



IHME

Measuring what matters

# Washington State BOH and DOH Technical Advisory Group

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# Outline

- Overview of IHME's COVID-19 projections
- How effective is the Pfizer-BioNTech vaccine against infection and severe disease from COVID-19?
- What is the future COVID-19 burden in Washington?

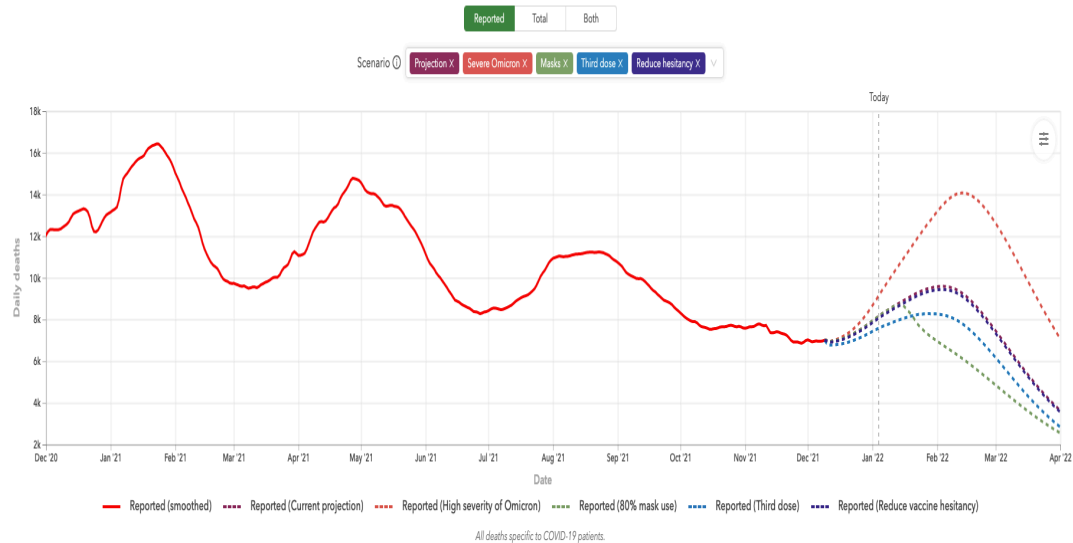
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# IHME COVID-19 Projections

## Daily deaths

Daily deaths is the best indicator of the progression of the pandemic, although there is generally a 17-21 day lag between infection and deaths.



## IHME COVID-19 projections United States (USA)

**Low**  
STRESS ON HOSPITALS



PAST WEEK

<b>+11.6%</b> ↗	<b>DAILY CASES</b>	<b>130.2K</b>
<b>+8.3%</b> ↗	<b>DAILY REPORTED DEATHS</b>	<b>1,300</b>
<b>+11.9%</b> ↗	<b>DAILY HOSPITAL CENSUS</b>	<b>19,700</b>

**CUMULATIVE DEATHS TO DATE** **798K**

<b>38%</b> WEARING MASKS	<b>52K</b> LIVES SAVABLE WITH 80% MASK USE*	<b>172K</b> ADDITIONAL DEATHS EXPECTED*
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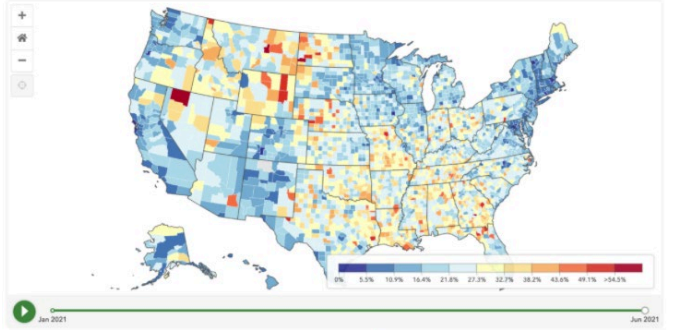
## IHME COVIDCollaborative

### Vaccine hesitancy by county

Jun 04, 2021 - Jun 10, 2021

This map highlights areas of the US that would benefit most from increased vaccination acceptance. This view shows, by county, the % of unvaccinated people who answered "Yes, probably," "No, probably not," or "No, definitely not" when asked "If a vaccine to prevent COVID-19 were offered to you today, would you choose to get vaccinated?"

Data source: US COVID-19 Symptom Survey (this research is based on survey results from Carnegie Mellon University's Delphi Research Group with Facebook's support)

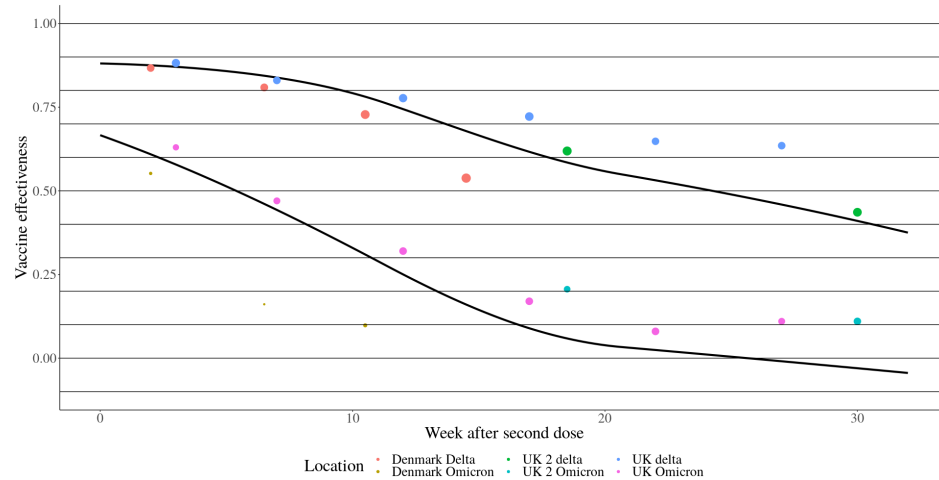


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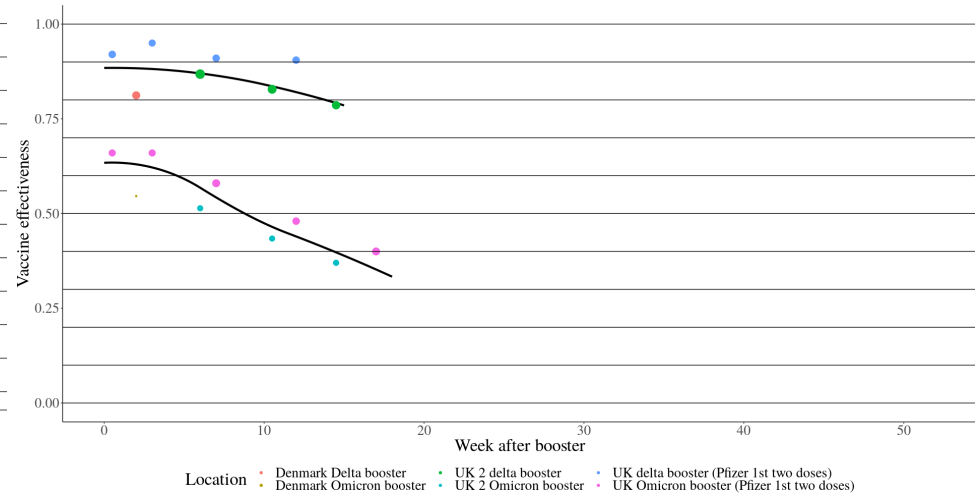
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# Systematic analysis of Pfizer-BioNTech vaccine

## Pfizer-BioNTech Vaccine Effectiveness against Infection by time since second dose

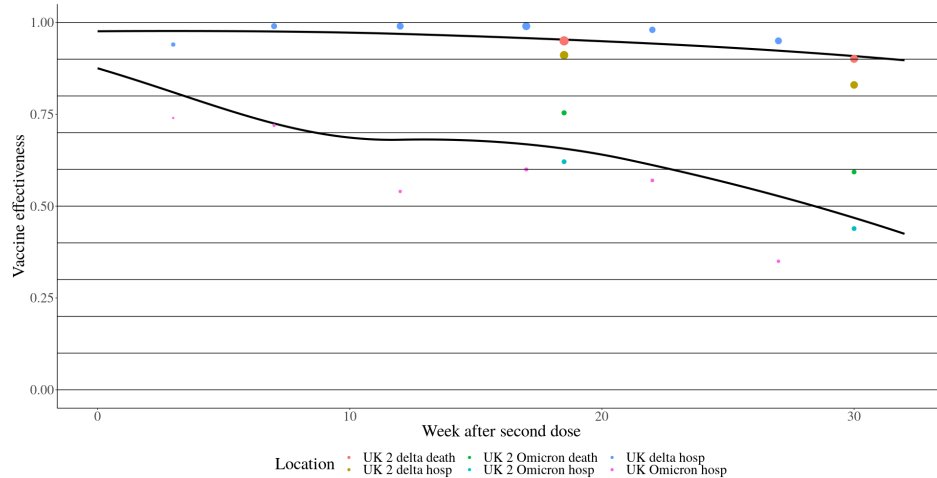


## Pfizer-BioNTech Vaccine Effectiveness against Infection by time since booster dose

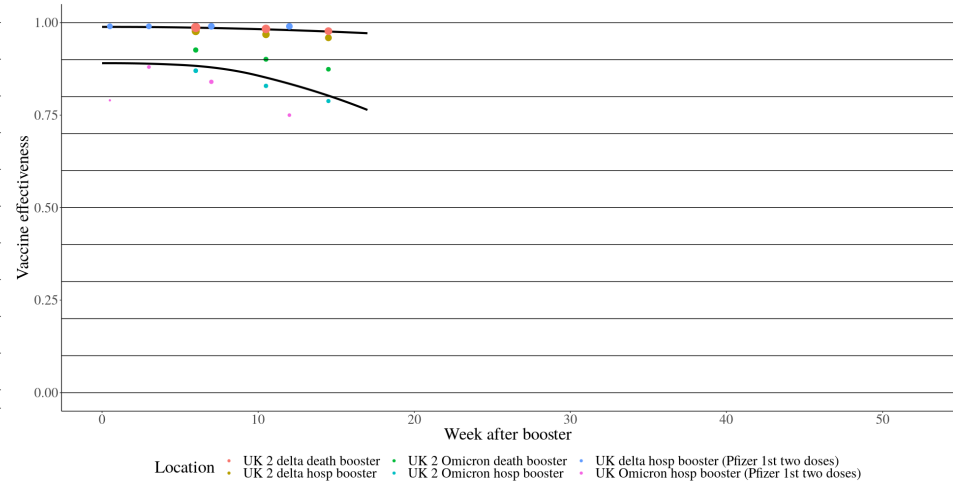


# Systematic analysis of Pfizer-BioNTech vaccine (2)

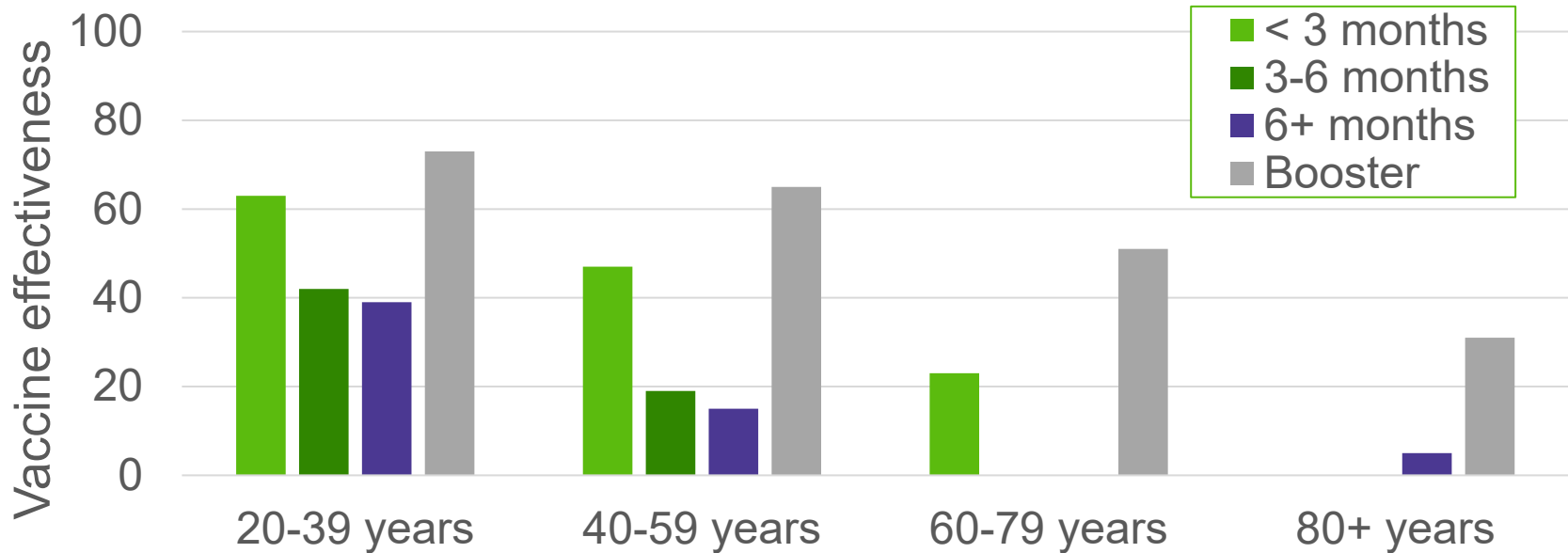
**Pfizer-BioNTech Vaccine Effectiveness against severe disease by time since second dose**



**Pfizer-BioNTech Vaccine Effectiveness against severe disease by time since booster dose**



# Vaccine effectiveness against symptomatic infection by age and time since second dose: France





# How effective is the Pfizer-BioNTech vaccine against infection and severe disease?

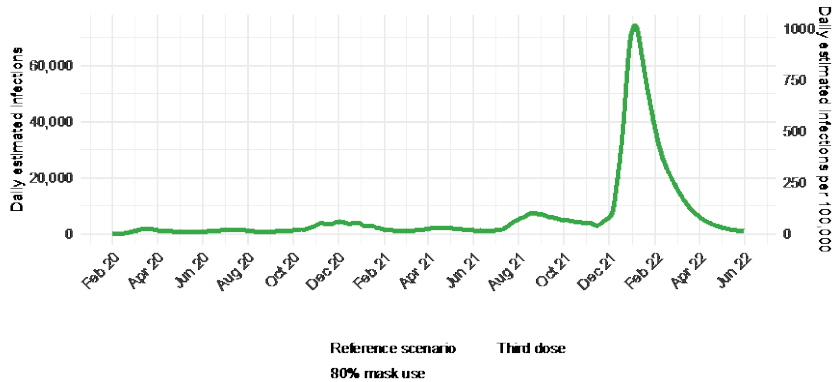
- Vaccine effectiveness against infection of the primary two-dose series against Delta (and ancestral variants) is high but wanes to ~50% by six months. A third dose (booster) restores effectiveness.
- Vaccine effectiveness against infection from Omicron is significantly reduced with minimal protection at six months after the second dose. A third dose (booster) increases effectiveness but early data suggests that this protection also wanes over time
- Vaccine effectiveness is higher at younger adult ages but little/no direct data on school-aged children
- Vaccine effectiveness against severe disease is maintained at a higher level – although it is also reduced against Omicron – and with less pronounced waning over time

# Outline

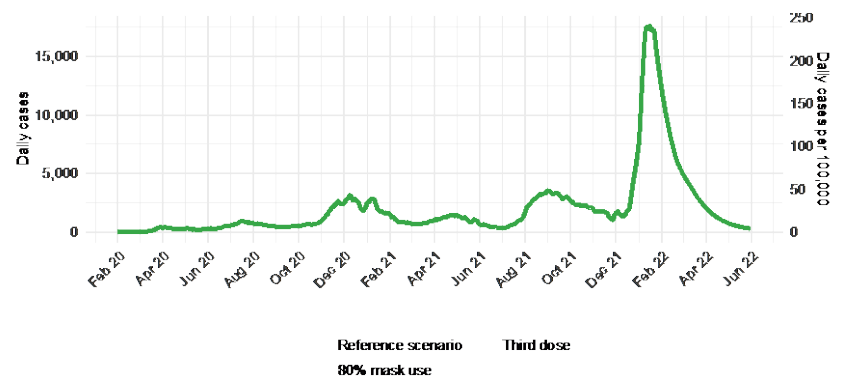
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# IHME COVID-19 Projections to June 2022, WA State

## Total daily infections

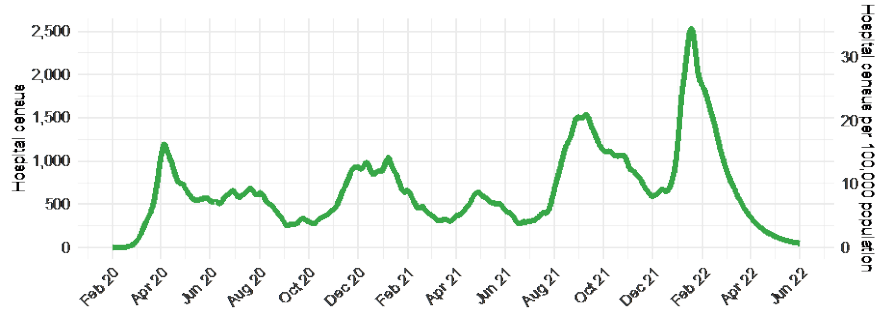


## Reported daily cases



# IHME COVID-19 Projections to June 2022, WA State (2)

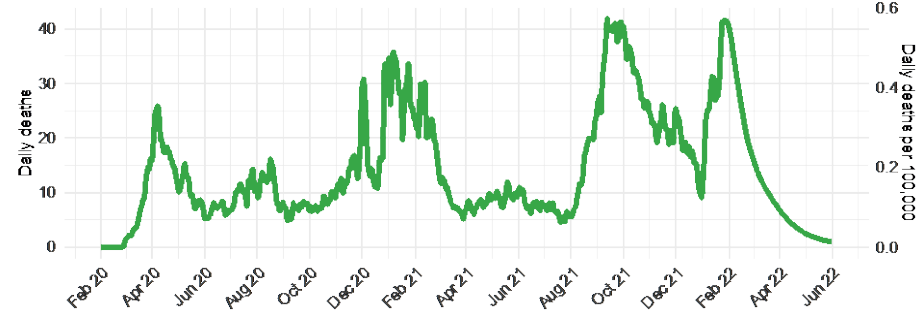
## Hospital Census



80% mask use  
Reference scenario

Third dose

## Daily deaths



Reference scenario  
80% mask use

Third dose

# What is the future COVID-19 burden in Washington?

- The Omicron wave has, and will lead, to a large fraction of the population (~50%) becoming infected. This will increase population immunity to future infections
- In the absence of a new variant of concern, we expect the burden of COVID-19 to continue to decline over the next four months
- As immunity from past infection and vaccination wane, however, there is potential for future waves of COVID-19
- The magnitude of that burden – and the population impact of vaccination – will be dependent on what is the dominant variant and its accompanying features, i.e. infectiousness, immune escape, severity