



COVID-19

Guidance on the impact of vaccination and previous infection with COVID-19 on contact tracing

Version 1.4 16.09.2021

*This document summarises interim recommendations for changes to contact tracing guidance with respect to **asymptomatic** close contacts who are vaccinated or had confirmed COVID-19 infection in the previous nine months.*

This guidance is subject to change over time as new evidence becomes available.

Version	Date	Updates
1.1	22/06/2021	Updated vaccination information regarding two doses of AstraZeneca
1.2	19/07/2021	Updated to include previous infection
1.3	10/09/2021	Update to wording on 'Persons who are fully vaccinated'
1.4	16/09/2021	Update to Recommendations for changes to Contact Tracing Guidance

Purpose

The NPHE requested that HPSC review contact tracing guidance with regard to management of close contacts in light of emerging evidence regarding vaccination and previous infection with COVID19. The purpose of this document is to respond to this request by outlining recommended changes to contact tracing guidance with respect to close contacts who are vaccinated or who are within 9 months of a confirmed previous infection of COVID19.

Background and recommendations

This contact tracing guidance applies to individuals who have received a vaccine that has been approved by the European Medicines Agency or had confirmed COVID-19 infection in the previous nine months and are:

- 7 days after receipt of the **second** Pfizer-BioNTech (Comirnaty®) COVID-19 vaccine
- 14 days after receipt of the **second** Moderna (Moderna®) COVID-19 vaccine
- 14 days after receipt of the Janssen (Janssen®) COVID-19 vaccine (**one dose vaccination course**)
- 15 days after receipt of the **second** AstraZeneca (Vaxzevria® or Covishield) COVID-19 vaccine

This guidance may change over time. It is considered that the above scenarios provide significant vaccine protection however, it continues to be essential that all individuals receive the recommended full course of vaccination, as per the [vaccination schedule](#).

This guidance has been informed by:

The [ECDC Technical Report](#) “Interim guidance on the benefits of full vaccination against COVID-19 for transmission and implications for non-pharmaceutical interventions”

The [ECDC Technical Report](#) “Risk of SARS-CoV-2 transmission from newly infected individuals with documented previous infection or vaccination”

The [CDC Science Brief](#) “Background Rationale and Evidence for Public Health Recommendations for Fully Vaccinated People” and [CDC](#) “Interim Public Health Recommendations for Fully Vaccinated People”

National Immunisation Advisory Committee. [NIAC recommendations for the Use of COVID-19 Vaccines: 1. COVID-19 Vaccine Janssen; 2. Vaxzevria COVID-19 vaccine AstrZeneca; 3. mRNA Vaccine Dose Interval](#). Published 26.04.2021.

Rationale for changes to Contact Tracing Guidance

Vaccine Effectiveness

All vaccines currently in use in Ireland are proven to be effective against SARS-CoV-2 infection, severe disease and death. Given the proven effectiveness of these vaccines, it is expected that as the roll-out of vaccines increases, the incidence of infection will decrease significantly, leading to reduced transmission overall.

Impact of Vaccination on Transmission of SARS-CoV-2

COVID-19 vaccines do not confer sterilising immunity to all individuals and therefore vaccinated individuals might still be able to transmit SARS-CoV-2 infection to susceptible contacts. However, there is evidence that vaccination significantly reduces infection in vaccinated individuals. A limited number of vaccine studies with prospective follow-up show reduced viral load and duration of virus shedding among vaccine recipients compared to placebo groups. Viral load is thought to be a leading indicator of SARS-CoV-2 transmission [1]. However it is not currently known if these observed reductions in viral load and duration of shedding actually reduce transmission.

Most vaccine effectiveness studies have not been designed to measure transmission risk, following subsequent exposure, from vaccinated individuals to others. One study from Scotland, however, which did directly measure transmission risk, reported a 30% risk reduction for transmission of SARS-CoV-2 from vaccinated health care workers to their household close contacts as compared to transmission from unvaccinated health care workers. The authors of this study noted that given the potential for household close contacts to have been infected through a different route, the true risk reduction for transmission of SARS-CoV2 in those who have been vaccinated is likely to be as high as 60% [2].

However, information on transmission of SARS-CoV-2 from vaccinated individuals is currently scarce although new evidence is becoming available. The [Interim Guidance on benefits of full vaccination against COVID-19 for transmission risks and implications for non-pharmaceutical interventions](#) concludes that “based on the limited evidence available the likelihood of an infected vaccinated person transmitting the disease is currently assessed to be very low to low”. They further state that although there is no evidence of the severity of disease following transmission from a vaccinated individual to an unvaccinated individual the likelihood of severe disease for unvaccinated individuals is low for younger adults and adolescents and high for unvaccinated older adults or people with underlying comorbidities. [3]

Considerations

If a vaccinated individual is exposed to SARS-CoV-2 there are certain factors that may increase the likelihood that they will become infected. An individual may have a decreased response to the vaccine, this can be due to many factors, or they may be exposed to a variant of the virus to which the vaccine is not effective.

Decreased Immune Response

In general there is variation between individuals in the immune response to vaccination [4]. Certain individuals may have a decreased immune response to vaccination. This can be due to a particular medical condition or a treatment that is expected to compromise the ability of their immune system to respond to vaccination. Vaccine responses are also diminished in older individuals [4].

Variants of Concern

SARS-CoV-2 will continue mutating and potentially recombining to evade immune defences in order to replicate and spread. There is already some evidence of potential vaccine escape for B.1.351 and P.1 [5,6]. Infections with variant viruses in vaccinated individuals have been reported, although this phenomena is currently not well understood. The possibility cannot be discounted that in the future there will be new dominant variants that will be transmitted despite vaccination.

Guidelines from other jurisdictions

Other countries have produced guidelines for contact tracing in fully vaccinated individuals, exempting these individuals from the need to restrict their movements after exposure to a COVID-19 case. There are certain caveats to this exemption, in particular with relation to those living or working in high risk environments such as congregate settings (see Appendix A for details). Some countries also apply the exemption to individuals that are only partially vaccinated.

Some of these countries also exempt fully vaccinated individuals who are in contact with a case from testing, for example the US and Sweden. However the same caveats apply to these exemptions as stated above (see Appendix A for details). Other countries' guidance doesn't specify in relation to testing (see Appendix A for details).

The CDC guidance does not include their rationale for why those who are employees within high-density workplaces (e.g., meat and poultry processing and manufacturing plants) with no COVID-19 like symptoms do not need to quarantine following an exposure but are still recommended to be tested. However, they note "A balanced approach to phasing out certain prevention measures may be a powerful motivator for vaccination, and thus should be an important goal of the U.S. vaccination program."

History of Previous Infection with SARS-CoV-2

A HIQA review recently published 'Duration of protected immunity (protection from reinfection) following SARS-CoV-2 infection', published June 3rd 2021, found that people who were tested and confirmed COVID-19 in the past are likely to be protected against reinfection for up to nine months (7).

Recommendations for changes to Contact Tracing Guidance

1. All persons who are vaccinated should continue to adhere to all general public health advice
2. It is essential that all individuals receive a full course of vaccination, as per the [vaccination schedule](#)
3. Persons who are fully vaccinated

include those who are:

- a. 7 days after receipt of the **second** Pfizer-BioNTech (Comirnaty®) dose (two dose vaccination course)
- b. 14 days after receipt of the **second** Moderna (Moderna®) dose (two dose vaccination course)
- c. 14 days after receipt of the Janssen (Janssen®) dose (**one dose vaccination course**)
- d. 15 days after receipt of the **second** AstraZeneca (Vaxzevria® or Covishield) dose (two dose vaccination course)

OR

4. Have had confirmed COVID-19 infection in the previous nine months

AND

5. Are asymptomatic and who are identified as close contacts of a case of COVID-19,

NEED NOT

(i) Restrict their movements or

(ii) be tested

unless specific circumstances apply as follows:

1. Known contact with a case of COVID-19 in which the case is a Person Under Investigation, probable or confirmed variant of concern **excluding Alpha and Delta**. In this situation the close contact should be managed as a close contact of a VOC.
2. If the person's immune system response to vaccination could be compromised due to either a known medical condition or being on immunosuppressive treatment, they should be treated as a close contact - offered two tests (on day 0 and day 10) and advised to restrict their movements. If there is any uncertainty as to whether the close contact has a medical condition or takes a

treatment that would result in a sub-optimal response to vaccination, they should also be advised to restrict their movements and contact their treating physician who can advise if these recommendations apply to them. Please see [Chapter 5a – COVID-19](#) for a list of medical conditions and immunosuppressive treatments which are associated with sub-optimal response to vaccines from the Immunisation Guidelines for Ireland.

3. A public health or occupational health risk assessment has identified other specific grounds for concern
4. The close contact develops symptoms of COVID-19, in which case they need to immediately [self-isolate](#) and be referred for a COVID-19 test (Please see '[National Guidelines for Public Health management of contacts of cases of COVID-19](#)' section 6.1).

Recommendations for fully vaccinated individuals after a COVID-19 exposure:

Country	Restriction of movement/quarantine	Testing	Exemptions
United States of America	No	No See exemptions for specific groups where testing advised	<ul style="list-style-type: none"> • Symptomatic • Residents of non-healthcare congregate settings (e.g., correctional and detention facilities, group homes) should continue to quarantine for 14 days and be tested for SARS-CoV-2 following an exposure to someone with suspected or confirmed COVID-19. This is because residential congregate settings may face high turnover of residents, a higher risk of transmission, and challenges in maintaining recommended physical distancing. • Employees of non-healthcare congregate settings and other high-density workplaces (e.g., meat and poultry processing and manufacturing plants) with no COVID-19 like symptoms do not need to quarantine following an exposure; however, testing following an exposure and through routine workplace screening programs (if present) is still recommended.
Estonia	No	Not specified	<ul style="list-style-type: none"> • More than six months have passed since the day of last vaccination.
Germany	No.	Not specified	<ul style="list-style-type: none"> • Recommendation does apply to health care workers or people working with vulnerable groups. However, it is recommended that contact within the working environment to vulnerable groups is avoided for 14 days • Does not apply for vaccinated patients in medical facilities (for the duration of hospitalisation) in order to protect unvaccinated patients from the residual risk of passing on the infection.
Slovenia	No	Not specified	
Finland	No but only for those working in social welfare and health care.	Not specified	<ul style="list-style-type: none"> • Does not apply to general population

Sweden	No	No	<ul style="list-style-type: none"> • Symptomatic • Employed in elderly care, or in care activities with particularly vulnerable patient groups, testing is recommended.
Denmark	No	Yes	

Appendix B

Recommendations taken from The Immunisation Guidelines for Ireland, [Chapter 5a – COVID-19](#)

Conditions/Treatment associated with sub-optimal response to vaccines	
Cancer	All cancer patients actively receiving (and/or within 6 weeks of receiving) systemic therapy with cytotoxic chemotherapy, targeted therapy, monoclonal antibodies or immunotherapies and surgery or radical radiotherapy for lung or head and neck cancer. All patients with advanced/metastatic cancers. Haematological - within 1 year
Chronic Kidney Disease	On dialysis or eGFR<30ml/min
Immunocompromise due to disease or treatment	Severe e.g. Transplantation: - Listed for solid organ or haematopoietic stem cell transplant (HSCT) - Post solid organ transplant at any time - Post HSCT within 12 months Genetic diseases: - APECED ¹ - Inborn errors in the interferon pathway Treatment: - included but not limited to Cyclophosphamide, Rituximab, Alemtuzumab, Cladribine or Ocrelizumab in the last 6 months Other e.g. High dose systemic steroids ² Persons living with HIV

1. APECED - autoimmune polyendocrinopathy candidiasis ectodermal dystrophy

2. The following doses of prednisolone (or equivalent dose of other glucocorticoid) may increase the risk of severe COVID-19 disease: ● ≥10mg per day for more than 4 weeks with one other immunosuppressant ● ≥20mg per day for more than 4 weeks

References

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4. Zimmermann P, Curtis N. Factors That Influence the Immune Response to Vaccination. *Clinical Microbiology Reviews*. 2019;32(2). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6431125/>
5. Madhi SA, Baillie V, Cutland CL, Voysey M, Koen AL, Fairlie L, et al. Efficacy of the ChAdOx1 nCoV-19 covid-19 vaccine against the B. 1.351 variant. *New England Journal of Medicine* [Internet]. 2021. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMoa2102214>.
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