

Are the COVID-19 vaccines working?

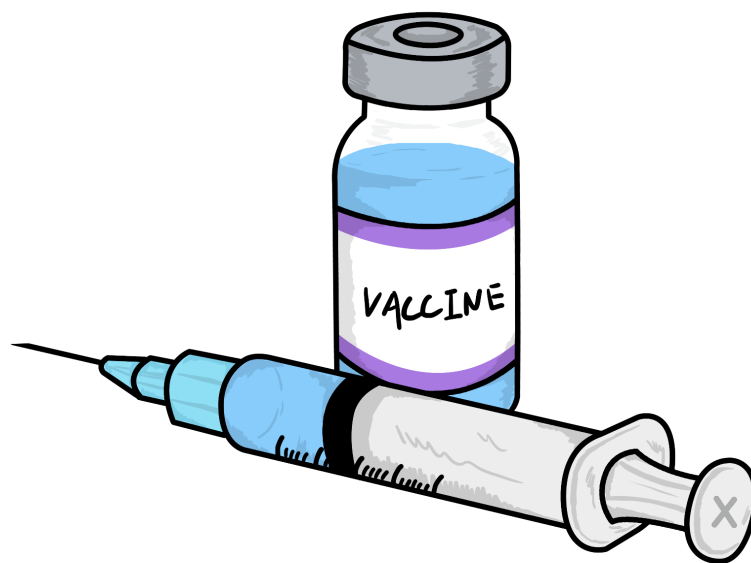


Image Credit

Background

Covid-19 has affected nearly all of us in some way. The arrival of widespread vaccine use brought much optimism in the US and worldwide in late 2020 and early 2021. By October of 2021 more than 65% of Americans (76% of all eligible at the time of writing) have received at least one Covid-19 vaccine shot. However, throughout the late summer and fall of 2021, Covid-19 cases, hospitalizations, and deaths spiked throughout much of the US.

This has caused many to ask whether or not the Covid-19 vaccines are working. Explore this dataset collected from records of 551 hospitalizations in King County, Washington from January 25, 2021 to September 29, 2021.

Are the vaccines working? What do the data say?



Dataset

This dataset comes from the Washington Department of Public Health and were accessed through the [Coivd-19 Outcomes By Vaccination Status dashboard](#). It shows the age adjusted hospitalization rate by vaccination status since January 25, 2021.

Data are also available (above link) to compare death rate and case rate by vaccination status in King County Washington which includes the city of Seattle

Variables

Date- This is the date that each observation was made. This variable has been coded as Info and will not be used in graphing. Instead use the variable called Day Number if you want to show the progression of time on a graph.

Year- This numeric variable is the day of the year number for a particular date. January 1st is day number 1 and December 31st is day number 365. This numeric variable can be used in a graph to show the progression of time.

Hospitalizations (per 100K people)- This numeric variable is the age adjusted rate of hospitalization per day, per 100,000 people. It is adjusted for age so that groups can be compared fairly if they happen to have different age structure.

Vaccination Status- This categorical variable records vaccine status. The value of Fully Vaccinated indicates people have received two doses of either the Moderna or Pfizer Covid-19 vaccines or one dose of the Johnson and Johnson Covid-19 vaccine.

Activity

- 1) [Make a graph](#) showing *Day Number* on the X-axis and *Hospitalizations (per 100K people)* on the Y-axis. What is the overall trend in hospitalizations over this time period?

[Paste your graph here](#)

- 2) Now add *Vaccination Status* as the [Z variable](#) on your graph and click the *Connect the dots* check box.

Paste your graph here

- 3) The claim has been made that Covid-19 vaccines are not really working because cases of Covid-19 surged even after the vaccine was available and taken by hundreds of millions of people. Explain how the graph you made above (#2) is evidence for or against that claim.