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Do health-care workers need a COVID-19 vaccine booster?

Only a small fraction of people living in low-income countries will have received at least one dose of the SARS-CoV-2 vaccine by the end of 2021. By contrast, booster shots of the mRNA vaccines are being administered in vaccine-rich countries despite an absence of consensus regarding the need for an additional dose.¹ Adults working in high-risk settings, including health-care workers, are currently eligible for a COVID-19 vaccine booster in some countries, including the USA, the UK, Germany, and Italy. However, the evidence supporting this policy is controversial.

Early studies documenting waning immunity to SARS-CoV-2 in mRNA vaccine recipients used antibody titres and infection rates (positive PCR test) as outcome measures;^{1,2} however, no evidence was found for an appreciable waning of protection against hospital admission and death 6 months after the second dose of Pfizer-BioNTech's BNT162b2 mRNA COVID-19 vaccine.² In a recent observational study from Israel, the authors could not show the effectiveness of a third dose of BNT162b2 for preventing severe outcomes in younger age groups (16–39 years).³ In the subgroup analysis, triple-vaccinated individuals older than 40 years had decreased rates of admission to hospital, severe disease, and COVID-19-related death compared with those who had received only two doses. In this study, individuals aged 40–69 years were stratified into the same group, which might have skewed the results, given that a third BNT162b2 vaccine dose was shown to be protective in individuals aged 60 years or older.⁴

The second crucial element relates to which categories of health-care workers belong to high-risk groups. For example, the risk of testing

positive for SARS-CoV-2 was greater among front-line workers (defined as those with direct patient contact) than among the general community, and the risk of hospital admission among front-door workers (defined as paramedics or workers in other acute-receiving specialities) and personnel exposed to aerosol-generating procedures was higher than among other front-line health-care workers.⁵ However, it has also been reported that occupational risk for unvaccinated health-care providers who routinely undertake aerosol-generating procedures⁶ was relatively low during the first wave of the COVID-19 pandemic, as was the risk for non-patient-facing health-care workers and their households.⁵

Although expert opinion predicts that everyone will need a booster dose at some point, it would be reasonable if boosters were given only to targeted populations in whom the evidence shows they are probably needed. On a global scale, this would avoid millions of unnecessary adverse effects and, most importantly, would make those vaccines available to countries where they are most needed. After all, a worldwide epidemic—a pandemic—requires a global strategy.

I declare no competing interests.

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Practical measures for SARS-CoV-2 infection prevention

Boris Revollo and colleagues reported that a combination of same-day screening with antigen-detecting rapid diagnostic tests (Ag-RDT), wearing facemasks, and optimised air ventilation creates a safe indoor environment without the need for physical distancing.¹ I commend the authors for planning and conducting a randomised controlled trial in this serious pandemic situation. However, I would like to voice a few concerns.

First, although the protocol shows a strong intention to avoid the spread of infection, the setting appears to inadequately represent a real-life situation. Could people attend the concert in groups or was entry permitted only on an individual basis? In reality, many people may attend a concert as couples or in small groups of friends. In such cases, more conversations and contacts may occur between them, increasing the number of close contacts, and thus the risk of infection.² Another study estimating the risk factors for SARS-CoV-2 infection found that people closely related to the index case were at a higher risk of infection.³

Second, during the concert, participants were instructed to wear N95 masks at all times. It is not pragmatic to provide N95 masks for every event because of their cost.⁴ Moreover, if participants have difficulty breathing when they sing or dance, they may not wear their masks properly.⁴ If the authors wish to recreate a situation close to real life, the use of