

TGIF

Today I update the European review of the Astra Zeneca vaccine.

Under Journal Reviews I have selected several interesting new publications. The first looks at impact of COVID-19 vaccinations and COVID-19 infections in SNFs. The second looks at risk of reinfection with SARS-CoV-2 in Denmark. The last article addresses the question does vaccination impact risk of asymptomatic COVID-19 infection.

Have a wonderful weekend.

Ed

COVID-19 News

AstraZeneca Vaccine

The Oxford/AstraZeneca (AZ) COVID-19 vaccine is "safe and effective," and the benefits outweigh the risks observed with blood clotting, announced the European Medicines Agency (EMA) yesterday.

The agency was responding to concerns, raised by European governments, about a possible connection between the vaccine and blood clotting events, including deaths. They conclude the vaccine is not associated with an increase in the overall risk of thromboembolic events. At the time of review, the UK had vaccinated 11 million people, compared to 7 million in the European Economic Area (EEA), but a small number of cases of rare but serious clotting disorders triggered a more focused review. On a different note, Pharmacovigilance Risk Assessment Committee (PRAC) reviewed seven reports of DIC and 18 cases of cerebral venous sinus thrombosis (CVST). Most of these occurred in the under-55 age group, and the majority were women. Nine cases were fatal. The initial review pointed out that these cases of thrombosis and thrombocytopenia have shown a predominance in younger women.

Comment: In terms of DIC/CVST the PRAC said it was premature to conclude a specific group was at risk, because the background rate might be different in this group [younger women, under 50 years], and more women might have been vaccinated in this group. However, based on the evidence available scientists still cannot rule out a link between these cases and the vaccine.

In terms of the number of thromboembolic events including those reported after vaccination, both in pre-licensing studies and during vaccination rollout, is 469, 191 of them from the EEA. This is lower than that expected in the general population and allowed the EMA to conclude that there is no increase in overall risk of blood clots with this vaccine.

Journal Review

Effectiveness of the Pfizer-BioNTech COVID-19 Vaccine Among Residents of Two Skilled Nursing Facilities Experiencing COVID-19 Outbreaks — Connecticut, December 2020–February 2021
MMWR March 15, 2021

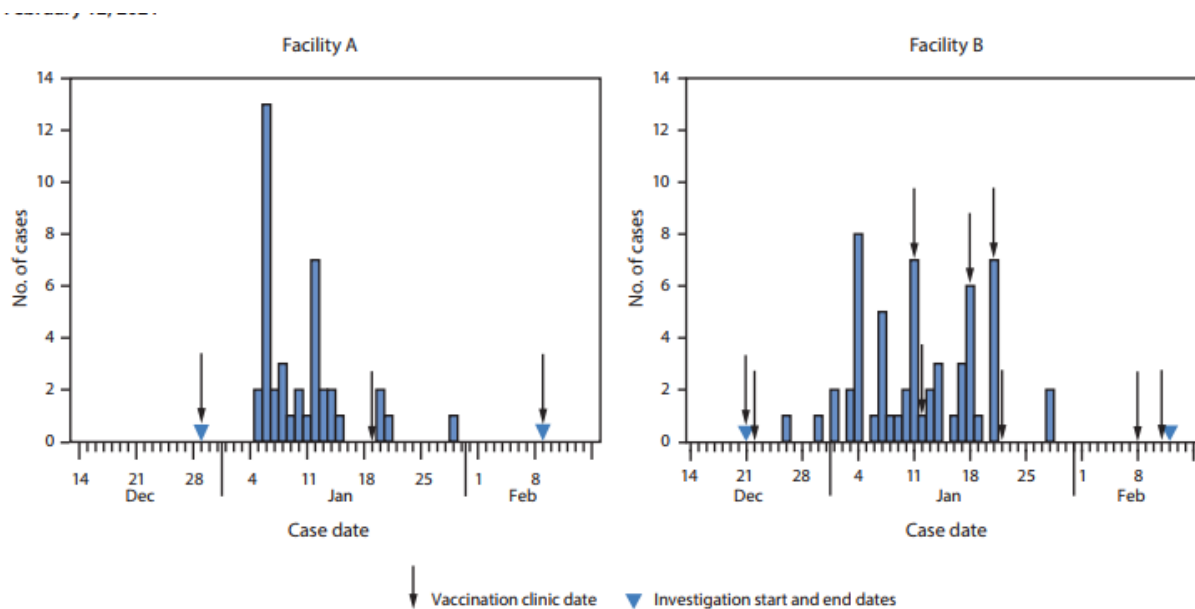
Skilled nursing facility (SNF) residents are generally older and have more underlying medical conditions than community-dwelling adults. SNF residents were not included in COVID-19 vaccine clinical trials, therefore little is known about COVID-19 vaccine effectiveness in this population.

The investigation period which started on the date of each SNF’s first vaccination clinic (December 29, 2020 for the first facility and December 21, 2020 for the second facility) and ended on February 9, 2021 and February 12, 2021, respectively, included 463 residents. The median number of high-risk conditions per resident was three. Among the 463 residents, 115 (24.8%) had confirmed SARS-CoV-2 infection before the investigation period. Of the 115 residents, 70 had a positive test result ≤ 3 months prior to investigation start.

During the investigation period, 97 cases of SARS-CoV-2 infection occurred. By the date of discharge or the last day of the investigation, 304 residents (65.7%) had received 2 vaccine doses, 72 (15.6%) had received 1 dose only, while 87 (18.8%) had not received any doses.

A total of 16,969 person-days were observed during the investigation period, with 39 cases occurring during 3,573 days categorized as unvaccinated person-time, 26 cases during 4,588 days of person-time before first vaccine dose effect, 25 cases during 4,147 days of partially vaccinated person-time, and 7 cases during 4,661 days of fully vaccinated person-time.

The report noted that the estimated effectiveness of partial vaccination, defined as the period from >14 days after the first dose through 7 days after the second dose, in preventing SARS-CoV-2 infection was 63% (95% confidence interval [CI] 33%–79%) and was similar when residents with past SARS-CoV-2 were excluded (VE 60%, 95% CI 30%–77%). Further, the VE was found to be similar to estimated effectiveness for a single dose of the Pfizer-BioNTech COVID-19 vaccine in adults across a range of age groups in non-congregate settings.



Comment: Even with partial vaccination, Pfizer vaccine provides protection to SNF residents. To optimize vaccine impact among this population, high coverage with the complete 2-dose series is

recommended. These results, coupled with the findings from a previous study among comparable older adult populations in Israel that reported more robust protection after the second dose, suggest that complete 2-dose vaccination is an important strategy for preventing COVID-19 in this disproportionately affected population.

Assessment of Protection Against Reinfection with SARS-CoV-2 Among 4 Million PCR-Tested Individuals in Denmark in 2020: A Population-Level Observational Study

Lancet published online March 17, 2021

[doi.org/10.1016/S0140-6736\(21\)00662-0](https://doi.org/10.1016/S0140-6736(21)00662-0)

Researchers examined PCR test results among roughly 525,000 people who were tested for SARS-CoV-2 from February through December 2020. Of some 11,000 who tested positive during the first surge of the pandemic in March-May, just 0.7% tested positive again during the second surge in September-December. Of those who tested negative during the first surge, 3.3% tested positive during the second surge. Natural infection with SARS-CoV-2 led to observed protection against reinfection estimated to be approximately 80% after 6 months. However, in a separate analysis, the reinfection rate was 8 per 100,000 person-days of follow-up among people aged 65 and older, versus 4-6 per 100,000 person-days among younger age groups. Therefore, individuals aged 65 years and older had less than 50% protection against repeat SARS-CoV-2 infection.

Comment: Risk for reinfection with SARS-CoV-2 is generally low — but it is higher among adults aged 65 and older. It is also becoming increasingly clear that the quality, quantity, and durability of protective immunity elicited by natural infection with SARS-CoV-2 is lower relative to the much higher levels of virus-neutralizing antibodies and more importantly the T cells induced by the vaccines. Bottom line: get vaccinated even if you have had natural infection especially if you are aged 65 and older.

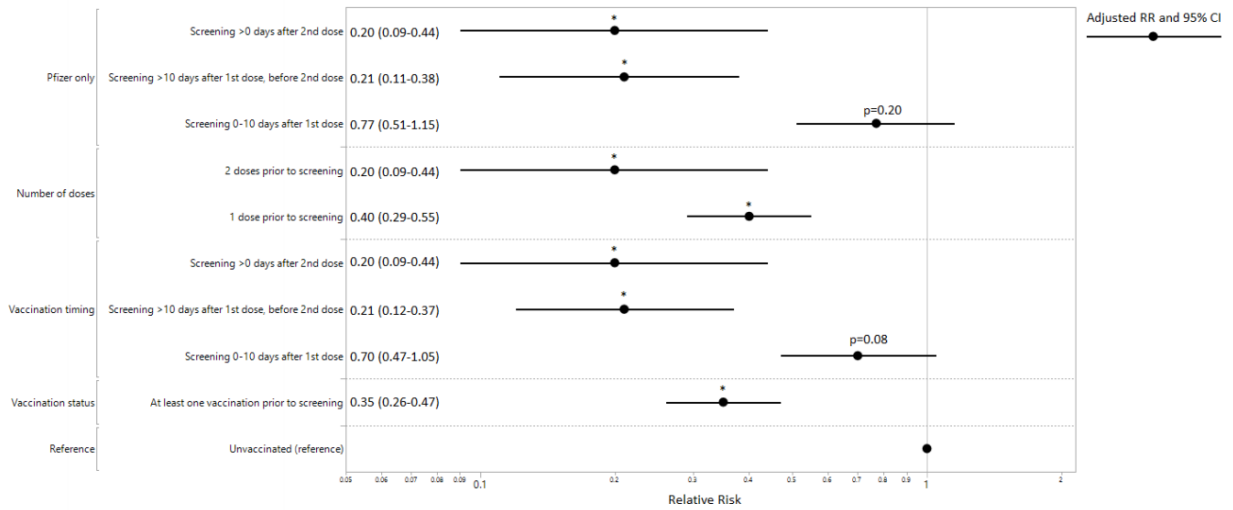
Impact of the COVID-19 Vaccine on Asymptomatic Infection Among Patients Undergoing Pre-Procedural COVID-19 Molecular Screening

Clin Infect Dis published online March 10, 2021

doi.org/10.1093/cid/ciab229

This study was a retrospective cohort study which involved 39,156 asymptomatic adult patients within a large United States healthcare system who underwent 48,333 pre-procedural SARS-CoV-2 molecular screening tests between December 17, 2020 and February 8, 2021. The primary outcome was relative risk of a positive SARS-CoV-2 molecular test among those asymptomatic persons who had received at least one dose of vaccine, compared to persons who had not received vaccine during the same time period.

Positive molecular tests in asymptomatic individuals were reported in 42 (1.4%) of 3,006 tests performed on vaccinated patients and 1,436 (3.2%) of 45,327 tests performed on unvaccinated patients (relative risk [RR], 0.44; 95% confidence interval [CI], 0.33-0.60; $P < 0.0001$). The RR for a positive test comparing screening >10 days after the first dose of vaccine to unvaccinated was 0.28 (95% CI, 0.16-0.49; $P < 0.0001$), and the RR for a positive test comparing screening >0 days after the second dose to unvaccinated was 0.27 (95% CI, 0.12-0.60; $P < 0.0001$). After adjustment for confounding variables and random effects, the adjusted relative risk (aRR) of asymptomatic SARS-CoV-2 infection in vaccinated individuals compared to unvaccinated individuals was 0.35 (95% CI, 0.26-0.47; $P < 0.0001$), whereby the aRR was 0.21 (95% CI, 0.12-0.37; $P < 0.0001$) among those who underwent the test >10 days after receiving the first dose of vaccine and 0.20 (95% CI, 0.09-0.44; $P < 0.0001$) among those who underwent the test >0 days after the second dose.



Comment: Bottom line: Among individuals who received two doses of vaccine, they observed an 80% reduction in the risk of a positive molecular screening test among test performed in persons who had received 2 doses of vaccine, compared to those who were not vaccinated. The results of this study and others demonstrate the current vaccines not only reduce symptomatic disease but also asymptomatic disease and probably transmission. This is just another reason why everyone should get vaccinated.