Frequent Testing Reduced COVID-19 Deaths in Nursing Facilities

The reduction in COVID-19 cases and deaths was strongest in the period before vaccines became widely available.

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During the COVID-19 pandemic, residents of skilled nursing facilities have been at particular risk of dying from the disease. These nursing facilities are for people who need daily medical care from trained professionals. Although less than 2% of the U.S. population either lives or works in such facilities, they accounted for more than 20% of the deaths from COVID-19 through 2021.

Staff members who contracted an infection outside of work likely seeded most COVID-19 outbreaks in skilled nursing facilities. Modeling studies have suggested that frequent testing of staff members could help reduce this risk, so such approaches have been widely adopted. But few studies have examined how well this strategy worked in real life.

In new NIH-funded research, a team led by Dr. Brian McGarry from the University of Rochester and Dr. Michael Barnett from Harvard University looked at data collected and reported by more than 13,000 skilled nursing facilities during the pandemic. The team examined rates of staff COVID-19 testing during three main periods between November 2020 and March 2022: before vaccines became available; after vaccines were widely distributed but before the Omicron wave; and during the Omicron wave. Tests included rapid antigen testing done on site and PCR testing, which had to be sent to an outside lab.

The researchers compared the facilities' rates of COVID-19 infections and deaths with their frequency of staff testing for COVID-19. Results were published on March 23, 2023, in the New England Journal of Medicine.

During the entire period studied, facilities that did the most testing (top 10%) had about 43 deaths per 100 outbreaks, compared to about 50 deaths per 100 outbreaks in facilities that did the least testing (bottom 10%). Facilities that did the most testing detected about 15% more COVID-19 infections among staff than those that did the least. This suggests that frequent testing captured more asymptomatic staff infections that could seed outbreaks.

Before vaccines were available, these numbers translated to an approximately 30% reduction in the number of cases among facility residents and a 26% reduction in deaths. During the Omicron

wave, frequent testing continued to reduce the number of cases among residents, but no longer impacted the number of deaths. This change reflects the effectiveness of vaccines against the virus.

The number of observed deaths didn't differ between facilities that used rapid testing or PCR testing. However, a faster turn-around time for PCR testing was associated with fewer resident deaths. In the period before widespread vaccination, those facilities that received their testing results in 2 days or less had fewer deaths per outbreak than those that got them back in 3 or more days.

"This research demonstrates that frequent COVID surveillance testing protected nursing home residents and undoubtedly saved lives by detecting more infected staff, potentially earlier in the disease course, and disrupting potential viral transmission chains," McGarry says.

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