

A small, white, stylized icon of a virus or cell with multiple protrusions, positioned next to the text "Coronavirus Update".

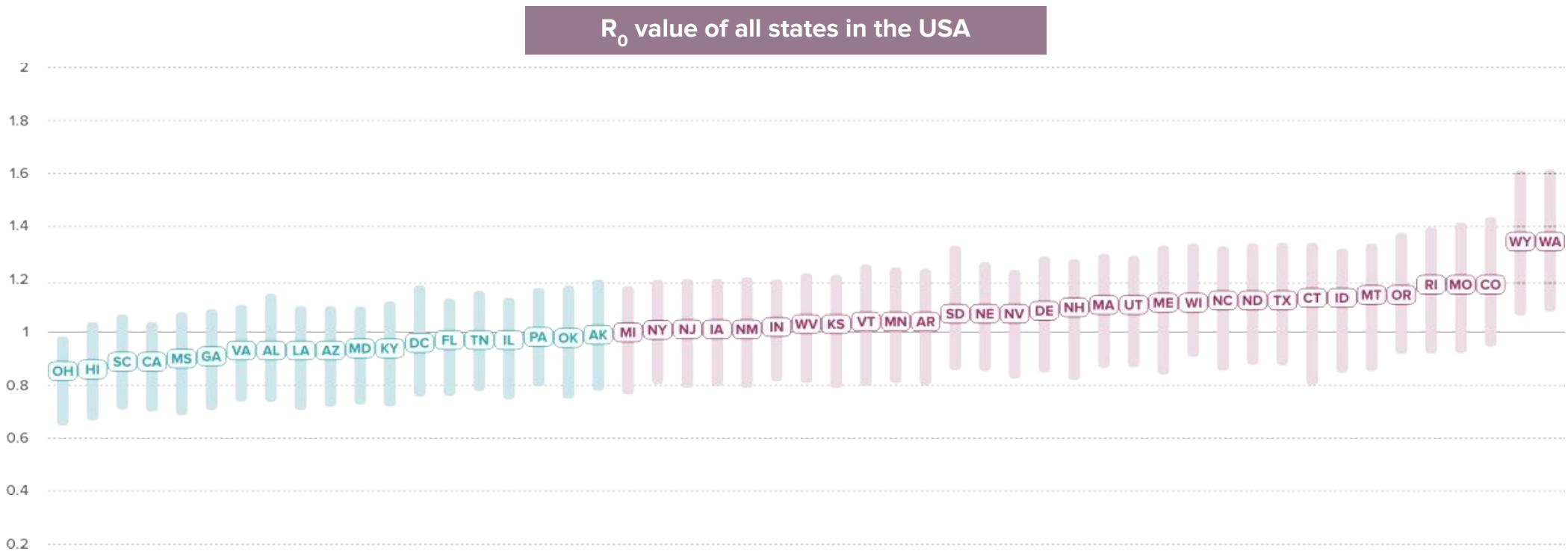
Coronavirus Update

The Implications of Vaccines on COVID-19

COVID-19 Continues To Spread, Though Transmissibility is Lower

According to the CDC, a virus with an R_0 value (reproduction rate) of less than 1, will stop spreading, while a virus with an R_0 value greater than 1 will continue to spread.[1] Based on the current best estimates[2][3], the United States' R_0 value is roughly 1.0 on the whole, but individual states have R_0 values ranging from 0.85 to 1.21.

To stop the spread and minimize the negative impact of COVID-19 across the country. It is critical that the R_0 value is reduced to less than 1 across **all** States.



[1] https://wwwnc.cdc.gov/eid/article/25/1/17-1901_article

[2] <https://rt.live/>

[3] <https://www.statista.com/statistics/1119412/covid-19-transmission-rate-us-by-state/>

Vaccine Uptake, Effectiveness, and Development Speed are the Keys To Stopping the Spread of COVID-19

If 15 percent of the U.S. population has been infected by the time a coronavirus vaccine is ready, computer simulations show the vaccine could reduce the peak number of cases by up to 65 percent, if everyone gets vaccinated and the vaccine is 100 percent effective. A vaccine would have to have an efficacy of at least 80 percent to be able to stop the pandemic by itself. This can provide a target to aim for when developing COVID-19 coronavirus vaccines.

Again, all of this doesn't mean that a vaccine with a lower efficacy would not be useful. It could mean that social distancing and mask-wearing may likely continue until the pandemic runs its course or a vaccine that is actually "good enough" arrives.[4]

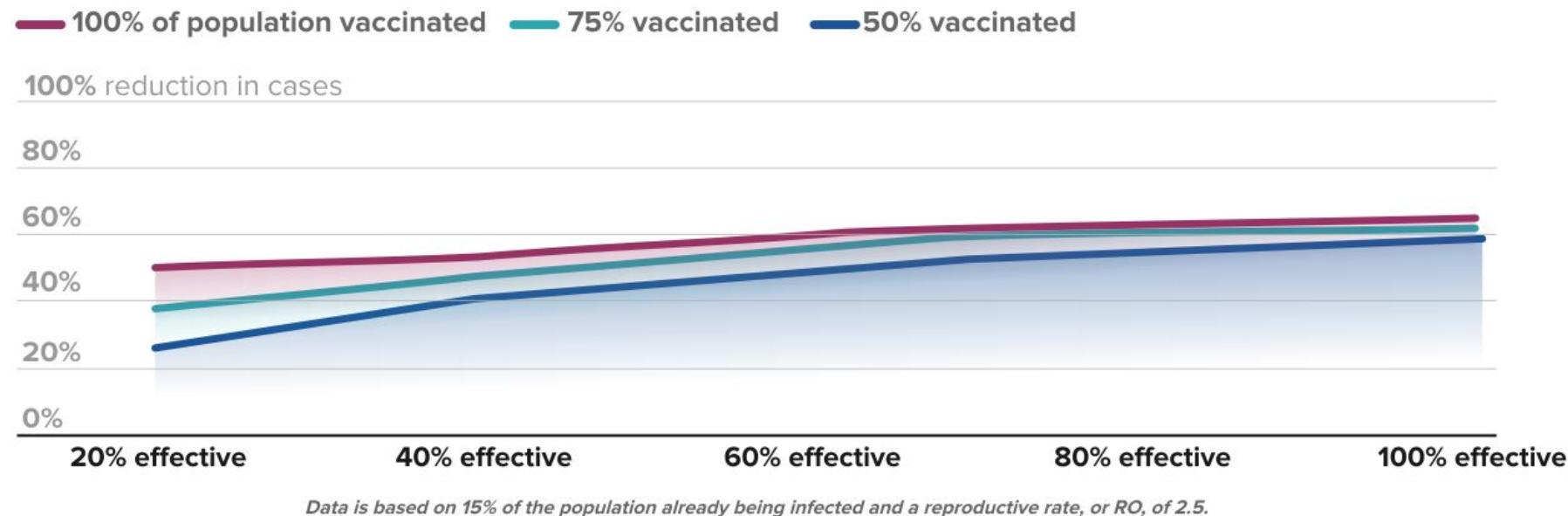


Chart Credit: Bartsch et al. American Journal of Preventive Medicine via The Conversation

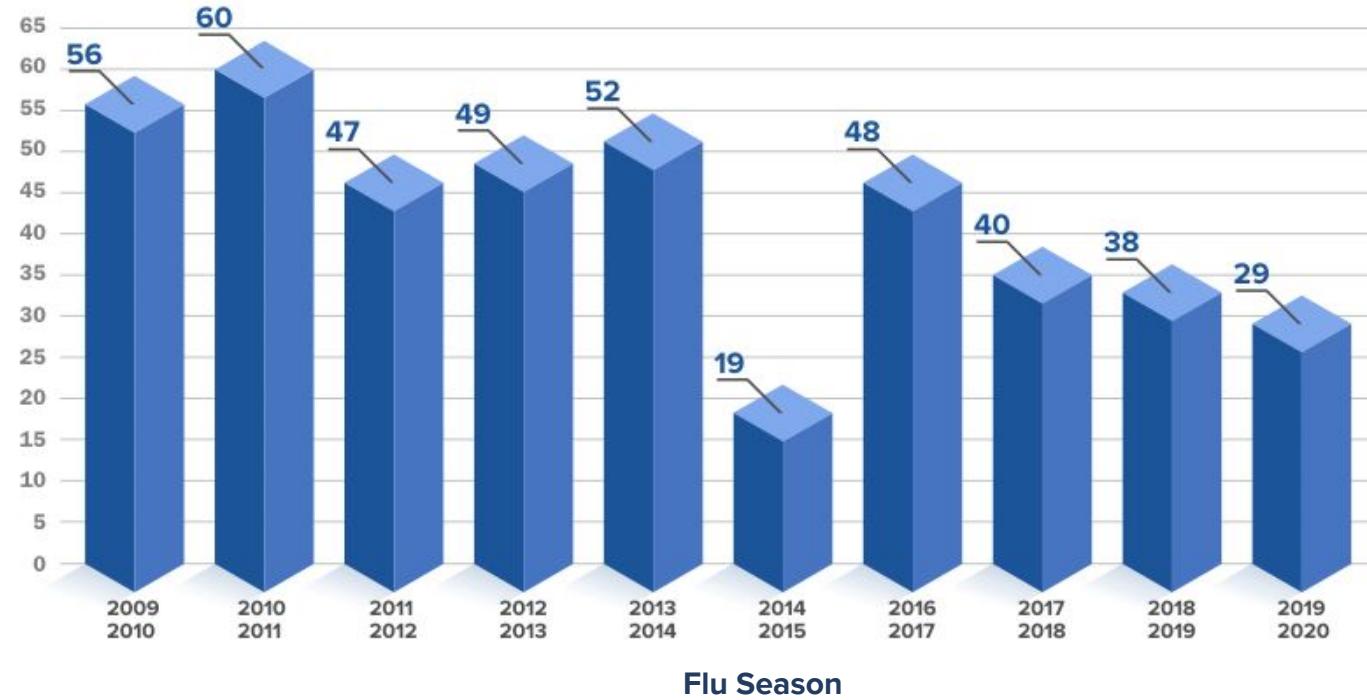
[4] <https://www.discovermagazine.com/health/how-effective-does-a-covid-19-coronavirus-vaccine-need-to-be-to-stop-the>

Vaccine Effectiveness is a Key Factor in Slowing the Spread of COVID-19

A concern with the speed at which the COVID-19 vaccine is being developed is how effective it will be against the virus. The World Health Organization states that vaccine developers should be aiming for an effectiveness of at least 50% to have a substantial effect. The WHO also states that a lower limit of 30% effectiveness should be demonstrable for any approved candidate.[8] While many vaccines all but eliminate their target virus, the flu vaccine by comparison is only about 20-60% effective.[5]

DISEASE	BASELINE 20TH CENTURY ANNUAL CASES	2015 CASES*	PERCENT DECREASE
Measles	503,282	188	99.9%
Diphtheria	175,885	0	100%
Mumps	152,209	1,308	99%
Pertussis (Whooping Cough)	147,271	20,679	87%
Smallpox	48,745	0	100%
Rubella, less than 6 years old	47,745	6	99.9%
HIB, less than 5 years old	20,000	<50	99.9%
Polio	16,316	0	100%
Tetanus	1,314	30	97.7%

Seasonal Flu Vaccine Effectiveness



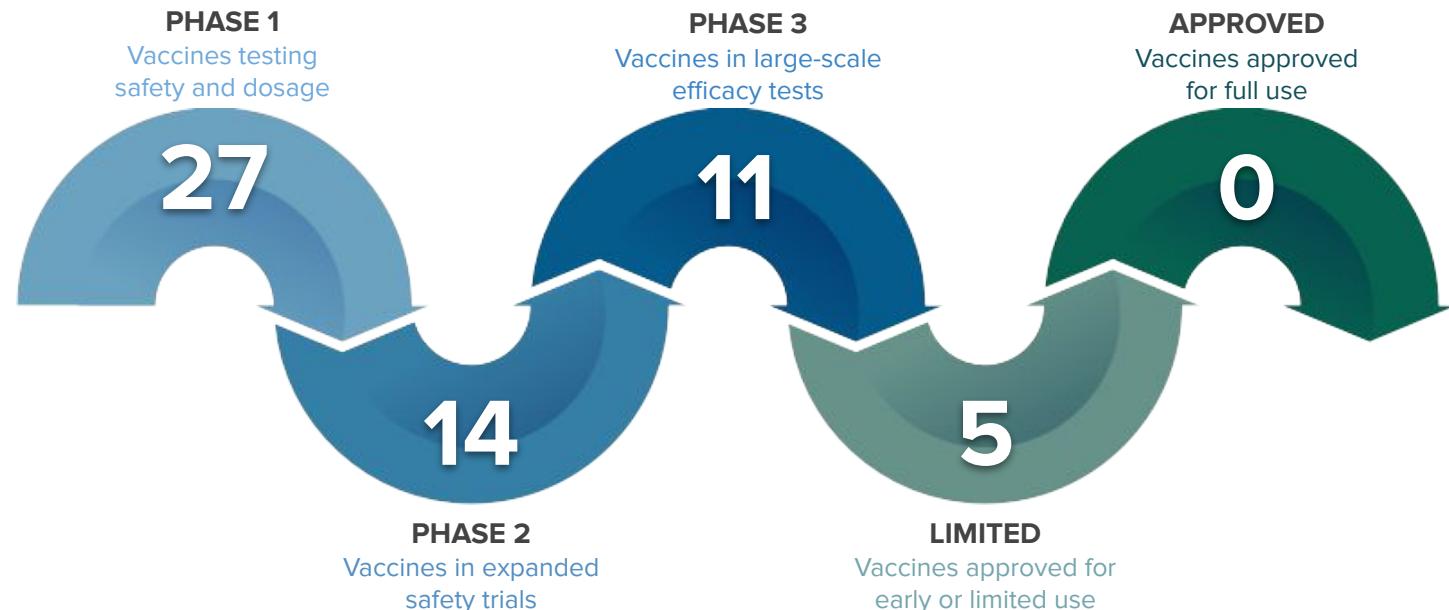
[5] [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31821-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31821-3/fulltext)

The Worldwide Race To Find Viable Vaccines is Unprecedented

Operation Warp Speed[6] has made great strides in terms of delivering vaccine candidates faster than ever. Past vaccines have typically taken a decade or longer to be approved and distributed. The Operation Warp Speed timeline aims to have a vaccine available in just 18 months. Given that the CDC estimates that 90% of the population is still vulnerable to COVID-19, quick delivery of a vaccine is vital.[7]

Beyond the United States, the rest of the world has put forth a monumental effort to deliver a COVID-19 vaccine. Since work began in January to decipher the SARS-CoV-2 genome, nearly 150 vaccines have been researched, with many currently in clinical human trials.[8]

A number of frontrunners, including Moderna, Pfizer, and AstraZeneca are all on track for Operation Warp Speed's target of having vaccines ready for distribution by January 2021.[9]



[6] <https://www.hhs.gov/about/news/2020/06/16/fact-sheet-explaining-operation-warp-speed.html>

[7] <https://medicalxpress.com/news/2020-09-americans-immune-covid-cdc-director.html>

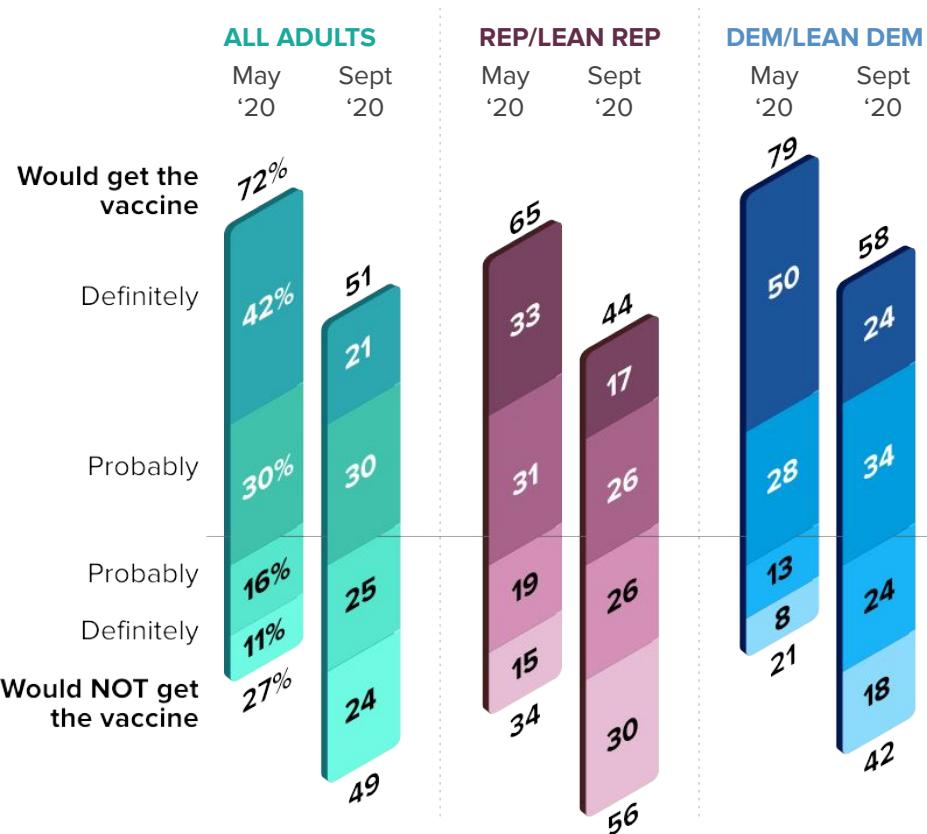
[8] <https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>

[9] <https://www.biopharmadive.com/news/coronavirus-vaccine-pipeline-types/579122/>

The Enthusiasm of Adults to Receive a COVID-19 Vaccine Dropped Significantly in September

Drop in share of Americans who say they would get a COVID-19 vaccine if it were available to them today

% of U.S. adults who say if a vaccine to prevent COVID-19 were available today, they ...



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted Sept. 8-13, 2020.

"U.S. Public Now Divided Over Whether To Get COVID-19 Vaccine"

PEW RESEARCH CENTER

Just as the effectiveness of the vaccine is critical, so is the population's willingness to receive it.

A current Pew Research Center poll shows that confidence in the vaccine has dropped significantly since May, with the number of people either "probably" or "definitely" willing to get the vaccine dropping by 30%.

In comparison, the 51% acceptance of a potential new COVID-19 vaccine falls well short of the seasonal flu vaccine, which has roughly a 64% actual coverage rate.



[6] [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31821-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31821-3/fulltext)

Government Agencies are Preparing for the Widespread Distribution of the Coming Vaccines

The US Department of Health and Human Services has outlined a plan to deliver vaccines safely and rapidly to all Americans which includes:

- ✓ Engaging state, tribal, territorial, local partners, and the public to communicate vaccine details and increase confidence and uptake
- ✓ Distributing vaccines immediately upon granting of Emergency Use Authorization and Biologics License Application
- ✓ Ensuring safe administration of vaccine, as well as distribution of administration supplies
- ✓ Tracking distribution, administration, and other necessary data to ensure success of the plan

In addition to the plans for wide distribution, the Department of Defense has collaborated with several federal health agencies to outline a plan to deliver COVID-19 vaccinations to all Americans for free.[10]

Lastly, the CDC and HHS have secured contracts with vaccine manufacturers, including McKesson Corporation to support vaccine distribution.[11]



"This in-depth, round-the-clock planning work with our state and local partners and trusted community organizations, especially through CDC, will ensure that Americans can receive a safe and effective vaccine in record time."

-- **Alex Azar, HHS Secretary**

[10] <https://www.hhs.gov/about/news/2020/09/16/trump-administration-releases-covid-19-vaccine-distribution-strategy.html>

[11] <https://www.foxnews.com/politics/government-coronavirus-vaccine-plan-free-for-all-americans>

Summary

- ✓ COVID-19 spread is starting to flatten in much of America, but many states are still in danger of continued spread
- ✓ A Worldwide effort to produce viable vaccines is moving at an unprecedented pace, with multiple candidates aiming to be available for public use by January 2021
- ✓ The speed of development, public uptake, and effectiveness will be the determiners of a vaccine's impact on the spread of COVID-19 going forward
- ✓ Government Agencies have outlined a plan to streamline the process of vaccine distribution to all of America



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