

Lake County General Health District & Geauga Public Health



Lake County
General Health District



Public Health
Prevent. Promote. Protect.



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The Centers for Disease Control and Prevention (CDC) and the Ohio Department of Health (ODH) currently recommend that anyone that has had a documented COVID-19 infection and has completed their isolation period does not need to quarantine again for a subsequent exposure to COVID-19 within the next 90 days^[1,2]. This recommendation is based on the fact that infection with COVID-19 confers natural immunity which lowers the risk of subsequent reinfection after another exposure to the virus. Research on how long this natural immunity lasts and its comparison with the immunity gained from the COVID-19 vaccines is ongoing. The following information is directly from the CDC³:

Protection from Reinfection in Cohort Studies³

Multiple studies have compared the incidence of reinfection and primary infection during a specific time period to evaluate the level and duration of protection provided by initial infection with SARS-CoV-2. Table 2 summarizes data from seven observational cohort studies from six countries, each with >10,000 participants, assessing the risk of reinfection over time. Five studies used RT-PCR positivity to define initial infection. In these studies, primary RT-PCR-confirmed SARS-CoV-2 infection decreased risk of subsequent infection by 80–93% for at least 6–9 months^[5-9]. Studies specifically assessing persons seropositive with anti-N and anti-S antibodies following infection^[10, 11] found slightly higher protective effects (89–93%). Most studies had a mean or median follow-up period of approximately 7 months; the longest reported follow-up was 12 months post-infection^[9]. Three studies included sub-analysis to assess if the protection waned over time; none of these found a decline in protection within the follow-up period^[5, 6, 8].

Comparison of Infection- and Vaccine-induced Immune Responses³

A systematic review and meta-analysis including data from three vaccine efficacy trials and four observational studies from the US, Israel, and the United Kingdom, found no significant difference in the overall level of protection provided by infection as compared with protection provided by vaccination; this included studies from both prior to and during the period in which Delta was the predominant variant⁽¹²⁾. In this review, the randomized controlled trials appeared to show higher protection from mRNA vaccines whereas the observational studies appeared to show protection to be higher following infection.

The Office of National Statistics in the United Kingdom used data from a large-scale longitudinal community survey of COVID-19 to compare the risk of infection among fully vaccinated, partially vaccinated, unvaccinated/previously infected, and unvaccinated/uninfected persons during two different periods 1) when Alpha was the predominant variant (December 2020–May 2021) and 2) when Delta was the predominant variant (May–August 2021)⁽¹³⁾. Based on results that included over 26,000 RT-PCR positive tests, they found full vaccination to provide the greatest protection during the Alpha predominant period (79% vs. 65% reduction in risk), but equivalent protection from full vaccination and infection during the Delta predominant period (67% vs. 71% reduction in risk).

Conclusions³

Although the Delta variant and some other variants have shown increased resistance to neutralization by both post-infection and post-vaccination sera in laboratory studies, observed reduction in effectiveness has been modest, with continued strong protection against hospitalization, severe disease, and death.

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