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Cite this as: *BMJ* 2021;372:n435
http://dx.doi.org/10.1136/bmj.n435
Published: 12 February 2021

COVAX ALLOCATION OF COVID VACCINES

Equity and evidence during vaccine rollout: stepped wedge cluster randomised trials could help

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Herzog and colleagues raise the thorny issue of allocating scarce vaccines, comparing the proportional allocation model with a fair priority model.[1] Regardless of what is used for prioritisation between and within countries, there will be a long period of rollout before most of the world's population are offered vaccination. For groups of equivalent priority, a fair and equitable way to decide on the order of rollout is to use a lottery, or system of random choice.[2] Such randomised sequential rollout of vaccines could be delivered through stepped wedge cluster randomised trials (SW-CRTs).[3]

Although constrained by the absence of placebos,[4-6] SW-CRTs might provide valuable information related to uncertainties about different vaccine effects, including:

- Effectiveness in preventing transmission of SARS-CoV-2 infection from vaccinated patients to others, and whether this differs across genetic variants of the virus including new, more infectious, strains
- Effectiveness in preventing SARS-CoV-2 asymptomatic or paucisymptomatic infection: the Oxford-AstraZeneca vaccine was estimated to have only 27.3% (−17.2 to 54.9) efficacy in preventing infection that is asymptomatic or when symptoms are unknown,[7] and the efficacy of Pfizer and Moderna vaccines for this outcome has not been reported[8 9]
- Safety of vaccines in terms of risk of clinically important adverse events
- Comparative safety and effectiveness of different vaccines, including combinations of vaccines
- Comparative safety and effectiveness of different intervals between first and second dose of vaccine.[10]

Just as the benefits and harms of other population interventions can be assessed through randomised trials in population health programmes,[11] the benefits and harms of SARS-CoV-2 vaccines could be assessed through randomised trials in population rollouts. The SW-CRT study design might be the only randomised evaluation possible outside of phase III placebo controlled vaccine trials, as phase IV parallel randomised controlled trials (cluster or individual) might not be feasible because of logistics or acceptability. The likely alternative is non-randomised sequential rollout, which is a less fair way to decide on the order of offering vaccination and will result in evidence with a higher risk of bias.

Competing interests: None declared.

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