asymptomatic after having developed symptoms usually do so after the peak of infectiousness and are usually no longer infectious. However, some individuals are not symptomatic at any time. Individuals who never develop infection are still able to transmit virus.

Therefore, the relevant questions regarding asymptomatic disease are:

1. What is the rate of asymptomatic infection in the general population with COVID-19?
2. Are symptoms a reliable guide to infectiousness?

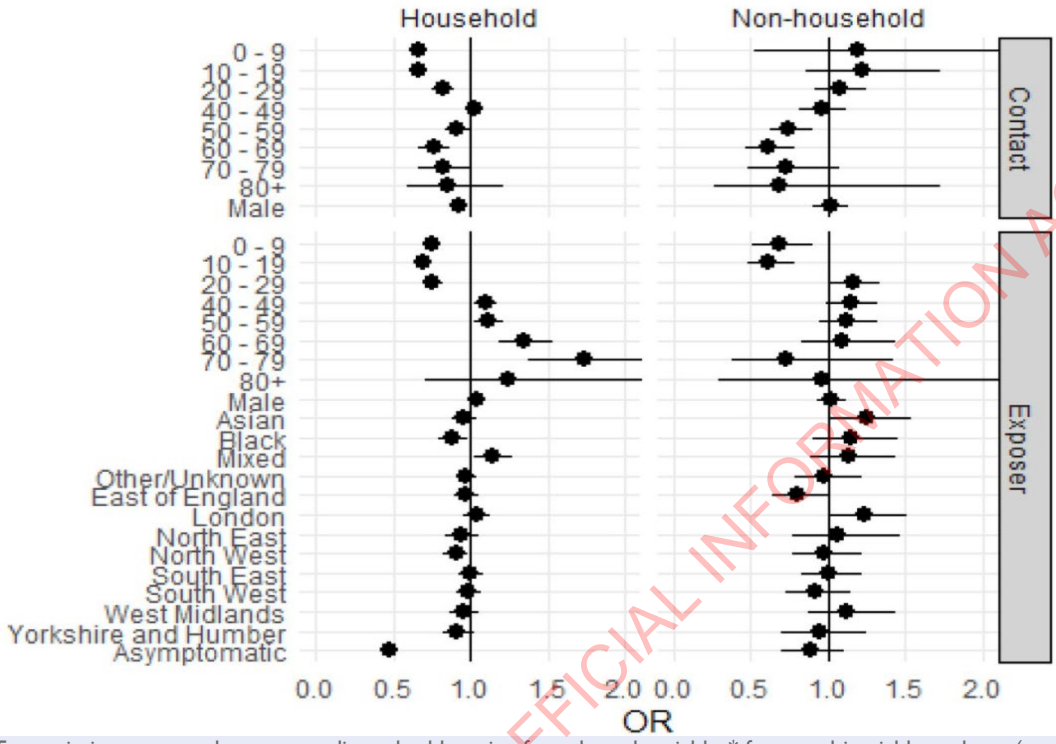
1. The rate of asymptomatic disease in the population:

To calculate the rate of asymptomatic disease in a population, it is necessary to undertake screening of a population on a regular basis. Screening of the population in the UK has been undertaken on a regular basis to estimate disease prevalence. The UKHSA recently published the final report of the REACT study, which reported the results of self-performed swabs on 94,950 individuals from 8 Feb to 1 March 2022 which were tested using PCR (United Kingdom Health Security Agency, 2022). The infection prevalence was 2.88% of the population, which was a decrease from 4.41% in January. **The rate of asymptomatic disease in this cohort was 28.6%.**
Other information reported included the following:

- large households including 6 or more people at 3.36%, 5 people at 3.33%, 4 people at 3.88% and 3 people at 3.06% compared to 2.50% and 1.87% in 2-person and single-person households, respectively
- households with one or more children at 3.88%– compared to 2.31% (2.19%, 2.44%) in households without children
- those having been in contact with a confirmed COVID-19 case at 10.35% (9.72%, 11.02%) or a suspected COVID-19 case at 6.86% – compared to 1.73% for those without such contact
- those not shielding at 3.08%– compared to 2.39% in those reporting shielding
- those reporting classic COVID-19 symptoms (loss or change of sense of smell or taste, fever, new persistent cough) in the month prior to swabbing at 15.06% or other symptoms at 3.85%– compared to 1.17% in those without symptoms
- Viral lineages were determined for 1,195 of 1,392 positive samples collected up to 21 February 2022. All but one was Omicron sub-lineages and one (0.1%) was a sub-lineage of Delta.

Data from the Office of National Statistics (ONS) report COVID-19 symptomatology (Office for National Statistics, 2022). In January 2022, 61% of individuals testing positive reported any specific symptoms.

A study (Allen et al., 2022) in the UK assessed the risk of transmission within households over the emergence of the Omicron wave.



Transmission to named contacts: adjusted odds ratios for selected variables* from multivariable analyses (x-axis limited to 2), 05 to 11 December 2021, England

Slightly under a half of all individuals with Omicron were asymptomatic (11,906 vs 15,734). The rate of household transmission for all age groups increased with age of the case. **The rate of household transmission from asymptomatic individuals was slightly less than 50% of symptomatic individuals.**
These variations were less prominent for non-household contacts, which suggests that the venue influences secondary attack rate, presumably due to other public health measures.

A prospective screening study of 263 healthcare workers in the United States identified 12 cases. On questioning, all of these individuals reported at least minimal symptoms compared to baseline health. However, there was considerable overlap with symptoms for individuals who did not test positive for COVID-19 (Goguet et al., 2022).

A similar data set may be available for border workers of healthcare workers within New Zealand who are required to undergo mandatory testing.

Are asymptomatic individuals as infectious as symptomatic individuals?

When discussing the issue of infectiousness, it is important to consider those who are never symptomatic and those who are either pre-symptomatic or have recovered from their illness as separate groups. Symptoms will reach a peak and resolve as infectiousness also peaks and

decreases. However, the temporal association between infectiousness and symptomatology does not imply a causal link.

There are conflicting data for the association between infectiousness in those individuals who are asymptomatic compared to those who are symptomatic. Secondary attack rates quoted above would indicate that the asymptomatic individuals are less likely to transmit infection (Allen et al., 2022). However, there is also an association between other variables, particularly age and the timing of exposure, which may be confounders. The Ubuntu study, which was designed to evaluate efficacy of the mRNA-1273 vaccine (Moderna) among persons living with HIV, identified 31% of individuals with asymptomatic COVID-19, all of which were the Omicron variant (Garrett et al., 2021). Approximately one-half of these asymptomatic individuals (48%) had a cycle threshold (CT) value <25 and 18% less than 20, indicative of high titres of asymptomatic shedding. Asymptomatic carriage rates were similar in SARS-CoV-2 seropositive and seronegative persons (27% respectively).

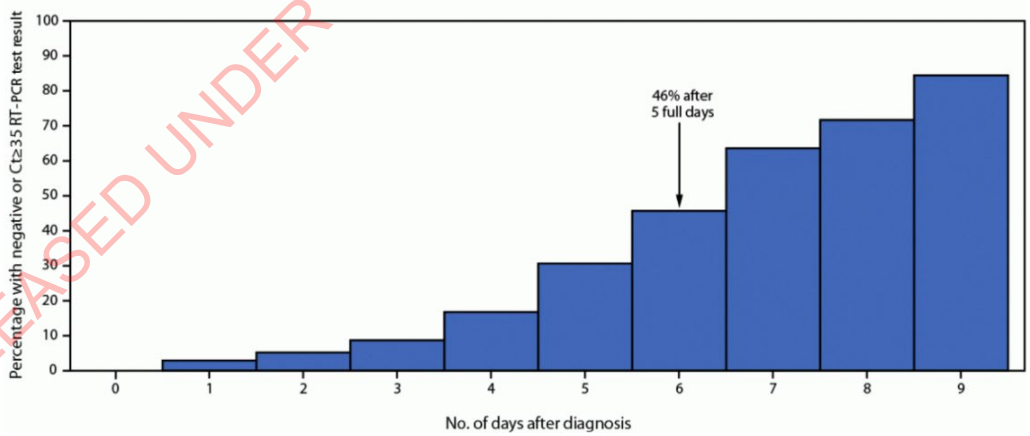
The human challenge study did not identify differences in viral loads or infectious virus between individuals who were symptomatic or asymptomatic (Killingley et al., 2022). The authors conclude that *"our data clearly show that SARS-CoV-2 viral shedding occurs at high levels irrespective of symptom severity, thus explaining the high transmissibility of this infection and emphasizing that symptom severity cannot be considered a surrogate for transmission risk in this disease."*

Does symptomatology reflect infectiousness?

This issue has been explored previously, but not in the setting of Omicron. Hospitalised individuals have a longer period of viral shedding than non-hospitalised individuals.

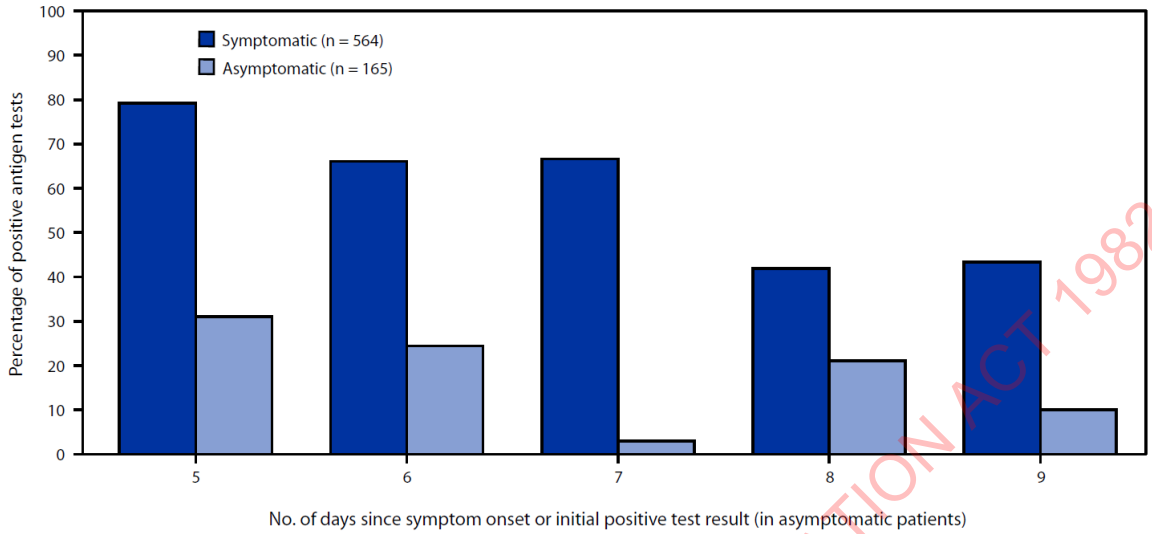
A study assessed the positivity of **asymptomatic** vaccinated American footballers tested daily with PCR (Mack et al., 2022). The samples were primarily Omicron variant. A "positive" test was PCR with Ct<35, which would be considered a high level of proof of non-infectiousness. Nonetheless not many people were positive at day 9: ~35% were positive at day 7 and ~15% positive at day 9.

FIGURE 1. Percentage of 173 fully vaccinated* COVID-19 patients (SARS-CoV-2 B.1.1.529 [Omicron] and unsequenced†) with a negative or cycle-threshold ≥35§ reverse transcription–polymerase chain reaction test result, by number of days after diagnosis — National Football League, United States, December 14–19, 2021



Another study from the CDC (Lefferts et al., 2022) used rapid antigen testing for a test to return scheme for healthcare workers in Alaska.
There were 729 cases in total = 165 asymptomatic (23%) and 564 symptomatic. However, a positive test was more less likely in asymptomatic individuals between day 5-9 was less (21%) than those who were symptomatic (64%).

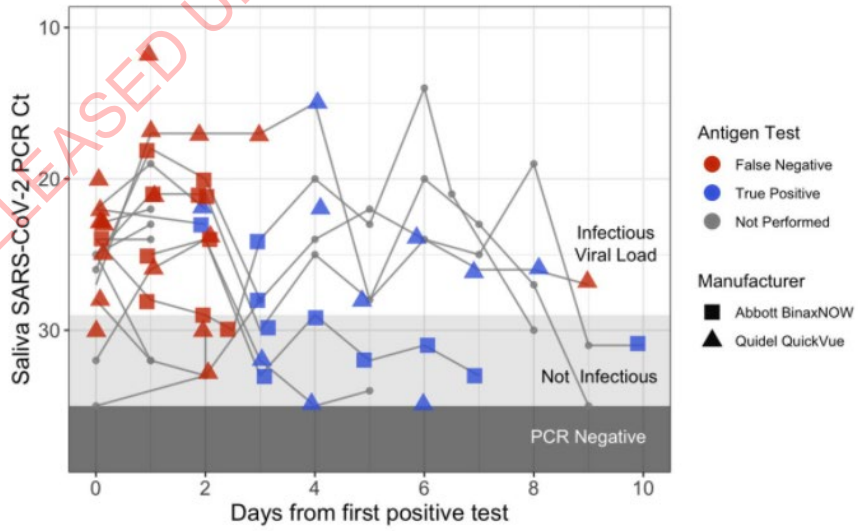
FIGURE. Proportion of Abbott BinaxNOW COVID-19 Ag rapid antigen test results positive 5–9 days after symptom onset or after a positive initial test result* for SARS-CoV-2, by symptom status† (N = 729) — Yukon-Kuskokwim Delta region, Alaska, January–February 2022



* The initial test was a nucleic acid amplification test or antigen test for SARS-CoV-2. The chart summarizes the first follow-up antigen test result for each person during the 5–9 days after illness onset, or after the initial positive test result if asymptomatic.
† Persons are classified as symptomatic if symptoms were reported during routine interview or isolation follow-up call.

However, transmission may also occur in individuals prior to the development of symptoms. An analysis of infection of COVID-19 in long-term care facilities reported that unless more than 75% of pre-symptomatic transmission can be managed, it would be difficult to control spread in these facilities, even if stringent additional public health measures are used (Schmidt, García, Pinheiro, Reichert, & Nuño, 2022).

The shorter incubation period for Omicron will decrease the pre-symptomatic period. The observation that rapid antigen tests may be negative for the first 24 or 48 hours after infection could indicate that individuals with Omicron are not particularly infectious during the pre-symptomatic phase of the illness (National Institute of Infectious Disease, 2022). However, this observation is not supported by a small observational study (Adamson, Sikka, Wyllie, & Premsrirut, 2022), which reported 4 of 30 cases who were being followed with both RATs and PCR, transmitting the virus to others despite a negative RAT. The majority of RATs became positive on day 3 (range 2-4), which was one day after the PCR became positive.



References

Adamson, B., Sikka, R., Wyllie, A. L., & Premsrirut, P. (2022). Discordant SARS-CoV-2 PCR and Rapid Antigen Test Results When Infectious: A December 2021 Occupational Case Series. *medRxiv*, 2022.2001.2004.22268770. doi:10.1101/2022.01.04.22268770

Allen, H., Tessier, E., Turner, C., Anderson, C., Blomquist, P., Simons, D., . . . Lamagni, T. (2022). Comparative transmission of SARS-CoV-2 Omicron (B.1.1.529) and Delta (B.1.617.2) variants and the impact of vaccination: national cohort study, England. *medRxiv*, 2022.2002.2015.22271001. doi:10.1101/2022.02.15.22271001

Garrett, N., Tapley, A., Andriesen, J., Seocharan, I., Fisher, L. H., Bunts, L., . . . Corey, L. (2021). High Rate of Asymptomatic Carriage Associated with Variant Strain Omicron. *medRxiv*, 2021.2012.2020.21268130. doi:10.1101/2021.12.20.21268130

Goguet, E., Powers, J. H., III, Olsen, C. H., Tribble, D. R., Davies, J., Illinik, L., . . . Mitre, E. (2022). Prospective Assessment of Symptoms to Evaluate Asymptomatic SARS-CoV-2 Infections in a Cohort of Health Care Workers. *Open forum infectious diseases, 9*(3). doi:10.1093/ofid/ofac030

Killingley, B., Mann, A. J., Kalinova, M., Boyers, A., Goonawardane, N., Zhou, J., . . . Chiu, C. (2022). Safety, tolerability and viral kinetics during SARS-CoV-2 human challenge in young adults. *Nature medicine*. doi:10.1038/s41591-022-01780-9

Lefferts, B., Ian Blake, Dana Bruden, Melissa B. Hagen, Ellen Hodges, Hannah L. Kirking, . . . Ian D. Plumb. (2022). Antigen Test Positivity After COVID-19 Isolation — Yukon-Kuskokwim Delta Region, Alaska, January–February 2022. *Mobidity and Mortality Weekly Report, 71*(8), 293-298.

Mack, C. D., Wasserman, E. B., Killerby, M. E., Rieza H. Soelaeman, Aron J. Hall, Adam MacNeil, . . . Allen Sills. (2022). Results from a Test-to-Release from Isolation Strategy Among Fully Vaccinated National Football League Players and Staff Members with COVID-19 — United States, December 14–19, 2021. *Morbity and Mortality Weekly Reports, 71*(8), 299-305. Retrieved from https://www.cdc.gov/mmwr/volumes/71/wr/mm7108a4.htm?s_cid=mm7108a4_w

National Institute of Infectious Disease. (2022). *Active epidemiological investigation on SARS-CoV-2 infection caused by Omicron variant (Pango lineage B.1.1.529) in Japan: preliminary report on infectious period*. Retrieved from https://www.niid.go.jp/niid/en/2019-ncov-e/10884-covid19-66-en.html

Office for National Statistics. (2022). *Coronavirus (COVID-19) latest insights: Infections*. Retrieved from London, United Kingdom: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/coronaviruscovid19latestinsights/infections#symptoms

Schmidt, A. J., García, Y., Pinheiro, D., Reichert, T. A., & Nuño, M. (2022). Using Non-Pharmaceutical Interventions and High Isolation of Asymptomatic Carriers to Contain the Spread of SARS-CoV-2 in Nursing Homes. *Life, 12*(2), 180. Retrieved from https://www.mdpi.com/2075-1729/12/2/180

United Kingdom Health Security Agency. (2022). *REACT-1 study of coronavirus transmission: February 2022 final results*. Retrieved from https://www.gov.uk/government/publications/react-1-study-of-coronavirus-transmission-february-2022-final-results/react-1-study-of-coronavirus-transmission-february-2022-final-results