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## Journal Pre-proofs

Crippling SARS-CoV-2 vaccine supply crunch, vaccination target and scope in Bangladesh

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**Crippling SARS-CoV-2 vaccine supply crunch, vaccination target and scope in Bangladesh**

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Dear Editor,

Even after enormous national initiatives such as mobility restrictions, institutional closures, and lockdowns, as well as personal-level preventive measures, the COVID-19 pandemic continues to spread with its ever-evolving nature.<sup>1</sup> The disease has turned into a constant threat to the resources available. Low- and middle-income nations are at risk of being unable to combat the wave after wave of attacks. Thus, in addition to the control measures, an immunological protective shield provided by vaccination might be the only effective option remaining to battle the pandemic.<sup>2</sup>

Despite the fact that several vaccine manufacturers are working at full capacity, they are still unable to fulfill the worldwide demand for immunizations. At present, the World Health Organization (WHO) has approved 12 vaccines against COVID-19 illness on its Emergency Use Listing (EUL).<sup>3</sup> In Bangladesh, the administration of COVID-19 vaccines began on January 27, 2021, with mass immunization started on February 7, 2021, using the vaccine of Oxford-AstraZeneca.<sup>4</sup> But the vaccination program was suspended from April 26, 2021, due to the supply crunch. This situation left around 1.56 million persons in a partially vaccinated state who had received only the first dosage of the vaccine. However, the immunization campaign was restarted on July 8, 2021, and the country is now using 7 Vaccines Approved for Use: Moderna mRNA-1273, Pfizer/BioNTech BNT162b2, Gamaleya Sputnik V, Janssen (Johnson & Johnson) Ad26.COV2.S, Covishield (Oxford/AstraZeneca), Sinopharm (Beijing) BBIBP-CorV (Vero Cells) and Sinovac CoronaVac.<sup>5</sup>

Rich nations such as Israel and the United Kingdom are already storing millions of additional vaccine doses for future immunity booster programs (further dose after two shots). The World Health Organization has repeatedly stated that the epidemic would not be over until the entire world has been vaccinated. Rich nations have already purchased much more vaccines than they need, and ordering booster doses just adds to the problem. Unvaccinated populations could act as a source of yet more new variants, and vaccine-resistant variants could push the vaccinated part of the world back to square one.<sup>6</sup> On the other hand whole world is in the anxiety of facing further worsening variants and waves beyond the second or third<sup>7</sup>. Currently, the most crucial challenge is a race between virus spread and vaccination; the virus transmits exponentially, while vaccination rates are inevitably restricted by supply and

economic constraints. This is especially true in developing and less developed countries, where supplies can be disrupted at any time.

Bangladesh intends to vaccinate 80 percent of the country's overall population by 2022, with the majority of the vaccines purchased from foreign sources. At present, the country has achieved 14% first dose and only 5% second dose of its target.<sup>8</sup> If the country can't produce vaccines locally, buying vaccines for the huge population in Bangladesh would be a big issue for the government. The best alternative might be the co-production of vaccines. Co-production means a company in Bangladesh gets a license to produce a Covid-19 vaccine locally by a memorandum of understanding (MoU) from several vaccine producers from the rest of the world. This would cut down the time required to complete all of the procedures for developing a new vaccine after a lengthy scientific trial period. Another advantage of co-production is that it opens up new avenues for future Covid research in Bangladesh.

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All the authors declare that there is no conflict of interest.

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**Declaration of interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

None

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Currently, the most crucial challenge is a race between virus spread and vaccination the virus transmits exponentially.

Bangladesh intends to vaccinate 80 percent of the country's overall population by 2022, with the majority of the vaccines purchased from foreign sources.

If the country can't produce vaccines locally, buying vaccines for the huge population in Bangladesh would be a big issue for the government. Co-production of vaccinations may be the best solution.