Covid-19 Vaccine Boosters

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Overview

- Covid-19 vaccines
- Booster recommendations
  - mRNA vaccines
  - Janssen Covid-19 vaccines
- Mix and match
- Fully vaccinated
### Dosing and Administration

<table>
<thead>
<tr>
<th></th>
<th>Pfizer-BioNTech</th>
<th>Moderna</th>
<th>Janssen</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDA-approved age groups</td>
<td>≥ 16 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FDA-authorized age groups</td>
<td>≥ 12-15 years</td>
<td>≥ 18 years</td>
<td>≥ 18 years</td>
</tr>
<tr>
<td>Number of doses in series</td>
<td>2 doses</td>
<td>2 doses</td>
<td>1 dose</td>
</tr>
<tr>
<td>Interval between 1&lt;sup&gt;st&lt;/sup&gt; and 2&lt;sup&gt;nd&lt;/sup&gt; doses*</td>
<td>3 weeks</td>
<td>1 month</td>
<td>NA</td>
</tr>
<tr>
<td>Primary dose volume</td>
<td>0.3 mL</td>
<td>0.5 mL</td>
<td>0.5 mL</td>
</tr>
<tr>
<td>Additional dose volume</td>
<td>0.3 mL</td>
<td>0.5 mL</td>
<td></td>
</tr>
<tr>
<td>Booster dose volume</td>
<td>0.3 mL</td>
<td>0.25 mL</td>
<td>0.5 mL</td>
</tr>
</tbody>
</table>

*The second dose of Pfizer-BioNTech and Moderna vaccines should be administered as close to the recommended interval as possible, but not earlier than recommended (i.e., 3 weeks [Pfizer-BioNTech] or 1 month [Moderna]). However, individuals who receive the second dose up to 4 days before or at any time after the recommended date can be considered fully vaccinated.

### Definitions

- **Additional dose after a primary vaccine series**: administration of an additional vaccine dose when the initial immune response following a primary vaccine series is likely to be insufficient. An additional mRNA COVID-19 vaccine dose is recommended for **moderately to severely immunocompromised** people at least 28 days after an initial 2-dose mRNA primary vaccine series.

- **Booster dose**: an additional dose of vaccine administered when the initial sufficient immune response to a primary vaccine is likely to have waned over time.
Booster Recommendation – Part 1

For individuals who received a Pfizer-BioNTech or Moderna COVID-19 vaccine, the following groups are eligible for a booster shot at 6 months or more after their initial series:

Recommended to receive a booster:

- 65 years old and older
- Persons 18 years and older in long-term care settings
- Persons 50 years through 64 years with underlying medical conditions

May receive a booster (individual risk decision):

- Persons 18-49 years with underlying medical conditions
- Persons 18-64 years at occupational or institutional risk

CDC Expands Eligibility for COVID-19 Booster Shots | CDC Online Newsroom | CDC

Underlying Medical Conditions

- In unvaccinated persons, there are certain underlying medical conditions that are associated with severe illness from COVID-19.
- Improved management of a person’s underlying medical condition may decrease risk of severe illness from COVID-19.
- Among fully vaccinated persons, having underlying medical conditions may be associated with increased risk of severe illness from COVID-19 over time as antibody titers wane.
- Examples:
  - cancer
  - chronic kidney disease
  - COPD (chronic obstructive pulmonary disease)
  - Diabetes mellitus, type 1 and type 2
  - heart conditions (such as heart failure, coronary artery disease, or cardiomyopathies)
  - obesity (BMI ≥30 kg/m2)
  - pregnancy and recent pregnancy

Individual Risk Benefit Assessment Considerations

Given the rapidly changing clinical, public health, and scientific landscape amidst the COVID-19 pandemic, an individual level assessment considering potential benefits and risks of a COVID-19 booster dose is needed where the data are uncertain.

Individual Risk-Benefit Assessment for People who “May Receive” mRNA Booster Dose

- Individual risks of booster
  - rare risks of serious adverse reactions (myocarditis, pericarditis, anaphylaxis)
  - common risks of transient local and systemic symptoms
- Potential impact of SARS-CoV-2 infection
  - risk for severe infection (underlying conditions)
  - risk associated with a person’s circumstances (living with/caring for at-risk individuals or consequences of inability to meet obligations due to infection)
- Potential benefits of booster
  - reduced risk of infection, including severe infection
- Risk factors for SARS-CoV-2 infection
  - risk of exposure (occupational and institutional settings)
  - risk for infection (time since completion of primary series)

Potential risks

https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html#Patient-counseling
Exposure and Transmission Because of Occupational or Institutional Setting

CDC recommends that a booster dose should be made available so that groups 18 years through 64 years may receive a booster dose at least 6 months after completing their primary vaccine, based on their individual benefits and risks:

- Who Is Eligible for a COVID-19 Vaccine Booster Shot? | CDC

Recommendation – Part 2

For the nearly 15 million people who got the Janssen COVID-19 vaccine, booster shots are also recommended for those who are 18 and older and who were vaccinated two or more months ago.

CDC Expands Eligibility for COVID-19 Booster Shots | CDC Online Newsroom | CDC
Mix and Match – Which Pairs?

- aka “heterologous”
- We do not recommend mix and match between the two doses of the mRNA primary series
- We do not recommend mix and match between the primary series and the additional dose
- We do allow for mix and match between a primary series and the booster dose

Mix and Match – The Finer Points

- The interval to the booster, and the criteria to determine eligibility, depend on which vaccine (mRNA or Janssen) was administered as the primary vaccine
- Someone 18 years old who received Janssen 2 months ago can receive Pfizer, Moderna, or Janssen as a booster
- Someone 18 years old who received Moderna 2 months ago is not eligible for a booster dose
- They could receive a booster dose at 6 months, if they have a high-risk medical condition or are at institutional or occupational risk
Fully Vaccinated People

- People are considered fully vaccinated against COVID-19
  - 2 weeks or more after receipt of the 2nd dose in a 2-dose series (Pfizer-BioNTech, Moderna).
  - 2 weeks of more after receipt of the single dose of the Janssen vaccine.
- CDC has developed public health recommendations for fully vaccinated people.
- To meet the definition does not require the additional dose or the booster dose


Questions?