

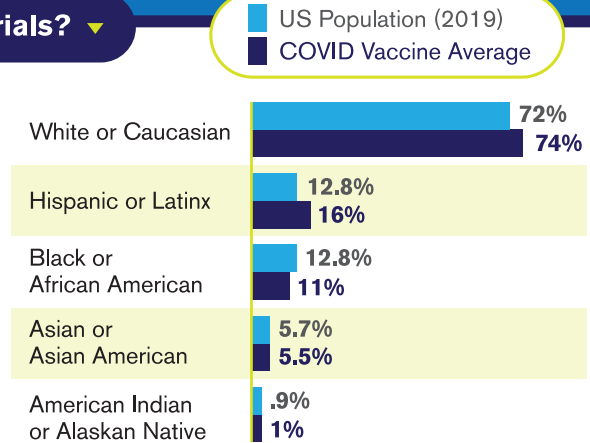
Vaccines

Testing for Safety & Efficacy

Typically, vaccines take years to develop and test to make sure they safely and effectively treat viruses. Due to the urgency of the pandemic, the COVID-19 vaccines quickly went through the typical phases of development. High infection rates helped researchers tell if the vaccine was working among the large volunteer pool and vaccine manufacturing plants were built earlier in the process.

Who participates in clinical trials?

Some groups of people have been historically underrepresented in vaccine trials, so the COVID-19 vaccine clinical trials were designed to accurately reflect the US population's demographics in their testing groups. There is also still work to be done to ensure that the vaccine is delivered to the groups of people who are most affected by COVID-19.



Development Timeline



Typical Vaccine

100 volunteers

100 - 1,000 volunteers

10,000+ volunteers



Pre-clinical Phase
Thousands of potential vaccines are developed in laboratory and animal testing before a very few move on to clinical testing in humans.

Phase 1
Tested for major side effects in healthy volunteers

Phase 2
Tested for dosage, other side effects, & effectiveness in healthy volunteers

Phase 3
Tested for side effects and effectiveness in wider population

FDA approval



Emergency FDA approval

Phase 4
Continued testing for long term side effects in general population

COVID-19 Vaccine

50 - 1,000 volunteers

30,000 volunteers

