



## 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

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## Dosing and Administration

	Pfizer-BioNTech	Moderna	Janssen
FDA-approved age groups	≥ 16 years		
FDA-authorized age groups	≥ 12-15 years	≥ 18 years	≥ 18 years
Number of doses in series	2 doses	2 doses	1 dose
Interval between 1 <sup>st</sup> and 2 <sup>nd</sup> doses*	3 weeks	1 month	NA
Primary dose volume	0.3 mL	0.5 mL	0.5 mL
Additional dose volume	0.3 mL	0.5 mL	
Booster dose volume	0.3 mL	0.25 mL	0.5 mL
Route	Intramuscular	Intramuscular	Intramuscular

\*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.

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## 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.

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## 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](#)

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## 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  $\geq 30$  kg/m<sup>2</sup>)
- pregnancy and recent pregnancy



<https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>

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## 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.



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## 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)



<https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html#Patient-counseling>

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## 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](#)



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## 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](#)

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## 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



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## 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



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## Fully Vaccinated People

- People are considered fully vaccinated against COVID-19
  - 2 weeks or more after receipt of the 2<sup>nd</sup> dose in a 2-dose series (Pfizer-BioNTech, Moderna).
  - 2 weeks or 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

[https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html#\\_ednref1](https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html#_ednref1)

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## Questions?

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