




How Safe and Effective Are Current COVID-19 Vaccines: When and How Often Should Vascular Surgeons Get Them if They Are <50, >50, >65 Or >75



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Connecting The Vascular Community

Conflicts of Interest

- none

Vaccine Development

- COVID-19 vaccines reached consumers in record time.
- Process typically takes 10 to 15 years.
- Before COVID-19, the fastest-ever vaccine—for mumps—took four years to develop in the 1960s.
- US govt has invested >32 billion in mRNA vaccines, ONLY \$337 million pre-pandemic.

Is COVID Still a Problem?

- COVID remains a source of serious illness in the U.S.
- 2023: >916,300 people were hospitalized in the U.S. due to COVID, with >75,500 deaths.
 - By comparison, MI yields 800,000 hospitalizations

What vaccines are currently available?

- Two major subtypes available in the U.S.:
- mRNA Vaccines (Pfizer and Moderna) remain the most widely used and effective, particularly with continuously updated versions targeting new variants.
- Protein Subunit Vaccines (Novavax) are an alternative for those who prefer non-mRNA vaccines.
- As of Oct. 12, only around 12 percent of adults reported receiving an updated vaccine, according to data from the C.D.C.

Are they effective?

Effectiveness of Vaccines

A Comparison to the COVID-19 Vaccines

VACCINE	VACCINE EFFECTIVENESS
*Pfizer/BioNTech COVID-19:	95%
*Moderna COVID-19:	94%
Flu:	40-60%
Polio:	90-100%
Tetanus:	99%
Measles:	93%
Mumps:	78%
Rubella:	97%
Hepatitis A:	95%
Hepatitis B:	85-100%

Are they safe?

- W.H.O.: Nearly 14 Billion doses have been administered worldwide.
- >70% of the world's population has received at least one dose.
- About 65% have received full dose.

Country/Area	Aug 12, 2024
Europe	1,426,596,200
European Union (27)	977,141,100
High-income countries	2,918,183,200
Low-income countries	314,008,540
Lower-middle-income countries	4,532,334,600
North America	1,159,065,300
Oceania	88,344,520
South America	995,080,100
Upper-middle-income countries	5,958,533,000
World	13,724,514,000

Are they safe? Typical side effects

- mRNA vaccines (Pfizer-BioNTech and Moderna):
- Pain, soreness, redness at injection site
- Fatigue, Headache
- Muscle pain, Joint pain
- Chills, Fever
- Nausea/vomiting (Moderna)
- In infants and toddlers, common symptoms include irritability or crying, decreased appetite, and sleepiness.

Do the vaccines cause myocarditis?

- Extensively studied, and a source of consistent misinformation throughout the pandemic.
- The risk of myocarditis and pericarditis after a Covid-19 vaccine is very low.
 - up to 1 in 10,000 people for Pfizer's Comirnaty vaccine
 - up to 1 in 10,000 people for Moderna's Spikevax vaccine
- For comparison, the risk for myo- or pericarditis with COVID-19 infection is on the order of 50-100x **HIGHER**.

Current Vaccines in the U.S.

C.D.C. Expands Covid Vaccine Recommendations

The agency endorsed additional doses for people at high risk.

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What are the expanded recommendations?

- Summary of recent changes as of 10/31/2024:
- People >65 years and older recommended to receive TWO doses of any 2024–2025 COVID-19 vaccine (i.e., Moderna, Novavax, or Pfizer-BioNTech).
- Repeat doses should be separated by six months (minimum interval two months) regardless of vaccination history.

Conclusions

- Vaccine development has been extremely effective, efficient.
- mRNA vaccines are quite safe.
- Vascular surgeons considered increased risk by CDC.
- Vascular surgeons of *any age* should receive the updated mRNA vaccine due to our inherent elevated exposure risk and threat of new variants.
- Surgeons >65 years should receive a *second dose* about six months after the initial vaccine per updated CDC recommendations.

