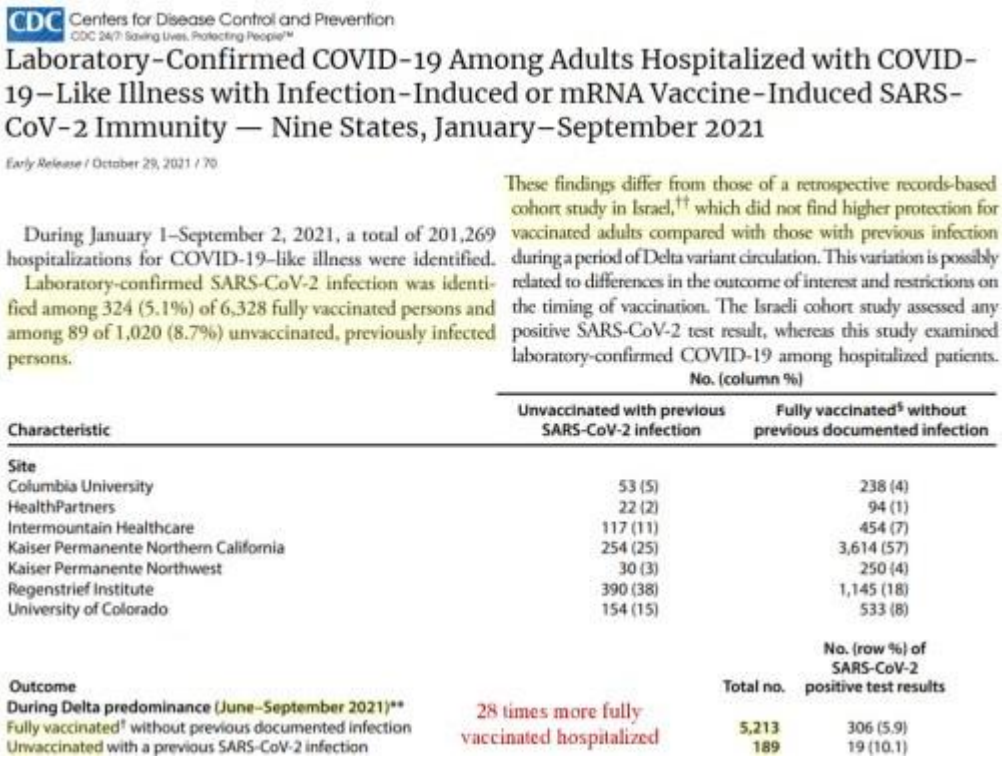
CDC Reports 28x More Fully Vaxxed Than Unvaxxed Hospitalized With COVID

By Kenneth Richard, Principia Scientific, 5 November 2021

A new CDC study (inadvertently?) finds 28 times more fully vaccinated patients (5,213) were hospitalized with COVID from June to September than the unvaccinated with prior infection (189) in nine U.S. states.

The CDC was apparently hoping **this study** would demonstrate the superiority of vaccination relative to natural immunity from a prior infection so they could compel more Americans to get vaccinated. It may have backfired.



CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Laboratory-Confirmed COVID-19 Among Adults Hospitalized with COVID-19–Like Illness with Infection-Induced or mRNA Vaccine-Induced SARS-CoV-2 Immunity — Nine States, January–September 2021

Early Release / October 29, 2021 / 70

During January 1–September 2, 2021, a total of 201,269 hospitalizations for COVID-19–like illness were identified. Laboratory-confirmed SARS-CoV-2 infection was identified among 324 (5.1%) of 6,328 fully vaccinated persons and among 89 of 1,020 (8.7%) unvaccinated, previously infected persons.

These findings differ from those of a retrospective records-based cohort study in Israel,†† which did not find higher protection for vaccinated adults compared with those with previous infection during a period of Delta variant circulation. This variation is possibly related to differences in the outcome of interest and restrictions on the timing of vaccination. The Israeli cohort study assessed any positive SARS-CoV-2 test result, whereas this study examined laboratory-confirmed COVID-19 among hospitalized patients.

Characteristic	No. (column %) Unvaccinated with previous SARS-CoV-2 infection	Fully vaccinated§ without previous documented infection
Site		
Columbia University	53 (5)	238 (4)
HealthPartners	22 (2)	94 (1)
Intermountain Healthcare	117 (11)	454 (7)
Kaiser Permanente Northern California	254 (25)	3,614 (57)
Kaiser Permanente Northwest	30 (3)	250 (4)
Regenstrief Institute	390 (38)	1,145 (18)
University of Colorado	154 (15)	533 (8)

Outcome	Total no.	No. (row %) of SARS-CoV-2 positive test results
During Delta predominance (June–September 2021)**		
Fully vaccinated† without previous documented infection	5,213	306 (5.9)
Unvaccinated with a previous SARS-CoV-2 infection	189	19 (10.1)

28 times more fully vaccinated hospitalized

Out of 201,269 people hospitalized with "COVID-19-like illness" from January to September (2021) in 9 states, just 1,020 (0.5 percent) of the hospitalizations occurred in unvaccinated people previously infected with COVID. This is a remarkably small number considering the CDC has estimated **120.2 million Americans (36.8% of the US population) had already been infected with COVID by late May**.

Out of these 1,020 unvaccinated COVID patients landing in the hospital from January to September, 89 (8.7 percent) had tested positive for COVID a second time. The CDC interpreted this to mean natural immunity was less protective against re-infection with symptomatic COVID than vaccination because the percentage of infected fully vaccinated people in the hospital was 5.1 percent, or 1.7 times less.

But the rather hidden internals of the paper reveal a remarkable statistic: there were 27.6 times more (5,213 vs. 189) fully vaccinated than unvaccinated patients with COVID who needed to be hospitalized from June to September.

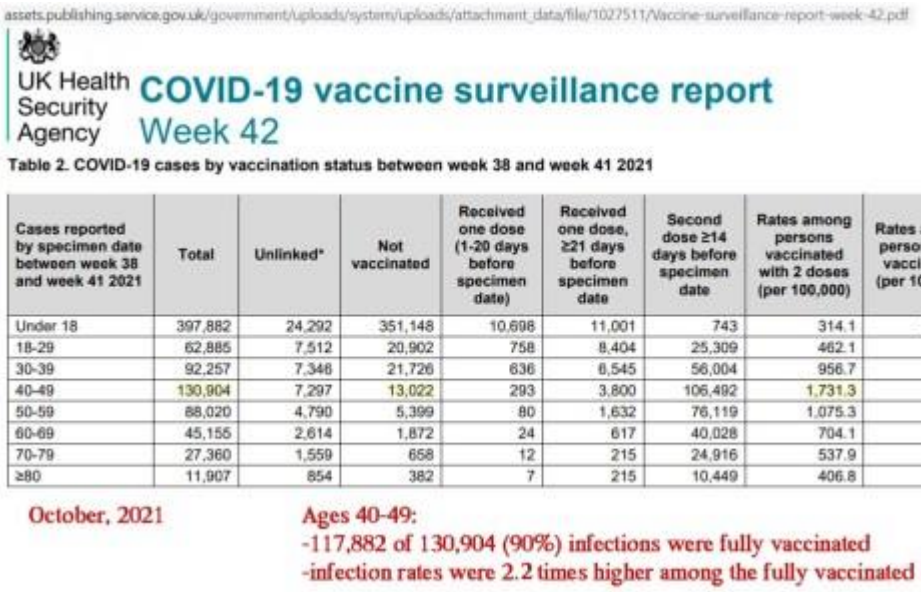
Considering the prevalence of infection in the U.S. (probably 40-45 percent of the U.S. population had been infected by June to September if prevalence was 37 percent by late May), there is little likelihood there were 28 times more people vaccinated than already infected.

This would appear to contradict the very *vaccination-reduces-hospitalization* conclusion the CDC had intended to emphasize in the first place.

UK: 90 Percent Of New Infections And 89 Percent Of Deaths Over 70 Are In The Fully Vaccinated

During weeks 38 to 41 (October), 2021, the UK Health Security Agency **reports** there were 117,882 of 130,904 (90 percent) new COVID cases identified in people aged 40 to 49 years old and fully vaccinated.

And the fully vaccinated were 2.2 times more likely to be infected with COVID (1,731.3 vs. 772.9 new cases per 100,000) than the unvaccinated in the 40-49 age group. Also, the fully vaccinated were about 2 times more likely to be infected in age groups 50-59, 60-69, and 70-79. It was only in the under 30 age groups that the unvaccinated had higher infection rates than the vaccinated.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UK Health Security Agency **COVID-19 vaccine surveillance report** Week 42

Table 2. COVID-19 cases by vaccination status between week 38 and week 41 2021

Cases reported by specimen date between week 38 and week 41 2021	Total	Unlinked*	Not vaccinated	Received one dose (1-20 days before specimen date)	Received one dose, ≥21 days before specimen date	Second dose ≥14 days before specimen date	Rates among persons vaccinated with 2 doses (per 100,000)	Rates among persons not vaccinated (per 100,000)
Under 18	397,882	24,292	351,148	10,698	11,001	743	314.1	3,013.6
18-29	62,885	7,512	20,902	758	8,404	25,309	462.1	615.4
30-39	92,257	7,348	21,726	636	6,545	56,004	956.7	751.1
40-49	130,904	7,297	13,022	293	3,800	106,492	1,731.3	772.9
50-59	88,020	4,790	5,399	80	1,632	76,119	1,075.3	528.6
60-69	45,155	2,614	1,872	24	617	40,028	704.1	347.1
70-79	27,360	1,559	658	12	215	24,916	537.9	267.6
≥80	11,907	854	382	7	215	10,449	406.8	304.1

October, 2021

Ages 40-49:
-117,882 of 130,904 (90%) infections were fully vaccinated
-infection rates were 2.2 times higher among the fully vaccinated

The **latest report** for weeks 39 to 42 indicates 2,333 of 2,621 (89 percent) COVID deaths were in the fully vaccinated. Again, that's nearly 9 of every 10 deaths.

This death percentage is slightly lower than the percentage of 70+ fully vaccinated (more than 90 percent), and thus the UKHSA has emphasized that the unvaccinated are more at risk

with regard to probabilities. But this is little consolation in defending vaccine effectiveness when 89 percent of those dying are fully vaccinated.

assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029606/Vaccine-surveillance-report-week-43.pdf

UK Health Security Agency

COVID-19 vaccine surveillance report

Week 43

Death within 60 days of positive COVID-19 test by date of death between week 39 and week 42 2021	Total**	Unlinked*	Not vaccinated	Received one dose (1-20 days before specimen date)	Received one dose, ≥21 days before specimen date	Second dose ≥14 days before specimen date†
Under 18	5	0	4	1	0	0
18-29	19	1	11	0	0	7
30-39	42	1	27	0	2	12
40-49	100	3	55	0	6	36
50-59	224	3	100	0	9	112
60-69	490	4	143	0	23	320
70-79	904	4	121	0	27	752
≥80	1,717	5	167	0	53	1,492

October, 2021:

2,333 of 2,621 (89.0%) deaths in the 70+ age groups were fully vaccinated

Image Source: **UK Health Security Agency**

Three Studies Find Vaccine Effectiveness Vanishes To Zero Percent After 5-7 Months

In a **study** on vaccine effectiveness in hundreds of thousands of Qatar residents we learn that protection against infection peaks at 72.1 percent 4 to 5 weeks after the second dose, and then it rapidly declines to 0 percent (i.e., no more protection than the unvaccinated) within 140 days, or 20 weeks and later.

medRxiv preprint doi: https://doi.org/10.1101/2021.08.25.21262584; this version posted August 27, 2021.

Waning of BNT162b2 vaccine protection against SARS-CoV-2 infection in Qatar

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METHODS: A matched test-negative, case-control study design was used to estimate vaccine effectiveness against SARS-CoV-2 infection and against any severe, critical, or fatal COVID-19 disease, between January 1, 2021 to August 15, 2021.

RESULTS: Estimated BNT162b2 effectiveness against any infection, asymptomatic or symptomatic, was negligible for the first two weeks after the first dose, increased to 36.5% (95% CI: 33.1-39.8) in the third week after the first dose, and reached its peak at 72.1% (95% CI: 70.9-73.2) in the first five weeks after the second dose. Effectiveness declined gradually thereafter, with the decline accelerating ≥15 weeks after the second dose, reaching diminished levels of protection by the 20th week. Effectiveness against symptomatic infection was higher than against asymptomatic infection, but still waned in the same fashion. Effectiveness against any severe,

Vaccine breakthrough infections

As of the end of the study, August 15, 2021, 8,155 and 8,935 SARS-CoV-2 breakthrough infections had been recorded among those who received either one or two doses of BNT162b2, respectively. The percentage of vaccine (BNT162b2 or mRNA-1273) breakthrough infections out of the daily diagnosed infections increased gradually with time and was at 36.7% on August 15, 2021 (Figure 1C). Most vaccine breakthrough infections (76.9%) were recorded for the BNT162b2 vaccine.

Table 2. Effectiveness of the BNT162b2 vaccine against any SARS-CoV-2 infection

	Effectiveness against infection				
	Cases[‡] (PCR-positive)		Controls[‡] (PCR-negative)		Effectiveness in % (95% CI)[§]
	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated	
0-13 days after first dose	4,194	138,900	3,976	139,118	0.0 (0.0-0.0)
≥14 days after first dose and no second dose	2,345	139,349	3,659	138,035	36.5 (33.1-39.8)
0-4 weeks after the second dose	3,141	140,934	10,659	133,416	72.1 (70.9-73.2)
5-9 weeks after the second dose	1,612	139,694	4,610	136,696	65.8 (63.8-67.7)
10-14 weeks after the second dose	1,006	139,230	2,242	137,994	55.5 (52.0-58.8)
15-19 weeks after the second dose	581	138,828	825	138,584	29.7 (21.7-36.9)
20-24 weeks after the second dose	608	138,676	523	138,761	0.0 (0.0-0.0)
≥25 weeks after the second dose	483	138,702	425	138,760	0.0 (0.0-0.4)

Abbreviations: CI, confidence interval; PCR, polymerase chain reaction.

‡Cases and controls were matched one-to-one by sex, 10-year age group, nationality, reason for PCR testing, and calendar week of PCR.

§Vaccine effectiveness was estimated using the test-negative, case-control study design.[14,15]

¶Severity,[22] criticality,[22] and fatality[23] were defined as per World Health Organization guidelines.

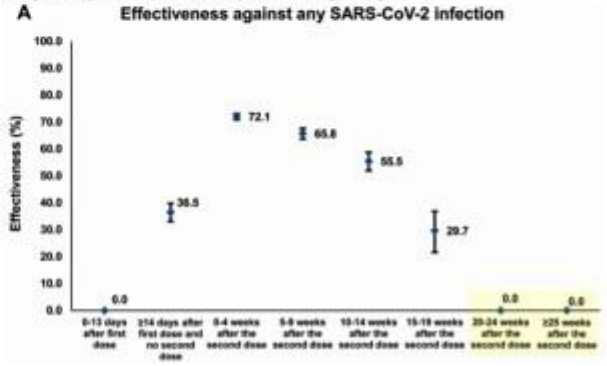
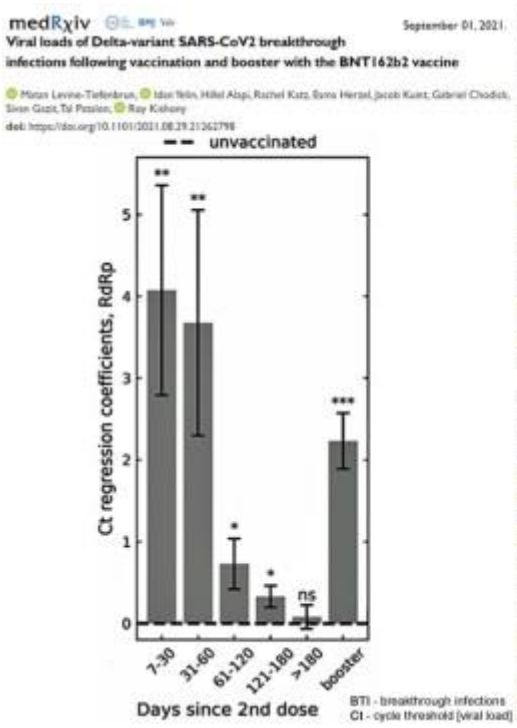


Image Source: **Chemaitelly Et Al., 2021**

Another **study** analyzed 11,889 infections in Israel and found infectiousness protection among the fully vaccinated "vanished" to the point there was no distinguishing the vaccinated from the unvaccinated within 180 days.

"[T]he viral load effectiveness declines with time post vaccination, significantly decreasing already after 3 months and effectively vanishing after about six months."



Abstract

The BNT162b2 vaccine showed high real-life effectiveness both at preventing disease and in reducing viral loads of breakthrough infections, but coincidental with the rise of the Delta-variant SARS-CoV2, these protective effects have been decreasing, prompting a third, booster, vaccine inoculation. Here, analyzing viral loads of over 11,000 infections during the current wave in Israel, we find that even though this wave is dominated by the Delta-variant, breakthrough infections in recently vaccinated patients, still within 2 months post their second vaccine inoculation, do have lower viral loads compared to unvaccinated patients, with the extent of viral load reduction similar to pre-Delta breakthrough observations. Yet, this infectiousness protection starts diminishing for patients two months post vaccination and ultimately vanishes for patients 6 months or longer post vaccination.

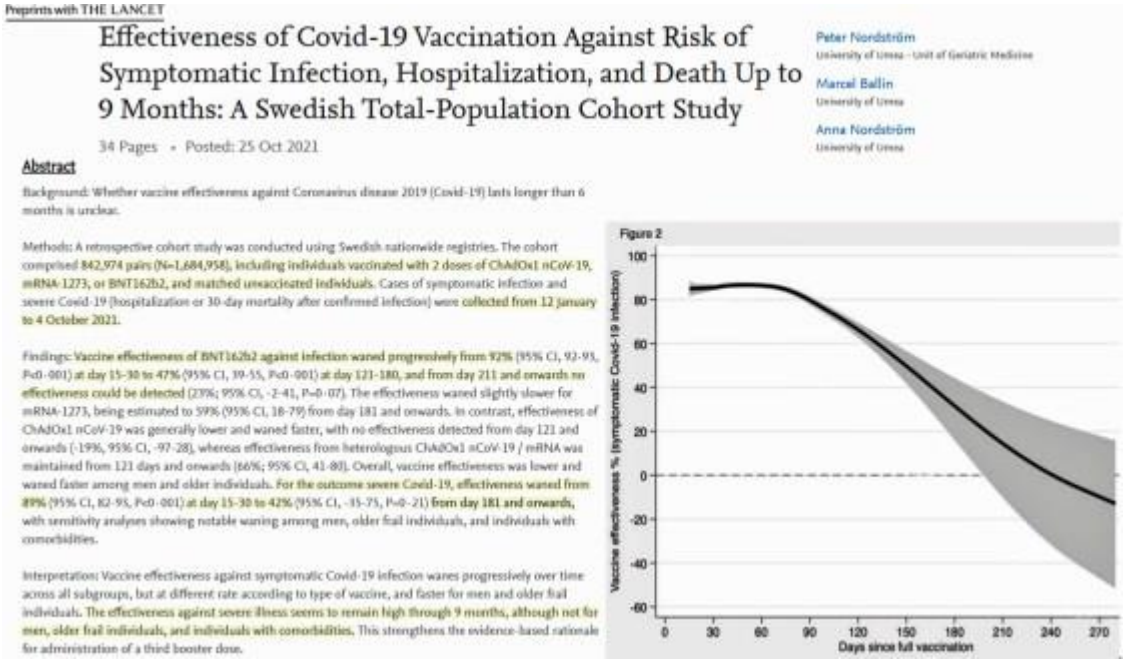
In this study, we retrospectively collected and analyzed the reverse transcription quantitative polymerase chain reaction (RT–qPCR) test measurements of three SARS-CoV-2 genes - *E*, *N* and *RdRp* (Allplex 2019-nCoV assay, Seegene) - from positive tests of patients of Maccabi Healthcare Services (HMS). We focus on infections of adults above the age of 20 between June 28 and August 24, when Delta was the dominant variant in Israel (over 93%)[36]. Crossing this dataset with vaccination data, we identified in total 1,910 infections of unvaccinated, 9,734 BTI of 2-dose-vaccinated and 245 BTI of booster-vaccinated (Methods: "Vaccination status", Extended Data Table 1).

Considering all of these infections (n = 11,889), we built a multivariable linear regression model for the Ct value of each of the three genes, accounting for vaccination, at different time bins prior to the infection, and for receiving the booster as well as adjusting for sex, age and calendric date. Focusing on the *RdRp* gene, regression coefficients for vaccinated over unvaccinated started with 4.1 [95% CI: 1.6-6.6] for BTI 7-30 days post 2nd vaccine dose, yet decayed over time down to 0.7 [CI: 0.1-1.3] after about 2 months (P=0.0002, Methods: change in Ct over time) and vanished to insignificant values for infections 6 months or longer post vaccination.

Our results show that the vaccine is initially effective in reducing viral loads of Delta breakthrough infections, with a magnitude of 15-fold [CI: 4-53] (average over the first two months post vaccination), consistent with its initial effectiveness against pre-Delta variants[4,7]. However, this viral-load effectiveness declines with time post vaccination, significantly decreasing already after 3 months and effectively vanishing after about six months. As the Delta variant happened to appear when a large fraction of the vaccinated population was already past the initial 2 months post-vaccination, the population-wide average effect of the vaccine on Delta is negligible, consistent with and explaining reports of no difference in Ct between vaccinated and unvaccinated infected with Delta.

Image Source: **Levine-Tiefenbrun Et Al., 2021**

A nation-wide **study** of Sweden's mass vaccination campaign determined that vaccine effectiveness fell from 92 percent to 47 percent within 121-180 days after the second shot, and then "from day 211 and onwards no effectiveness could be detected."



Preprints with THE LANCET

Effectiveness of Covid-19 Vaccination Against Risk of Symptomatic Infection, Hospitalization, and Death Up to 9 Months: A Swedish Total-Population Cohort Study

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34 Pages • Posted: 25 Oct 2021

Abstract

Background: Whether vaccine effectiveness against Coronavirus disease 2019 (Covid-19) lasts longer than 6 months is unclear.

Methods: A retrospective cohort study was conducted using Swedish nationwide registries. The cohort comprised 842,974 pairs (N=1,684,958), including individuals vaccinated with 2 doses of ChAdOx1 nCoV-19, mRNA-1273, or BNT162b2, and matched unvaccinated individuals. Cases of symptomatic infection and severe Covid-19 (hospitalization or 30-day mortality after confirmed infection) were collected from 12 January to 4 October 2021.

Findings: Vaccine effectiveness of BNT162b2 against infection waned progressively from 92% (95% CI, 92-93, P<0·001) at day 15-30 to 47% (95% CI, 39-55, P<0·001) at day 121-180, and from day 211 and onwards no effectiveness could be detected (23%; 95% CI, -2-41, P=0·07). The effectiveness waned slightly slower for mRNA-1273, being estimated to 59% (95% CI, 18-79) from day 181 and onwards. In contrast, effectiveness of ChAdOx1 nCoV-19 was generally lower and waned faster, with no effectiveness detected from day 121 and onwards (-19%, 95% CI, -97-28), whereas effectiveness from heterologous ChAdOx1 nCoV-19 / mRNA was maintained from 121 days and onwards (66%; 95% CI, 41-80). Overall, vaccine effectiveness was lower and waned faster among men and older individuals. For the outcome severe Covid-19, effectiveness waned from 89% (95% CI, 82-93, P<0·001) at day 15-30 to 42% (95% CI, -15-75, P=0·21) from day 181 and onwards, with sensitivity analyses showing notable waning among men, older frail individuals, and individuals with comorbidities.

Interpretation: Vaccine effectiveness against symptomatic Covid-19 infection wanes progressively over time across all subgroups, but at different rate according to type of vaccine, and faster for men and older frail individuals. The effectiveness against severe illness seems to remain high through 9 months, although not for men, older frail individuals, and individuals with comorbidities. This strengthens the evidence-based rationale for administration of a third booster dose.

Figure 2

Image Source: **Nordström Et Al., 2021**

A disturbing **study** of 582 vaccine recipients (health care workers) found **48.4 percent were infected with COVID within 4 weeks after their first shot**, and 25.3 percent were infected with COVID within 3 months after their second shot.

It's as if these vaccines offer no protection at all.

medRxiv

Posted September 02, 2021

High failure rate of ChAdOx1 in healthcare workers during Delta variant surge:A case for continued use of masks post-vaccination

Rajat Ujjainiya, Akansha Tyagi, Viren Sardana, Salwa Nausheen, Nitin Bhatheja, Kartik Kumar, Joydeb Barman, Satyartha Prakash, Rintu Kutum, Akash K. Bhaskar, Prosenjit Singh, Kumardeep Chaudhary, Menka Loombs, Yukti Khanna, Chestha Walechia, Rizwan Ahmed, Ashutosh Yadav, Archana Bajaj, Gaurav Malik, Sahar Qureshi, Swati Waghdhare, Samreen Siddiqui, Kamal Krishan Trehan, Manju Mani, Rajiv Dang, Poonam Das, Pankaj Dasgupta, Monica Mahajan, Sudipta Sonar, Kareni Jakhar, Reena Kumar, Mahima Tiwari, Shailendra Mani, Sankar Bhattacharyya, Sandeep Budhiraja, Anurag Agrawal, Debasis Dash, Sujeet Jha, Shantanu Sengupta

doi: https://doi.org/10.1101/2021.02.28.21252621

Immunization is expected to confer protection against infection and severe disease for vaccinees, while also indirectly protecting unvaccinated populations by reducing transmission. Initial data for SARS-CoV2 vaccines suggested that break-through infections would be infrequent and be associated with lower viral loads, shorter duration, and low likelihood of transmission [1]. Easing of social restrictions such as universal masking was critically dependent on validity of these initial observations. However, the global surge in transmission of Delta variant of SARS CoV2, including in high vaccination populations such as Israel [2,3], has led to reconsideration of the policies [4]. More recent data suggests that Delta infections have higher viral loads, with no difference between vaccinated and unvaccinated [5,6,7,8]. Together, the data strongly argues that frequent breakthrough infections and minimally impeded transmission is a possibility with new variants such as Delta.

Briefly, the cohort contained 597 ChAdOx1-nCoV19 vaccine recipients. The timing between first and second dose varied, but 482 received the second dose within 42 days of the first dose and most subjects received the second dose at 28±3 days. Fifty-two percent subjects (n=309) had been previously infected with SARS-CoV-2, based on presence of antibodies to SARS-CoV2 proteins (spike, anti-S or nucleocapsid, anti-NC) at D_0, the day of first dose.

Amongst fully vaccinated and uninfected HCW, i.e. completed 2 weeks beyond the second dose and Anti-$NC^{negative}$ at D_{45}, the breakthrough infection prevalence at D_{90} was 25.3% (95% CI 16.9 - 35.2). Comparison of Anti-S concentration and sVNT between D_{45} sera of the breakthrough infection group and those stayed uninfected (Anti-$NC^{negative}$ at D_{45} and D_{90}) is shown in Figure 1D. Data for those HCW who were previously infected had a reinfection rate of 2.5% over the same period. Through follow up of a general employee cohort, where most subjects had received only a single dose of ChAdOx1, we observed that 48.4% (95% CI 30.2 - 66.9) of previously uninfected subjects had a vaccination breakthrough after single dose, within the period of this study.

Within these limitations, our results have three important implications for management of Delta outbreaks, some of which have already been confirmed by other data. First, neutralization of Delta variant by antibodies to non-Delta spike protein is greatly reduced (Figure 2). This means that neither prior infection by non-Delta, nor existing vaccines, are individually sufficient for the path to herd immunity. This also implies that masking is an essential part of any rational COVID control strategy, being agnostic to immune escape. Second, given reduced effectiveness of induced antibodies, a single dose of ChAdOx1-nCoV19 should not be expected to confer any protection against Delta variant infection, and second dose should be given early, preferably within 6 weeks, as was done for HCW here. We found that 48.4% (30.2 - 66.9) of previously uninfected subjects had a vaccination breakthrough after single dose, within the period of this study. That is unacceptably high.

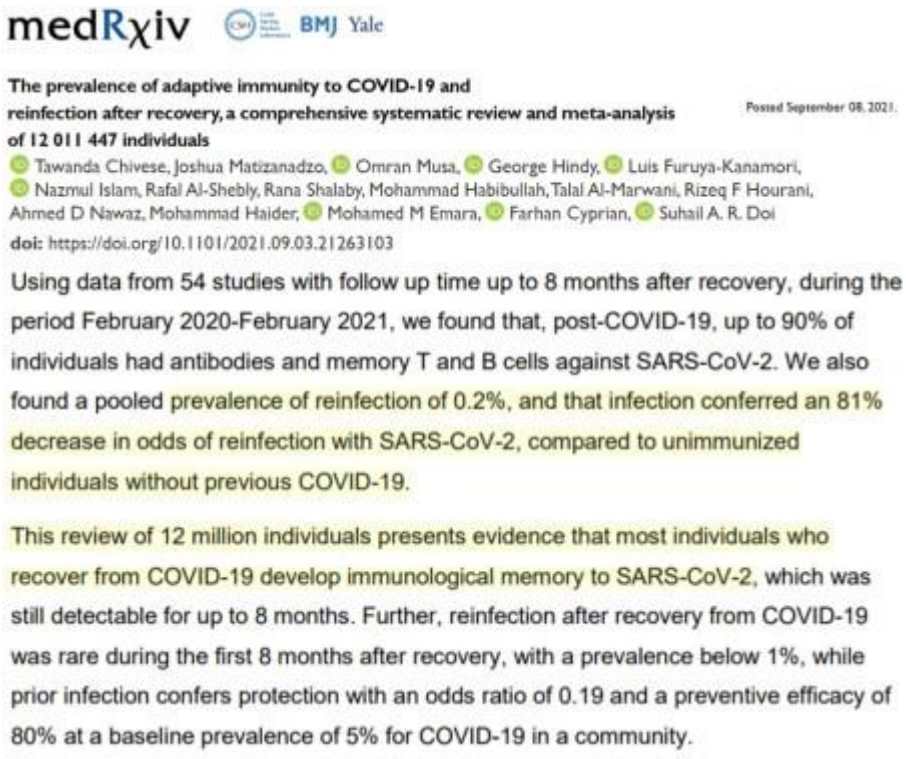
medRxiv preprint doi: https://doi.org/10.1101/2021.02.28.21252621; this version posted September 2, 2021.

Image Source: **Ujjainiya Et Al., 2021**

Natural Immunity From A Prior Infection Is Better Than Vaccines

In contrast to the rapidly-waning protection offered by COVID's "**leaky**" vaccines, **a collection of 96 studies** (as of 1 November) and counting compiled by an epidemiologist and 5 other MDs affirm a prior COVID infection (i.e., natural immunity) offers more and longer-lasting protection than vaccines do.

For example, according to **a compendium of 54 studies involving over 12 million people**, those who have already been infected with COVID are re-infected at a rate of only 0.2 percent (1 in 500) in the next 8 months after infection.



medRxiv BMJ Yale

The prevalence of adaptive immunity to COVID-19 and reinfection after recovery, a comprehensive systematic review and meta-analysis of 12 011 447 individuals

Posted September 08, 2021.

Tawanda Chivese, Joshua Matizanadzo, Omran Musa, George Hindy, Luis Furuya-Kanamori, Nazmul Islam, Rafal Al-Shebly, Rana Shalaby, Mohammad Habibullah, Talal Al-Marwani, Rizeq F Hourani, Ahmed D Nawaz, Mohammad Haider, Mohamed M Emara, Farhan Cyprian, Suhail A. R. Doi

doi: https://doi.org/10.1101/2021.09.03.21263103

Using data from 54 studies with follow up time up to 8 months after recovery, during the period February 2020-February 2021, we found that, post-COVID-19, up to 90% of individuals had antibodies and memory T and B cells against SARS-CoV-2. We also found a pooled prevalence of reinfection of 0.2%, and that infection conferred an 81% decrease in odds of reinfection with SARS-CoV-2, compared to unimmunized individuals without previous COVID-19.

This review of 12 million individuals presents evidence that most individuals who recover from COVID-19 develop immunological memory to SARS-CoV-2, which was still detectable for up to 8 months. Further, reinfection after recovery from COVID-19 was rare during the first 8 months after recovery, with a prevalence below 1%, while prior infection confers protection with an odds ratio of 0.19 and a preventive efficacy of 80% at a baseline prevalence of 5% for COVID-19 in a community.

Image Source: **Chivese Et Al., 2021**

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