

If the vaccine only protects the individual who receives it, why is it said by experts that they are putting others at risk by not getting it?

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This is actually an interesting question. Let's have a look at the numbers.

### 1. 80% lower risk of infection

The most important factor of protecting others is the most straightforward one, direct protection against infection.

Looking at infection numbers across a variety of countries, we can see that **on average infection and hospitalization numbers are 80% less for vaccinated vs. unvaccinated people.**

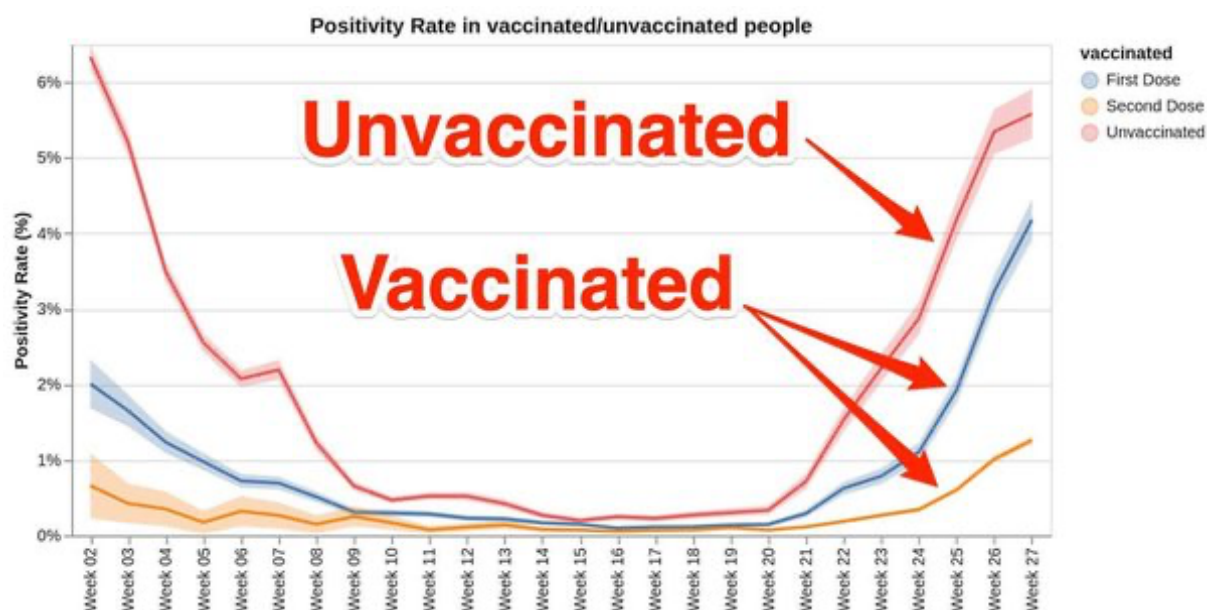


Fig 1: [UK positivity rate vaccinated vs. unvaccinated](#)

Between 1/17/2021 and 9/18/2021, unvaccinated people developed COVID-19 at a rate **7.4 times** that of fully vaccinated people and **2.4 times** that of partially vaccinated people.‡

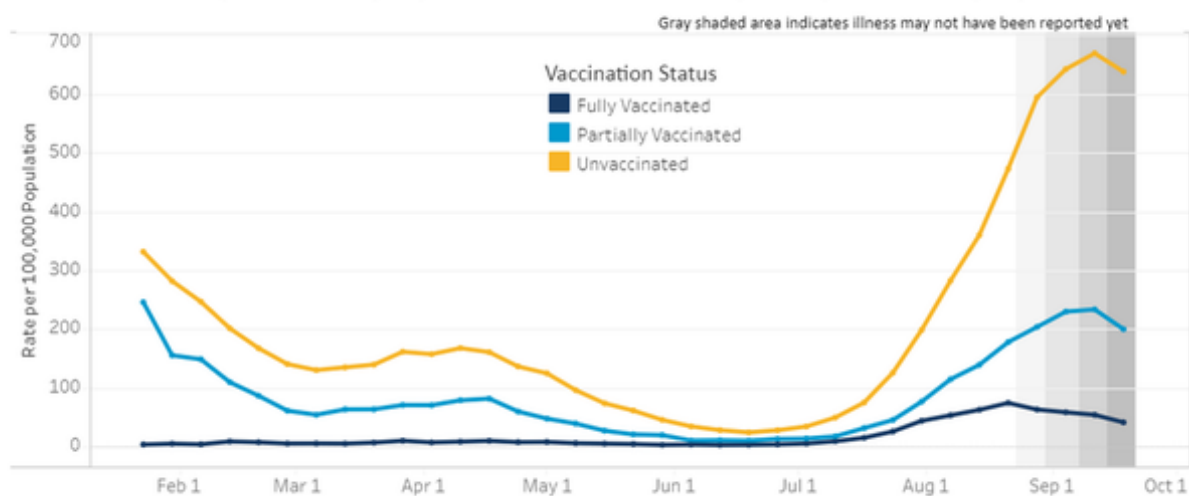
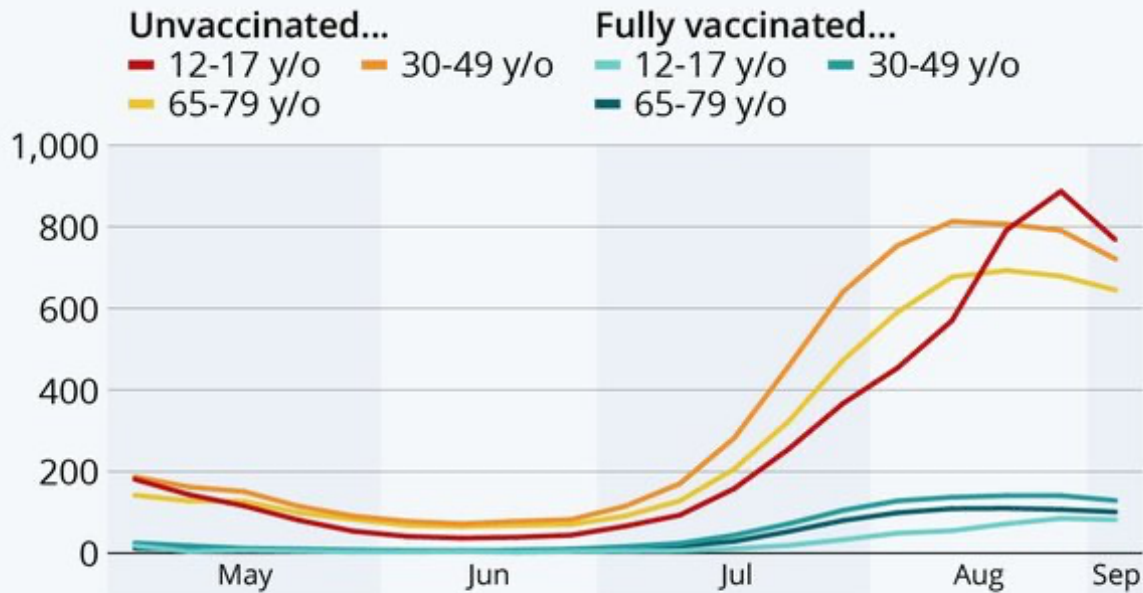


Fig 2: [Infection rates unvaccinated vs. vaccinated](#)

# The Unvaccinated Drive COVID-19 Infections in the U.S.

Weekly rates\* of COVID-19 cases in selected age groups in the U.S., by vaccination status



\* per 100,000 of population.

Data from 14 U.S. states/two major cities representing 30% of U.S. population

Source: CDC



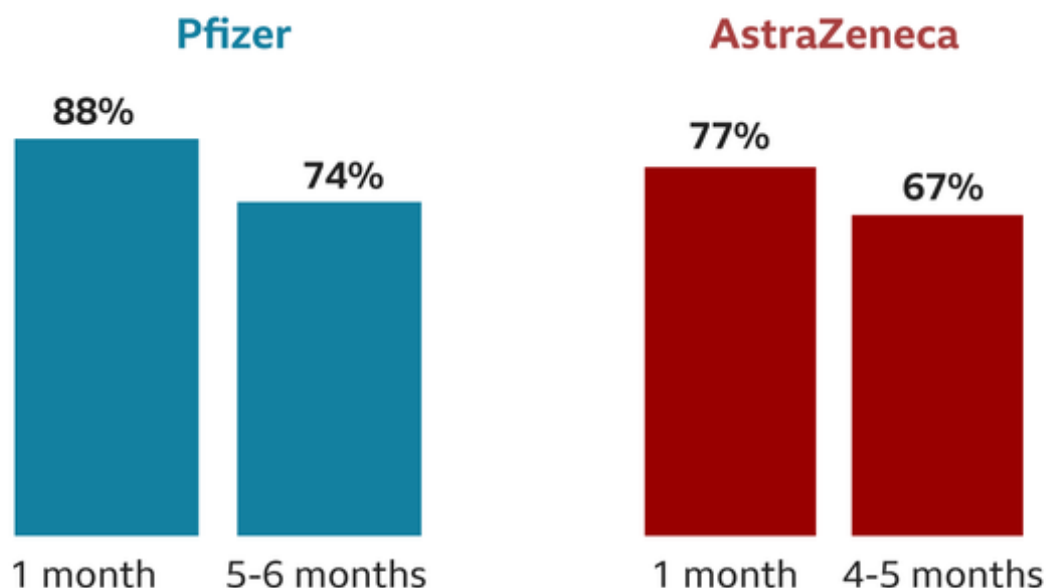
statista

Fig 3: [The Unvaccinated Drive COVID-19 Infections in the U.S.](#)

In the first 4 months, protection against infection is very high at around 88%. After 5–6 months, protection is at around 74%.

## How protection from Covid infection reduces over time

Survey suggests Pfizer and AstraZeneca vaccines become less effective



Source: Zoe Covid Study app

BBC

Fig 4: [Coronavirus: Waning immunity and rising cases - time to worry?](#)

That's why there are now boosters.

However, that's normal. A lot of vaccines have 3 shots, polio vaccine even has 4 and diphtheria 5 shots.

## 2. Vaccinated people clear the virus 66% faster.

The second important factor is virus clearance.

**Those that are vaccinated and get infected, clear the virus 66% faster than those who are unvaccinated, giving them much less time to infect others.**<sup>[1]</sup>

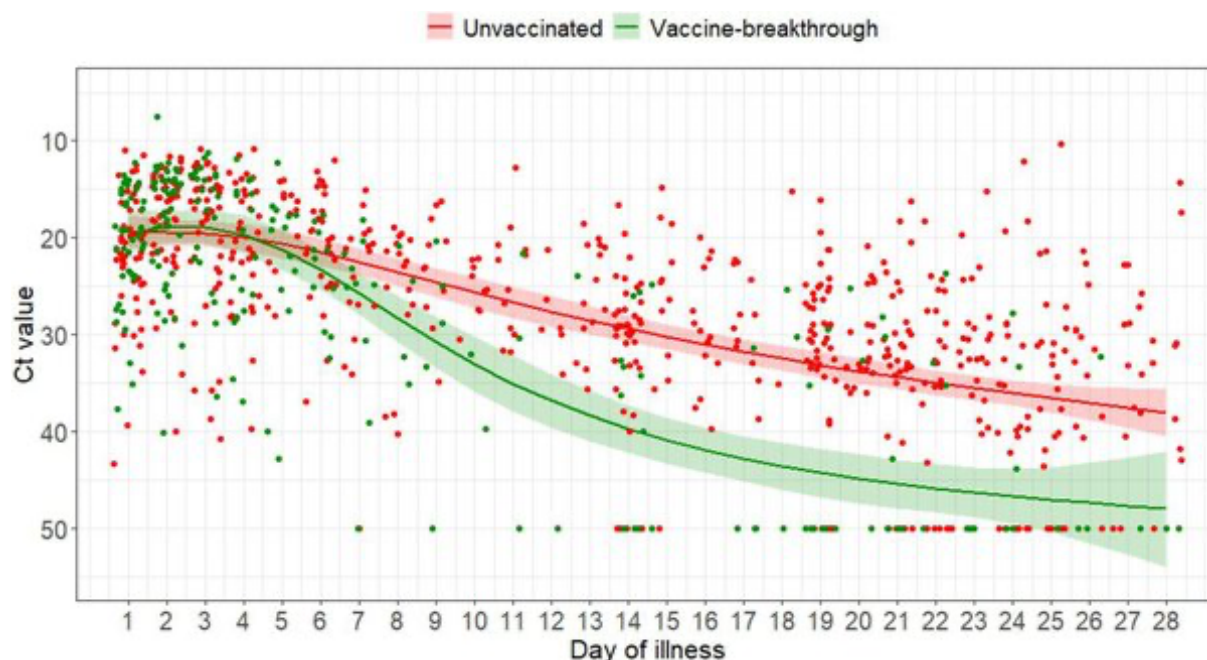


Fig 4: [Virological and serological kinetics of SARS-CoV-2 Delta variant vaccine-breakthrough infections: a multi-center cohort study](#)

**As a result, those vaccinated spread the virus 65% less.**<sup>[2]</sup>

Now, that we know that vaccinated individuals are infected 80% less often and when infected cause 66% infections 3 factors, **we find an 80% reduced infection risk + 66% reduced risk of spreading infection = 94% reduced risk of spreading the infection for a vaccinated person vs. an unvaccinated person.**

### 3. Vaccinated people occupy hospital beds 90% less often.

The third important factor is hospitalization rates.

As we can see in the 2 graphics below, **being vaccinated reduces your risk by 90% of being hospitalized.**

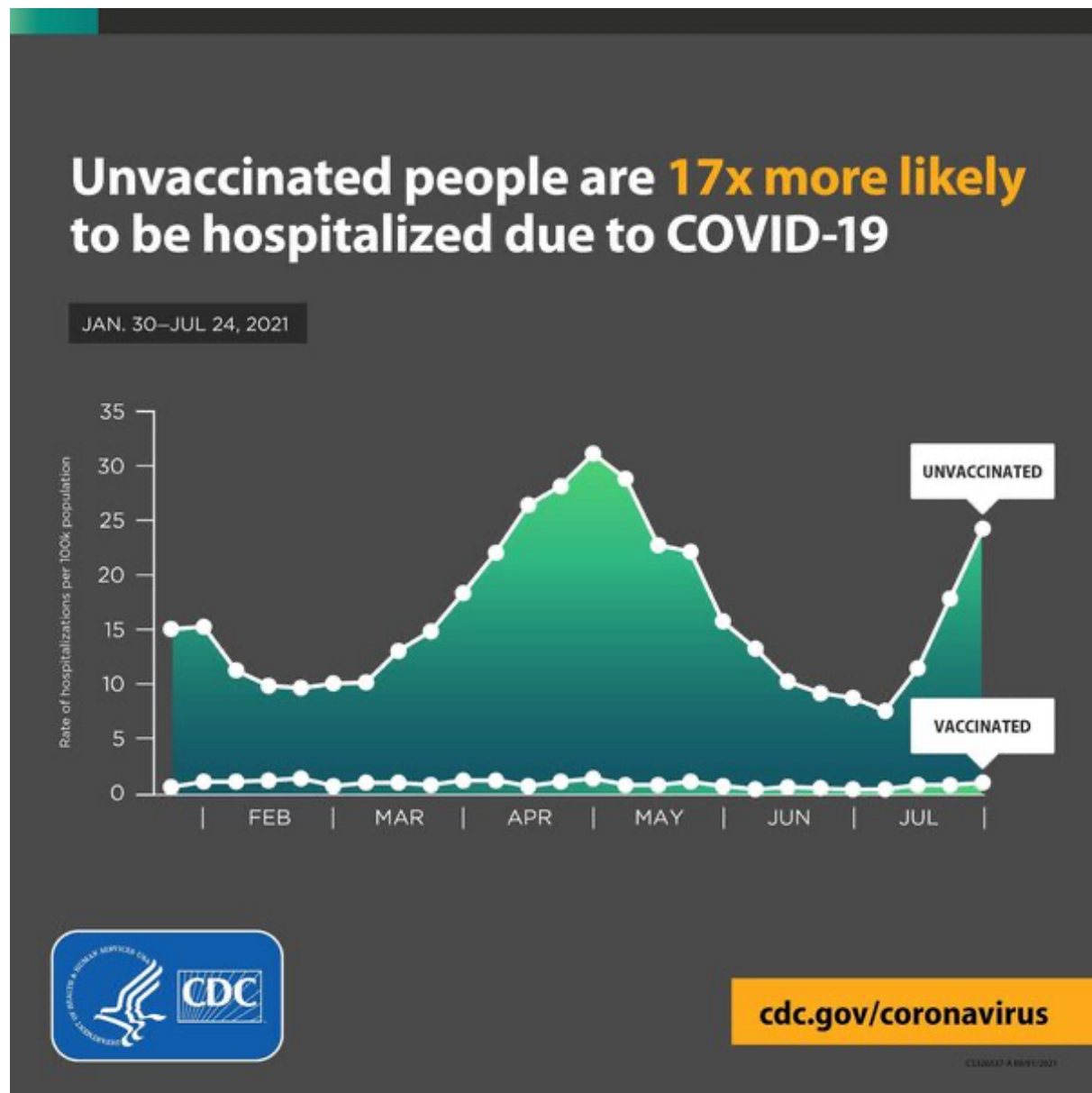


Fig 6: [COVID-19-associated hospitalizations among vaccinated and unvaccinated adults](#)

Furthermore, if you control for age and compare unvaccinated to vaccinated people, **the risk rises by 20x for someone unvaccinated compared to someone who is vaccinated from the same age group.**

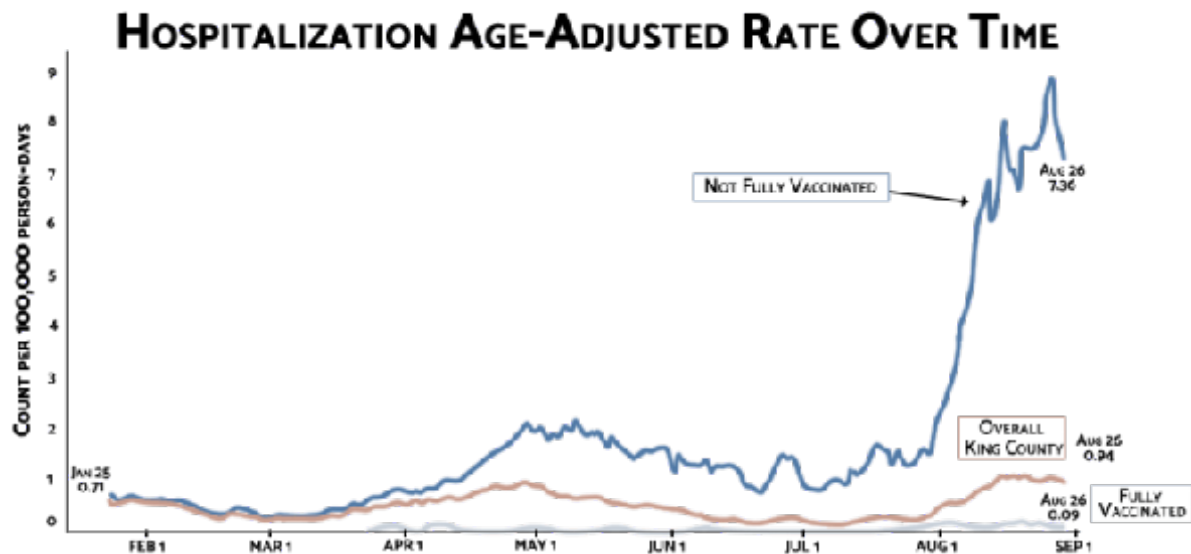


Fig 7: [COVID-19 risk for unvaccinated people compared to vaccinated people](#)

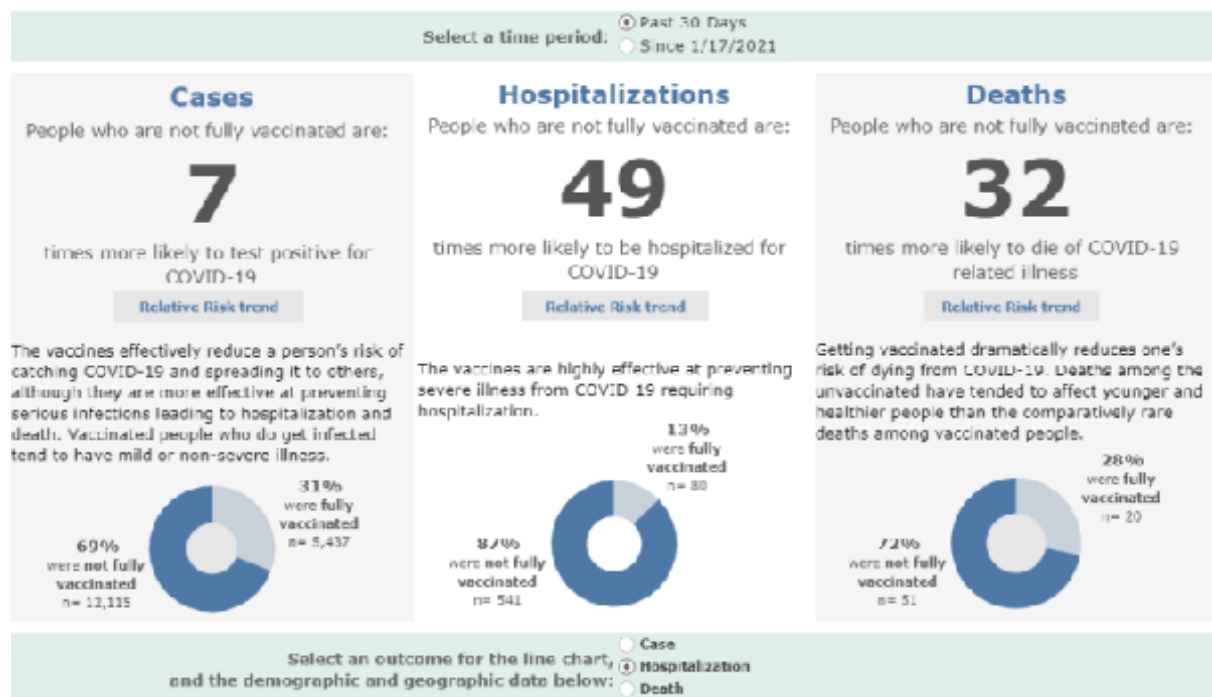


Fig 8: [COVID-19 risk for unvaccinated people compared to vaccinated people](#)



## 4. Herd immunity

The fourth factor of protecting others can be seen by looking at the countries with the highest vaccination rates of.

There, we can see that all of the 16 most vaccinated countries with a full-vaccination rate of higher than 75% have less than 150 infections per 100,000 people on a 7-day rolling average (incidence), except for Singapore, because it has a 20x-2,000x higher population density than those countries and 6x higher testing rates as well (3M per 1M people vs. the average of 500,000 per 1M people).

### Vaccinations by country

	Pct. of population			Doses administered		
	Vaccinated	▼ Fully vaccinated	Additional dose	Per 100 people	Total	Additional doses
<b>World</b>	<b>55%</b>	<b>43%</b>	<b>2.8%</b>	<b>101</b>	7,772,809,762	212,848,398
U.A.E.	>99%	90%	30%	221	21,548,528	2,914,743
Singapore	89%	88%	13%	177	10,083,329	745,102
Portugal	88%	87%	-	159	16,308,391	-
Malta	87%	86%	20%	186	933,791	99,506
Chile	89%	84%	42%	211	40,049,234	7,893,198
Cambodia	86%	80%	13%	173	28,482,592	2,172,258
Cuba	89%	80%	-	246	27,878,409	-
Spain	81%	80%	8%	160	75,173,640	3,776,118
South Korea	82%	79%	4.1%	162	83,557,532	2,102,455
Qatar	83%	78%	-	174	4,929,613	-
Malaysia	80%	78%	4.8%	163	51,969,807	1,519,150
Iceland	79%	78%	31%	172	621,821	111,402
Mainland China	88%	77%	4.7%	175	2,449,427,000	65,730,000
Brunei	93%	77%	-	169	734,235	-
Canada	80%	77%	2.7%	160	60,101,058	1,019,783
Japan	79%	77%	-	155	196,319,563	-

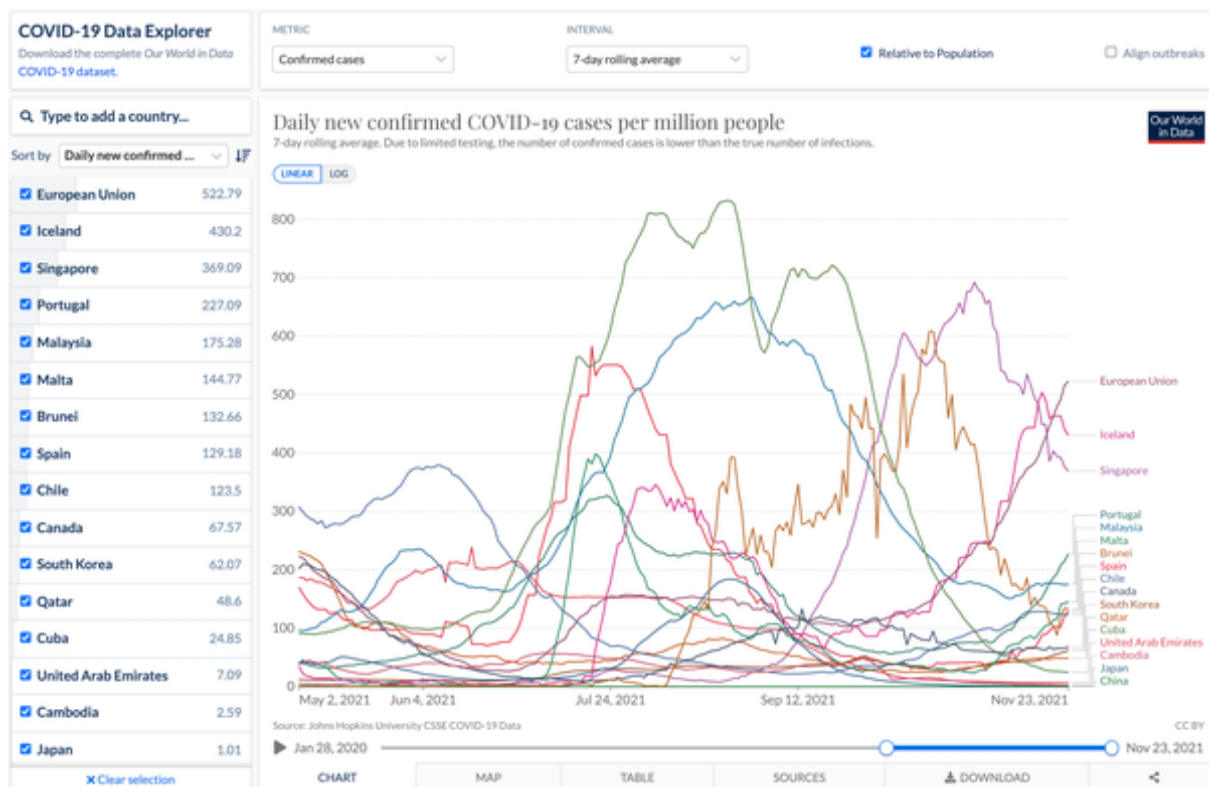
Source: [Tracking Coronavirus Vaccinations Around the World](#)

Here, they are with their 7-day rolling average daily incidence per 100,000 people (abbreviated to daily incidence)

1. UAE 90% vaccinated, 7 daily incidence
2. Singapore 88%, 376 daily incidence
3. Portugal 87%, 214 daily incidence
4. Malta 86%, 144 daily incidence
5. Chile 84%, 122 daily incidence
6. Cambodia 80%, 3 daily incidence
7. Cuba 80%, 24 daily incidence
8. Spain 80%, 65 daily incidence
9. South Korea 79%, 43 daily incidence
10. Qatar 78%, 122 daily incidence
11. Malaysia 78%, 122 daily incidence
12. Iceland 78%, 122 daily incidence

Source: [Coronavirus \(COVID-19\) Cases - Statistics and Research](#)

The 7-day rolling average for new infections in the EU is at around 600.



As we can see, **vaccination rates above 75% provide a 80% reduction on average (1521/14 = 108) compared to countries of similar population density with mediocre vaccination rates.**



## **Conclusion:**

Here are the 6 main statistics on the effectiveness of the vaccine:

**The average vaccinated vs. unvaccinated person has a**

- 1. 80% decreased risk of infection**
- 2. 66% faster time for clearance of the virus**
- 3. 66% overall decreased risk of infecting others when being infected**
- 4. 94% overall decreased risk of infecting others**
- 5. 90% decreased risk for hospitalization and 95% decreased risk for hospitalization compared to someone of the same age**
- 6. Herd immunity starts to kick in strongly at 75% of the population vaccinated**

## **Footnotes**

[\[1\] COVID-19 Vaccine Reduces Severity, Length, Viral Load for Those Who Still Get Infected](#)

[\[2\] Vaccinated people are less likely to spread Covid, new research finds](#)