BRIEFING

Timing of 2nd Dose: Pfizer & Moderna

Updated March 3, 2021

SUMMARY

Amid growing cases, hospitalizations, and deaths AND limited resources for vaccine rollout governments are asking: ***Is it better to reserve the 2nd doses with manufacturers as previously planned to ensure supply, or release all doses from the manufacturers immediately?***

There are two sub-questions in this discussion:

1. **Is the federal government confident enough in production capacity such that all stock can be released from manufacturers now, with additional stock distributed on rolling basis for 2nd doses?**

→ **Yes.** Key officials from both the Trump and Biden administrations announced in January that 2nd doses will no longer be held back at the manufacturers. Further, the Washington Post reported on January 15th that this policy has already been implemented since December.

2. **Should we consider delaying the timing of the 2nd dose in the interest of getting more people the 1st dose sooner?**

→ **Need more evidence.** We review the arguments on both sides below, but more evidence is required to evaluate this question.

While it is important to rapidly vaccinate the population to achieve herd immunity while prioritizing vulnerable populations, ***the dosing schedules approved under each manufacturer's FDA Emergency Use Authorization should be followed.*** On January 22nd, the CDC updated dosing guidance to allow for up to a six-week gap between 1st and 2nd doses in situations where absolutely necessary. This policy may be further revised as additional data become available from other countries and from ongoing clinical trials researching alternative dosing schedules.

As this body of evidence grows, jurisdictions should ensure that most at-risk members of community are prioritized to receive two doses according to the recommended guidelines. Additionally, the uncertainty of the situation demands communities increase efforts to prevent transmission through proven community mitigation measures, as well as increased testing, case investigation and contact tracing, and supported isolation.

DETAILED OVERVIEW

Prioritize the two-dose schedule—the case for increased efficacy

- Vaccine trial efficacy data effective is based on two-dose schedule; both the Pfizer and Moderna vaccines are ~95% effective at preventing symptoms of COVID-19 after two doses. Departure from such plans will have unknown implications for individual protection and duration of protection.
- Delaying doses may accelerate selective pressure on viruses, giving rise to new variants that are less susceptible to vaccination.

Prioritize providing the 1st dose to more people—the case for increased coverage

- Data show some protection is afforded to individuals following one dose. However, neither Pfizer nor Moderna conducted clinical trials of one dose vaccines. Therefore, we can only look at clinical trial data on transmission protection between the 1st and 2nd doses.
    - Pfizer: 52% efficacy after 1st dose, if looking at data for days 0-21 between doses.

        - UK vaccine committee used different calculations: recognizing the vaccine 1st dose takes ~12 days for immunity, they calculated infection rates from day 15-21 and found that "efficacy" rose to ~90%.
    - Moderna: 80.2% protection after 1st dose, tested in a small group of trial participants at an average of day 28 (range day 1-108).
    - However, even if a single dose can provide between 50-90% protection, there is no data on how long that protection lasts.
- Ongoing logistical challenges call into question progress towards providing adequate coverage to prevent illness and death; some wonder if more people with 50% coverage is better than fewer people with 95% coverage?
- It is unlikely that the 2nd dose could be abandoned completely, even if delayed.

COUNTRY PLANS

- The United States is aiming to release all available doses. However, FDA recommends health departments and other vaccine administration sites adhere to manufacturers dosing schedule.
- UK vaccine strategy supports delayed 2nd doses up to 11 or 12 weeks following first dose to "protect the greatest number of at-risk people overall in the shortest possible time."
- The delays of up to 12 weeks in the UK will be a real-life experiment resulting in our better understanding, as well as additional trials being conducted by the manufacturers.
- Canada has supported the delaying of 2nd doses for up to six weeks following 1st dose

SOURCES:

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