

Single dose of Pfizer or Astra Zeneca vaccine offers substantial protection to older adults in long-term care facilities

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A new study to be presented at this year's European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) (9-12 July) and published this week in *The Lancet Infectious Diseases* shows that, for residents of long-term care homes for adults aged 65 years and over, a single dose of either the Pfizer or Astra Zeneca COVID-19 vaccine offers around 60% protection against infection from SARS-CoV-2. The study is by Dr. Madhumita Shrotri and Dr. Laura Shallcross, UCL Institute of Health Informatics, University College London, UK, and colleagues.

The greatest effects of SARS-CoV-2 have been in residents of long-term care facilities, who represent a small fraction of the general population but account for a disproportionate number of SARS-CoV-2-related deaths in many countries, including the UK. As in other countries, the UK prioritised residents of these [care homes](#) to receive the first doses of COVID-19 vaccines that arrived in the country.

To obtain real-world data on the effectiveness of these vaccines (Pfizer and Astra Zeneca) in care homes, the authors used data from the VIVALDI study, an ongoing study since June 2020 to investigate SARS-CoV-2 transmission, infection outcomes, and immunity in residents and staff in long-term care facilities in England that provide residential or nursing care for adults aged 65 years and older.

This analysis included long-term care facility residents undergoing routine asymptomatic SARS-CoV-2 testing between Dec 8, 2020 (the date the first vaccine was administered in the study cohort), and March 15, 2021, using national testing data linked within the COVID-19 Datastore. This study was completed before the emergence of the Delta variant of SARS-CoV-2 now dominating in the UK.

The researchers estimated the reduced risk of PCR-positive infection at 0-6 days, 7-13 days, 14-20 days, 21-27 days, 28-34 days, 35-48 days, and 49 days and beyond after vaccination, compared with unvaccinated residents, adjusting for age, sex, previous infection, local SARS-CoV-2 incidence, long-term care facility bed capacity, and clustering by long-term care facility.

The analysis included 10412 care home residents aged 65 years and older from 310 facilities, with a median age of 86 years, of whom 70% were female and 1155 residents (11%) had evidence of previous SARS-CoV-2 infection. A total of 9160 (88%) residents received at least one vaccine dose during the study period, of whom 6138 (67%) received Astra Zeneca (ChAdOx1) and 3022 (33%) received Pfizer (BNT162b2).

Between Dec 8, 2020, and March 15, 2021, there were 36352 PCR tests carried out, with 1335 PCR-positive infections detected (713 in unvaccinated

residents and 612 in vaccinated residents). The risk of infection was 56% lower in vaccinated residents after 28 to 34 days, days, and 62% lower at 35-48 days. Similar effect sizes at 35-48 days were seen for the Astra Zeneca vaccine (68% reduced risk of infection) and the Pfizer vaccine (65% reduced risk).

The authors say: "Single-dose vaccination with either the Astra Zeneca or the Pfizer COVID-19 vaccine reduces the risk of SARS-CoV-2 in older residents in long-term care facilities. Our findings suggest that vaccination also has an effect on SARS-CoV-2 transmissibility by reducing the total number of infections in residents, as well as their infectivity. The protective effect of a single dose of vaccination is evident from 4 weeks to at least 7 weeks after vaccination, which provides some evidence to support extension of the interval between doses beyond 3 weeks, in line with UK policy. However, even beyond 4 weeks, a single vaccine dose does not eliminate infection risk, highlighting the continued importance of non-pharmaceutical measures to control transmission within long-term care facilities."

They add: "Further work is required to evaluate the effectiveness of the second dose of the [vaccine](#), and the effect of vaccination on transmission. This knowledge will be critical to inform policy decisions regarding revaccination schedules in this vulnerable population and the disease control measures needed in the short, medium, and long term to protect [long-term care facilities](#) from future waves of SARS-CoV-2 [infection](#)."

More information: *The Lancet Infectious Diseases* (2021). www.thelancet.com/journals/lan... (21)00289-9/fulltext

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