

## Vaccine Maths 2: Will India start exporting COVID-19 vaccines again in June 2021?

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As reported in the [Financial Times](#) today and in other news media over the past 24 hours, the CEO of the Serum Institute of India stated that COVID-19 vaccine exports from his country can resume in **June 2021** “without compromising the needs of our country.” There are good reasons to doubt this claim as some simple mathematics shows.

India seeks to vaccinate persons aged 45 or over. According to the last Indian census (conducted in 2011!) 21% of the population was aged 45 or over. With India’s current population that percentage implies 290 million people need vaccination. Recent press reports suggest a lower total of 252 million, so let’s lower the bar a little bit and take the latter number.

With a two-shot vaccine, the total number of jabs that must be manufactured is twice 252 million or 504 million jabs. According to the [Indian Ministry of Health](#), a total of 59.9 million jabs have already been given to persons aged 45 years or older. That leaves 444.1 million jabs to be delivered.

According to the same *Financial Times* article, at present the daily production capacity for the SII is 2.4 million doses. Claims have been made that the SII will expand production to 100 million doses per month from May 2021 on. Let’s take those claims at face value for the moment. If so, the earliest the 444.1 million jabs can be produced is **26 August 2021**.<sup>2</sup>

If SII cannot ramp up production, and daily production capacity remains at 2.4 million doses per day, then the manufacture of 444.1 million jabs cannot be completed until **10 October 2021**. The CEO of SII has repeatedly mentioned shortages of vaccine ingredients (he blames an informal export ban from the USA), so ramping up production may not be that easy.

*What could alter these calculations?*

- If SII were able to ramp up production in May and June as planned, then an end-June 2021 deadline can be reached only if 37.5% of Indians aged 45 or older refuse the vaccine. A recent [survey](#) showed that, at the beginning of April 2021, 77% of Indians would take a COVID-19 vaccine.
- If the Government of India decides that adults under the age of 45 should be inoculated too, then these dates are pushed further into the future. Likewise, if 290 million Indians aged 45 or over need to be vaccinated, rather than the 252 million number used in the calculations above.
- If India were to import COVID-19 vaccines this would pull the dates forward—but which foreign producer would supply them?

*Conclusions from this particular vaccine maths:*

An end-June 2021 deadline can only be met if a significant fraction of the Indian population refuse to be injected—an outcome that cannot be good for Indian public health or the Indian economy.

It is entirely plausible that India won’t have enough SII-produced COVID-19 vaccines to inoculate persons 45 years or older until well into September or October 2021. So much depends on whether SII can scale up production as fast as it plans, which may depend on whether it gets the \$400 million grant it has asked New Delhi to do so. Watch closely for any (financing, construction, or production) delays.

Foreign governments counting on India for COVID-19 vaccines are in for disappointment. Unless there is a change in Indian government policy, there must be serious doubts that COVID-19 vaccine exports can resume until well into the third quarter of 2021. This has important implications for the roll out of vaccination drives abroad ([especially in Africa and parts of the Asia-Pacific](#)), for hospitalisations and deaths, and for the pace of economic recovery, especially in the emerging markets.

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<sup>2</sup> India also produces a much smaller amount per month of Covaxin, which has little impact on these calculations.