No. 21-1143

In The Supreme Court of the United States

DR. A., NURSE A., DR. C., NURSE D., DR. F., DR. G., THERAPIST L., DR. J., NURSE J., DR. M., NURSE N., DR. O., DR. P., DR. S., NURSE S., PHYSICIAN LIAISON X.,

Petitioners,

v.

KATHY HOCHUL, GOVERNOR OF THE STATE OF NEW YORK, IN HER OFFICIAL CAPACITY, DR. MARY T. BASSETT, COMMISSIONER OF THE NEW YORK STATE DEPARTMENT OF HEALTH, IN HER OFFICIAL CAPACITY, LETITIA JAMES, ATTORNEY GENERAL OF THE STATE OF NEW YORK, IN HER OFFICIAL CAPACITY,

Respondents.

On Petition For A Writ Of Certiorari To The United States Court Of Appeals For The Second Circuit

BRIEF OF DRS. JAY BHATTACHARYA AND R. SCOTT FRENCH AS *AMICI CURIAE* IN SUPPORT OF PETITIONERS

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TABLE OF CONTENTS

TABLE OF AUTHORITIES

TABLE OF AUTHORITIES—Continued

TABLE OF AUTHORITIES—Continued

Page

TABLE OF AUTHORITIES—Continued

TABLE OF AUTHORITIES—Continued

TABLE OF AUTHORITIES—Continued

TABLE OF AUTHORITIES—Continued

Page

TABLE OF AUTHORITIES—Continued

INTEREST OF *AMICI CURIAE*[1]

Amici curiae are Drs. Jay Bhattacharya and R. Scott French.

Dr. Jay Bhattacharya is a Professor of Health Policy at Stanford University School of Medicine, a research associate at the National Bureau of Economic Research, and the Director of Stanford's Center for Demography and Economics of Health and Aging. Holding an M.D. and a Ph.D. from Stanford, Dr. Bhattacharya has dedicated his professional career to the analysis of health policy, including infectious disease epidemiology and the safety and efficacy of medical interventions. He has published 155 scholarly articles in peer-reviewed journals in the fields of medicine, economics, health policy, epidemiology, statistics, law, and public health. His research has been cited in the peer-reviewed scientific literature more than 12,400 times. Dr. Bhattacharya has studied extensively and commented publicly on Covid-19 ("Covid") health policy in the United States and around the world, including vaccination requirements. He is a primary coauthor of the Great Barrington Declaration, which criticizes Covid lockdowns and other draconian policy measures and calls for focused protection aimed

[1] Consistent with Rule 37.6, no counsel for a party authored this brief in whole or in part, and no person other than *amici* or its counsel made a monetary contribution to its preparation or submission. The parties' counsel of record received timely notice of the intent to file this *amicus curiae* brief pursuant to S. Ct. R. 37.2(a). Petitioners and Respondents granted consent to the filing of this brief.

at protecting the vulnerable and high-risk. More than 60,000 epidemiologists and other medical professionals have co-signed the Declaration. *See* Great Barrington Declaration, https://gbdeclaration.org/. Dr. Bhattacharya's recent essays on public health policy have appeared in the *Wall Street Journal*, Bari Weiss's *Common Sense*, and *Newsweek*.

Dr. R. Scott French is a board-certified emergency medicine physician, with an active practice treating and managing Covid patients in California, Hawaii and several other states. Beginning in 2020, Dr. French oversaw Covid transmission mitigation measures for patients and staff in four California emergency departments and managed Covid prevention and treatment protocols for communities and clinics in Hawaii, Texas, Pennsylvania, Ohio, Georgia, and North Carolina. Prior to that, Dr. French was Chief Medical Officer of a large health plan in California with over a million members, and responsible for disease and population management. Since that time, Dr. French has served as Regional Medical Director for two separate large national medical groups, where he was involved in managing emergency departments, hospitalists, urgent care clinics, and medical clinics in several states. Dr. French graduated from Harbor-UCLA Emergency Medicine Residency and went to work as full-time teaching faculty at Stanford University Medical School and later University of North Carolina Medical School. Dr. French continued to hold part-time clinical faculty teaching appointments at the University of Washington, Oregon Health Systems University, and Emory

University, among other institutions. He has taught medical students, interns, and residents on population and disease management, including viral pathogens. His teaching presentations included prevention, reducing the spread of viral pathogens, principles of immunology, diagnosis, and treatment.

Drs. Bhattacharya and French see evidence across the country that policymakers' responses to the Covid pandemic have not followed up-to-date, peer-reviewed science or best practices, and have instead become unduly politicized. The result is health policies—like New York's vaccine mandate for healthcare workers—that are deeply misguided, scientifically unsupportable, and devastating for short- and long-term public health. The consequences have been tragic: job losses and severe economic disruptions, educational delays and setbacks for kids and college students, deteriorating mental and physical health, and unprecedented spikes in suicide, drug overdoses, and other deaths from despair, to name just a few. Worse, it is poor and working-class people, as well as racial and ethnic minorities, that have borne the brunt of bad pandemic policies, which are driven more by elite panic than science. This Court can serve as a rational corrective, reminding government leaders and public health officials that pandemics don't suspend the Constitution and that reasoned decisionmaking grounded in facts is critical to maintaining the public's trust in this area.

SUMMARY OF ARGUMENT

This Court should grant the writ and reverse the Second Circuit's decision because *Employment Division* v. *Smith* continues to cause confusion in the lower courts and work injustice for people of sincere faith. Review is especially warranted in a case like this, where public officials have altogether skipped the democratic process and burdened free exercise under the guise of bureaucratic expertise. *Cf. Employment Division* v. *Smith*, 494 U.S. 872, 890 (1990) (reasoning that "*legislation*" is entitled to deferential review because the democratic process "can be expected to be solicitous" of free exercise (emphasis added)).

Amici here are scientists and physicians who specialize in virology and infectious disease, with particular expertise in health policy and practice related to Covid-19. We write to explain to the Court why New York's vaccine mandate does not stand up to serious scientific scrutiny. Like all such mandates, this one is premised on the notion that the Covid vaccines "stop the spread" of the virus. But they do not. Neither these vaccines nor vaccine mandates have substantially halted the transmission of Covid, a fact made abundantly clear with the rise of the Omicron variant, which has spread rapidly among heavily vaccinated populations and caused waves of so-called breakthrough infections. The rationality of New York's mandate is further undercut by its refusal to recognize natural immunity, which data show to be equivalent, if not superior, to vaccination in protecting against infection.

While the Covid vaccines do appear to lower an individual's odds of severe disease and death, reducing severity as opposed to transmission confers a largely private benefit, not a public one. The vaccines' primary impact is thus individual rather than societal. Ordinarily in American medicine, an intervention of this sort is a matter of personal choice, informed by consultation with one's physician and other professionals, where benefits, risks, and preferences can be individually assessed and weighed. To override personal decisionmaking through a medical mandate, government should be required to show, at the very least, solid evidence of public need. As this brief lays out, no such evidence justifies New York's Covid vaccine mandate.

ARGUMENT

I. Covid vaccine mandates don't rationally advance the government's interest in stopping transmission—because the vaccines don't stop transmission.

Covid vaccine mandates rest upon an empirical claim—that the vaccines stop transmission of the virus. As the World Health Organization correctly observes, such mandates are justified only if there is "sufficient evidence that the vaccine is efficacious in preventing serious infection and/or transmission."[2]

[2] World Health Org., *COVID-19 and mandatory vaccination: Ethical considerations and caveats*, Policy Br. (Apr. 13, 2021), https://bit.ly/3MM5KKn.

Among pundits and politicians, this has become an article of faith. "[T]he virus stops with every vaccinated person," MSNBC's Rachel Maddow told viewers last March.[3] "You're not going to—you're not going to get COVID if you have these vaccinations," President Biden echoed in a CNN town hall in July 2021.[4] New York's vaccine mandate is premised on the same rationale. As the governor's office put it when the mandate was announced, "We must act now to stop the spread. . . . This mandate will . . . reduce the spread of the Delta variant."[5]

But the science doesn't support these assertions, and New York's rationale doesn't stand up to serious scrutiny. There is no evidence that the vaccines or vaccine mandates can substantially halt transmission of the virus. Particularly since the rise of the Omicron variant, this fact has become abundantly obvious, as heavily vaccinated countries have faced large waves of Covid cases, and many vaccinated individuals have experienced breakthrough infections.

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[3] *See* Rachel Maddow Show, Mar. 29, 2021, https://youtu.be/2e-_1HQb7LA (clip provided by third party).

[4] The White House, Remarks by President Biden in a CNN Town Hall with Don Lemon (July 21, 2021), https://bit.ly/3tTpPpp.

[5] N.Y. State Governor's Office, Governor Cuomo Announces COVID-19 Vaccination Mandate for Healthcare Workers (Aug. 16, 2021), https://perma.cc/ZBP3-Y778.

A. Covid vaccines offer near-zero protection against transmission, particularly of the now-dominant Omicron variant.

Even before Omicron, there was mounting evidence that vaccines weren't stopping the spread of the Delta variant. On August 5, 2021—mere days before New York rolled out its mandate—CDC Director Dr. Rochelle Walensky admitted in a CNN interview that "what [the vaccines] can't do anymore is prevent transmission."[6] That alone should have made New York policymakers hit the pause button.

Subsequent studies on Delta infections among the vaccinated only confirmed Dr. Walensky's admission. A longitudinal study from the UK found that vaccinated individuals infected with Delta "have peak viral load similar to unvaccinated cases and can efficiently transmit infection in household settings, including to fully vaccinated contacts."[7] A study of vaccinated healthcare

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[6] Madeline Holcombe & Christina Maxouris, "Fully vaccinated people who get a Covid-19 breakthrough infection can transmit the virus, CDC chief says," *CNN* (Aug. 6, 2021), https://cnn.it/3vZTVdt.

[7] Anika Singanayagam et al., "Community transmission and viral load kinetics of the SARS-CoV-2 delta (B.1.617.2) variant in vaccinated and unvaccinated individuals in the UK: a prospective, longitudinal, cohort study," *The Lancet Infectious Diseases*, vol. 22(2), pp.183–95 (Feb. 1, 2022), https://bit.ly/3i6cV1W; *see also* Ctrs. for Disease Control & Prevention, "Outbreak of SARS-CoV-2 Infections, Including COVID-19 Vaccine Breakthrough Infections, Associated with Large Public Gatherings—Barnstable County, Massachusetts, July 2021," *Morbidity & Mortality Weekly Rpt.* (Aug. 6, 2021), https://bit.ly/36nBHbm ("the viral

workers in Vietnam found "no correlation between vaccine-induced neutralizing antibody levels and peak viral loads or the development of symptoms."[8] In other words, the vaccines did not stop Delta transmission or infection. The authors concluded that vaccination was "associated with high viral loads," and the "data suggested ongoing transmission had occurred between fully vaccinated individuals."[9]

As of January 1, 2022, Omicron was the dominant variant in the United States. Today it represents 100% of U.S. Covid cases.[10] If Delta cast doubt on the notion that vaccines prevent transmission, Omicron totally eviscerated it. The CDC concedes that "anyone with Omicron infection can spread the virus to others, *even if they are vaccinated*."[11] Pfizer and Moderna made similar admissions in press releases late last year—yet

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load of vaccinated and unvaccinated persons infected with SARS-CoV-2 is . . . similar").

[8] Nguyen Van Vinh Chau et al., "An observational study of breakthrough SARS-CoV-2 Delta variant infections among vaccinated healthcare workers in Vietnam," *eClinicalMedicine*, vol. 41 (Nov. 2021), https://bit.ly/3w8U3rr.

[9] *Ibid.*

[10] *See* Ctrs. for Disease Control & Prevention, COVID Data Tracker, https://covid.cdc.gov/covid-data-tracker/#variant-proportions (accessed March 13, 2022).

[11] Ctrs. for Disease Control & Prevention, "Omicron Variant: What You Need to Know," updated Feb. 2, 2022, https://www.cdc.gov/coronavirus/2019-ncov/variants/omicron-variant.html (emphasis added).

still managed to pitch the benefits of seemingly limitless "boosting."[12]

Real-world evidence from four countries with significant experience with Omicron—Denmark, the UK, Germany, and Canada (all of which provide more detailed and transparent data than is available in the United States)—shows that the vaccines have *substantially zero efficacy* at preventing Omicron transmission, undermining the central rationale for New York's (or any) vaccine mandate.

The Statens Serum Institut in Copenhagen, Denmark analyzed Danish data and found vaccine efficacy turned *negative* 91 days after administration of the second dose.[13] In other words, vaccinated Danes were *even more likely* than unvaccinated Danes to be infected with Omicron after three months. This may be because unvaccinated, Covid-recovered patients have better protection against Omicron compared to vaccinated individuals with no prior infection—pointing

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[12] *See* Pfizer, "Pfizer and BioNTech Provide Update on Omicron Variant," Press Release (Dec. 8, 2021), https://bit.ly/37gPKzE ("two doses of BNT162b2 may not be sufficient to protect against infection with the Omicron variant"); Moderna, "Moderna Announces Preliminary Booster Data and Updates Strategy to Address Omicron Variant," Press Release (Dec. 20, 2021) ("All groups had low neutralizing antibody levels in the Omicron PsVNT assay prior to boosting.").

[13] Christian Holm Hansen et al., "Vaccine effectiveness against SARS-CoV-2 infection with the Omicron or Delta variants following a two-dose or booster BNT162b2 or mRNA-1273 vaccination series: A Danish cohort study," *medRxiv* (Dec. 23, 2021), https://bit.ly/3I2mA4d.

to both the inefficacy of the vaccines and the superiority of natural immunity. *See infra*, Part II.

In Germany, the most recent detailed report from the Robert Koch Institute—the German equivalent of the CDC—found that as of December 31, 2021, 78.6 percent (4,020 of 5,117) of sequenced Omicron cases were in *vaccinated* Germans,[14] despite a population vaccination rate at the time of less than 71 percent.[15] These data suggest that Omicron is indifferent to vaccination status.

In December 2021, the UK Health Security Agency calculated preliminary estimates of vaccine effectiveness remarkably similar to the Danish study, with *near-zero efficacy* for both Pfizer and Moderna vaccines 20 weeks after the second dose.[16] These findings accord with an Imperial College of London study that estimated vaccine effectiveness against symptomatic Omicron infection to be "between 0% and 20% after two doses, and between 55% and 80% after a

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[14] Robert Koch Institute, *Wöchentlicher Lagebericht des RKI zur Coronavirus-Krankheit-2019 (COVID-19)* (Dec. 30, 2021), https://bit.ly/3pXQu3e.

[15] *See* Our World in Data, Coronavirus (COVID-19) Vaccinations, https://ourworldindata.org/covid-vaccinations; *see also* Edouard Mathieu et al., "A global database of COVID-19 vaccinations," *Nature Human Behavior*, vol. 5, pp.947–53 (July 2021) (describing the foregoing dataset).

[16] UK Health Security Agency, "SARS-CoV-2 variants of concern and variants under investigation in England," *Technical briefing 33* (Dec. 23, 2021), at 26–27, https://bit.ly/3i21Dvy.

booster dose."[17] Twenty percent represents no effective protection.

The UK Health Security Agency's weekly "COVID-19 vaccine surveillance reports" also show that the vaccines have not reduced infection rates. In the latest report, there were 774,595 new adult Covid cases. Of infected adults, 7.7% (42,430) were unvaccinated and 84.4% (653,383) were doubly- or triply-vaccinated. This disparity becomes more pronounced with age. For example, among infected adults aged 60–69, 2.4% (1,952) were unvaccinated and 92.9% (75,967) were doubly- or triply-vaccinated.[18] The report cautions that "it is expected that a large proportion of cases . . . would occur in vaccinated individuals, simply because a larger proportion of the population are vaccinated than unvaccinated."[19] But the UK's population vaccination rate is around 72%.[20] So, as in Germany, the data suggest that Covid infections are indifferent to the vaccines.

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[17] Emily Head & Dr. Sabine L. van Elsland, "Omicron largely evades immunity from past infection or two vaccine doses," Imperial Coll. of London (Dec. 17, 2021), https://bit.ly/3i4Fyg4.

[18] UK Health Security Agency, "COVID-19 vaccine surveillance report, Week 10" (Mar. 10, 2022), at 40 (Table 10) https://bit.ly/36daJ60 (adults are all age cohorts 18 and older; doubly- and triply-vaccinated are individuals in "Second dose" and "Third dose" columns).

[19] *Id.* at 40 n.1.

[20] *See supra* note 15.

In Ontario, Canada, the case rate per 100,000 fully vaccinated Ontarians has risen sharply above the case rate per 100,000 unvaccinated Ontarians, again suggesting *negative* vaccine efficacy:[21]

[21] Gov't of Ontario, COVID-19 vaccinations data, https://covid-19.ontario.ca/data (accessed Mar. 7, 2022; as of March 13, this webpage states, "Due to technical difficulties, COVID-19 cases by vaccination status is not available").


All ages
0-11
12-17
18-39
40-59
60-79
80+
Unvaccinated cases
Partially vaccinated cases
Fully vaccinated cases
Rate per 100,000 (7-day average)
80.00
60.00
40.00
20.00
0.00
Nov 30, 2021
Dec 5, 2021
Dec 11, 2021
Dec 17, 2021
Dec 23, 2021
Dec 29, 2021

In a test-negative control analysis of Ontario test data, researchers from Public Health Ontario and leading Canadian universities noted that "[w]e also observed *negative* VE [vaccine effectiveness] against Omicron among those who had received 2 doses compared to unvaccinated individuals."[22] The finding is evident in Table 2 of the study. Researchers found that 60 days after the second dose, vaccine effectiveness turned and remained negative, meaning a vaccinated person was *more likely* to be infected than an unvaccinated person:[23]

[22] Sarah Buchan et al., "Effectiveness of COVID-19 vaccines against Omicron or Delta infection," *medRxiv* (Jan. 1, 2022), at 7, https://bit.ly/3i0TDuS (emphasis added).

[23] *Id.* at 18.

Table 2. Vaccine effectiveness against infection by Omicron or Delta among adults aged ≥18 years by time since latest dose

Doses	Vaccine products	Days since latest dose	SARS-CoV-2 negative controls, n	Omicron-positive cases, n	Vaccine effectiveness against Omicron (95% CI)	Delta-positive cases, n	Vaccine effectiveness against Delta (95% CI)
First 2 doses	≥1 mRNA vaccine	7-59	14,288	63	6 (-25, 30)	204	84 (81, 86)
		60-119	34,741	214	-13 (-38, 8)	562	81 (79, 82)
		120-179	282,977	2,257	-38 (-61, -18)	4,342	80 (79, 81)
		180-239	47,282	522	-42 (-69, -19)	635	74 (72, 76)
		≥240	10,285	46	-16 (-62, 17)	203	71 (66, 75)
Third dose	Any mRNA vaccine	0-6	10,208	50	2 (-35, 29)	71	88 (85, 90)
		≥7	36,500	114	37 (19, 50)	138	93 (92, 94)
	BNT162b2	0-6	8,461	42	2 (-39, 30)	64	87 (83, 90)
		≥7	30,269	106	34 (16, 49)	116	93 (91, 94)
	mRNA-1273	0-6	1,747	8	5 (-94, 54)	7	93 (86, 97)
		≥7	6,231	8	59 (16, 80)	22	93 (90, 96)

Finally, there is New York itself, where widespread Covid vaccination—95% of adults have had at least one dose[24]—has utterly failed to prevent the spread of the disease. As of December 22, 2021, New York City was seeing a "staggering" number of new Covid cases, and the CDC reported that "New York and New Jersey were detecting omicron at four times the national average rate."[25]

B. Boosters are likewise ineffective, and their long-term effects may be harmful.

"Boosting" does not solve the problem of vaccine inefficacy. Based on well-known principles of virology, scientists expected the Covid virus, and particularly the spike protein targeted by the mRNA vaccines, to mutate rapidly to evade the body's immune response. That is precisely what has happened, and beyond Omicron, the virus will continue to mutate. Just this month, Dr. Walensky told NBC, "I do anticipate that this is probably going to be a seasonal virus."[26] Vaccines are generally ineffective at preventing seasonal virus spread.

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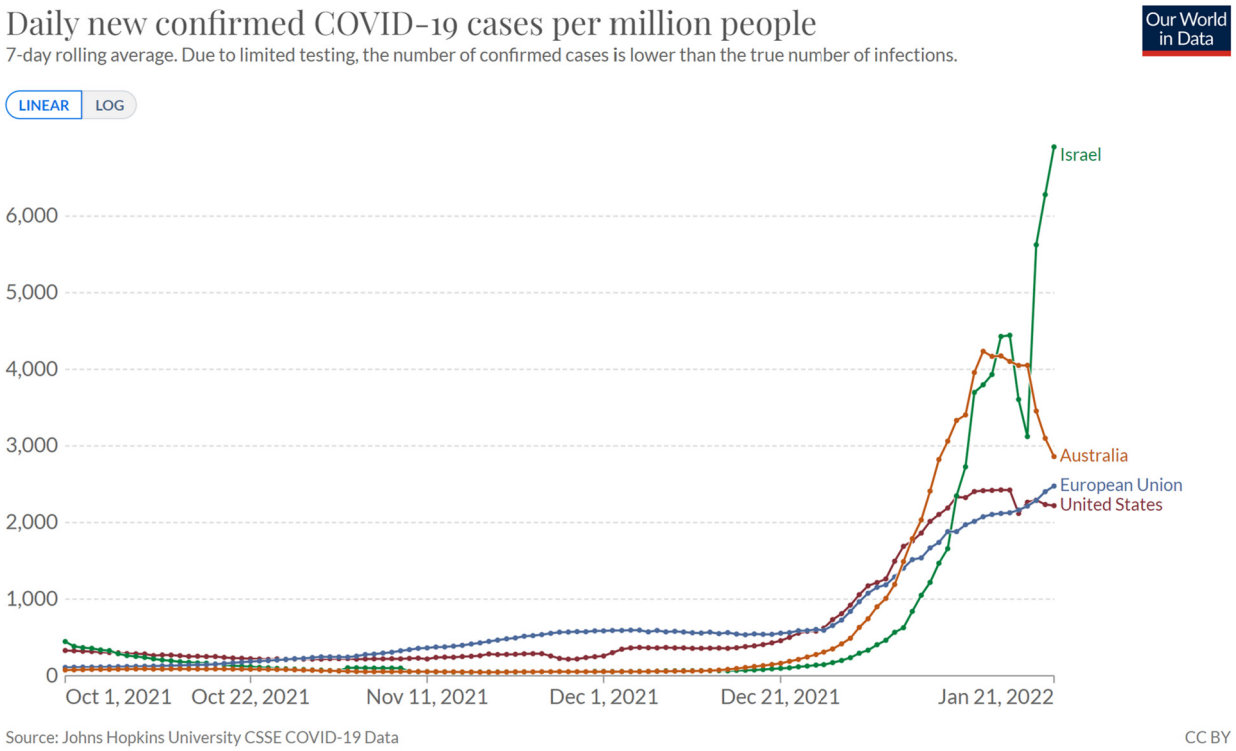
[24] New York State, "Vaccine Progress to Date," https://coronavirus.health.ny.gov/vaccination-progress-date (accessed March 14, 2022).

[25] Jennifer Millman, "NYC Sees 'Staggering' New Daily Cases as CDC Estimates Omicron Prevalence Tops 90%," *NBC New York*, Dec. 23, 2021, https://bit.ly/3InH3kd.

[26] Erika Edwards et al., "Covid will 'probably' become a seasonal virus, like the flu, Walensky says," *NBC News* (Mar. 7, 2022), https://nbcnews.to/3wbmB3o.

Further, there is no evidence that boosters halt transmission of the virus any more than the original vaccines, and boosters' protection against symptomatic infection is weak and quickly fading. In Israel, at the height of the Omicron surge in late January, the world's most vaccinated country experienced daily Covid cases that far exceeded the United States, the EU, and Australia.[27]

[27] Our World in Data, COVID-19 Data Explorer, https://ourworldindata.org/explorers/coronavirus-data-explorer; *see supra* note 15.


Daily new confirmed COVID-19 cases per million people
7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.
Our World in Data
LINEAR
LOG
6,000
5,000
4,000
3,000
2,000
1,000
0
Oct 1, 2021
Oct 22, 2021
Nov 11, 2021
Dec 1, 2021
Dec 21, 2021
Jan 21, 2022
Israel
Australia
European Union
United States
Source: Johns Hopkins University CSSE COVID-19 Data
CC BY

Further, "[a] study conducted at Sheba Medical Center indicates a fourth shot of the Pfizer coronavirus vaccine provides insufficient protection against the Omicron variant," "rais[ing] serious questions regarding Israel's current strategy of boosting all people over the age of 60."[28]

Though Israeli officials recommended a fourth vaccine dose despite a lack of randomized evidence,[29] experts elsewhere are sounding the alarm about repeat boosters. EU health regulators have warned that "frequent Covid-19 booster shots could adversely affect the immune system" and "weaken" it over time.[30] According to Marco Cavaleri, head of biological health threats and vaccine strategy for the European Medicines Agency, "We will end up potentially having problems with immune response, and immune response may end up not being as good as we would like it to be, thus we must take care not to overload the immune system with repeated vaccines."[31]

In the face of these concerns, New York's mandate is ominously open-ended, defining "fully vaccinated"

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[28] "Israeli study shows 4th vaccine shot 'not good enough' against Omicron," *Times of Israel* (Jan. 17, 2022), https://bit.ly/3q38323.

[29] "Israeli expert panel advises 4th vaccine dose for adults," *Assoc. Press* (Jan. 25, 2022), https://bit.ly/34HAvz1.

[30] Irina Anghel, "Frequent Boosters Spur Warning on Immune Response," *Bloomberg News* (Jan. 11, 2022), https://bloom.bg/3Icrcoa.

[31] Ido Efrati, "Four Vaccines a Year: Is This How Israel Will Go on Coping With COVID?", *Haaretz* (Jan. 16, 2022), https://bit.ly/37vTe1x.

to mean however many shots government officials "recommen[d]." N.Y. COMP. CODES R. & REGS. tit. 10, § 2.61(a)(3) (2021). As physicians and scientists, we find this deeply troubling. There is no precedent, in either science or public policy, for a repeated medical intervention at this frequency and scale. No one knows what the consequences will be.

In a *Wall Street Journal* editorial earlier this year, Dr. Luc Montagnier, the late Nobel Prize-winning virologist who isolated the AIDS virus, summed up the matter well: "It would be irrational, legally indefensible and contrary to the public interest for government to mandate vaccines absent any evidence that the vaccines are effective in stopping the spread of the pathogen they target. Yet that's exactly what's happening here."[32]

II. Natural immunity is at least as effective and durable as vaccine-based immunity, yet New York's mandate ignores it.

Seven of the Petitioners here have already recovered from Covid—they have natural immunity against the virus. Yet New York's vaccine mandate still requires them to be vaccinated on pain of losing their jobs. This is irrational. New York's mandate ignores the clear weight of scientific evidence confirming that natural immunity is at least as good as, if not superior

[32] Luc Montagnier & Jed Rubenfeld, "Omicron Makes Biden's Vaccine Mandates Obsolete," *Wall St. J.* (Jan. 9, 2022), https://on.wsj.com/3CFyAHH.

to, vaccine-based immunity. Forcing naturally-immune individuals to become vaccinated not only is unnecessary but also heightens their risk of medical injury. And New York is increasingly an international outlier—the UK and the Netherlands, for example, now treat natural immunity as equivalent to vaccination.

A. Natural immunity provides equivalent or better protection against Covid infection and severe disease.

Both vaccine-based immunity and natural immunity protect against severe disease from subsequent Covid infection. Both are based on the same basic immunological mechanism—stimulating the immune system to generate an antibody response. Yet multiple peer-reviewed studies have concluded that natural immunity provides equivalent or greater protection against infection and severe disease than the immunity generated by the mRNA vaccines.

A Cleveland Clinic study found that over a five-month period, Covid infection did not recur in 1,359 clinic employees who had recovered from a previous Covid infection and had been re-exposed to the virus. Cleveland Clinic researchers concluded "that subjects previously infected with SARS-CoV-2 are unlikely to get COVID-19 reinfection *whether or not they get the vaccine*."[33] And they noted that their finding "calls into

[33] Nabin K. Shrestha et al., "Necessity of COVID-19 vaccination in previously infected individuals," *medRxiv* (June 5, 2021), https://bit.ly/3CzG9jb (emphasis added).

question the necessity to vaccinate those who have already had SARS-CoV-2 infection."[34] An Israeli study of more than 6 million individuals reached a similar conclusion, finding that natural immunity provides equivalent if not better protection than vaccine immunity in preventing Covid infection, morbidity, and mortality.[35] "Our results question the need to vaccinate previously-infected individuals," the authors observed.[36]

Yet another recent study out of Israel found that *vaccinated* people who had not been previously infected were 13 times more likely to experience a breakthrough Covid infection, 27 times more likely to experience subsequent Covid symptoms, and seven times more likely to be hospitalized compared to naturally-immune individuals who had never been vaccinated.[37] The design of this Israeli study was particularly strong because it tracked large cohorts of people over time, from the time of vaccination or initial infection, thus accounting for the fact that immunity protection (whether vaccine-based or natural) diminishes with time. The study's authors concluded that "natural immunity confers longer lasting and stronger

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[34] *Ibid.*

[35] *See* Yair Goldberg et al., "Protection of previous SARS-CoV-2 infection is similar to that of BNT162b2 vaccine protection: A three-month nationwide experience from Israel," *medRxiv* (Apr. 24, 2021), https://bit.ly/3J99UKa.

[36] *Ibid.*

[37] *See* Sivan Gazit et al., "Comparing SARS-CoV-2 natural immunity to vaccine-induced immunity: reinfections versus breakthrough infections," *medRxiv* (Aug. 25, 2021), https://bit.ly/3CJROfh.

protection against infection, symptomatic disease and hospitalization caused by the Delta variant of SARS-CoV-2, compared to the BNT162b2 [Pfizer] two-dose vaccine-induced immunity."[38]

Many other studies from around the world confirm the Cleveland Clinic and Israeli experiences.[39]

B. Natural immunity provides longer-lasting protection.

Not only is natural immunity equivalent or better at preventing infection and severe disease. It also appears to be more durable. A *British Medical Journal* article last year concluded, "There is reason to think that immunity could last for several months or a couple of years, at least, given what we know about other viruses and what we have seen so far in terms of antibodies in patients with COVID-19 and in people who

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[38] *Ibid.*

[39] *See*, *e.g.*, Roberto Bertollini et al., "Associations of Vaccination and of Prior Infection With Positive PCR Test Results for SARS-CoV-2 in Airline Passengers Arriving in Qatar," *JAMA*, vol. 326(12), pp.185–88 (July 13, 2021), https://pubmed.ncbi.nlm.nih.gov/34106201/; Aodhán Seán Breathnach et al., "Prior COVID-19 protects against reinfection, even in the absence of detectable antibodies," *The Journal of Infection*, vol. 83(2), pp.237–79 (May 31, 2021), https://bit.ly/3CMDa7e; Stefan Pilz, Ali Chakeri et al., "SARS-CoV-2 re-infection risk in Austria," *European Journal of Clinical Investigation*, vol. 51(4) (Feb. 11, 2021), https://bit.ly/35YaBri.

have been vaccinated."[40] A study in *Nature* found that a prior Covid infection induces "robust" and "long-lived" immunity, with antibody-producing cells "remaining detectable at least 11 months after infection."[41] As the study's lead author noted, "These cells will live and produce antibodies for the rest of people's lives. That's strong evidence for long-lasting immunity."[42]

This correlates with the Israeli study which found natural immunity to be both more protective and "longer lasting" than vaccine-induced immunity.[43] Other studies make clear that natural immunity is the benchmark against which vaccine-based immunity is measured—not the other way around.[44] In other words, vaccination aims to replicate the sort of immunity that

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[40] Chris Baraniuk, "How long does covid-19 immunity last?", *British Med. J.* (June 30, 2021), https://www.bmj.com/content/373/bmj.n1605.

[41] Ali H. Ellebedy et al., "SARS-CoV-2 infection induces long-lived bone marrow plasma cells in humans," *Nature* (May 24, 2021), https://go.nature.com/3vVuU3g.

[42] Tamara Bhandari, "Good news: Mild COVID-19 induces lasting antibody protection," News Release, Wash. U. Sch. Med. in St. Louis (May 24, 2021), https://bit.ly/3w1KfPB.

[43] *See* Gazit et al., *supra*, note 37.

[44] Jackson S. Turner et al., "SARS-CoV-2 infection induces long-lived bone marrow plasma cells in humans," *Nature* (May 24, 2021) ("our results indicate that mild infection with SARS-CoV-2 induces robust antigen-specific, long-lived humoral immune memory in humans. . . . These findings provide an immunogenicity benchmark for SARS-CoV-2 vaccines.").

individuals acquire naturally after recovery from infection.

Contrast these findings on natural immunity to what recent studies show about the Covid vaccines: that while they provide long-term protection against severe disease, their protection against infection and transmission is very short-lived. A Pfizer-funded study in California, which tracked infection rates for nearly 5 million patients vaccinated with two doses of the Pfizer vaccine, showed vaccine effectiveness at 90% in the first month but dropping to nearly 50% in the fifth month.[45] A study from Qatar shows an even steeper drop-off, with protection against infection peaking at about 77% one month after the second dose of an mRNA vaccine and then declining to about 20% in month five and after.[46]

Even the CDC now recognizes the importance of natural immunity. Its updated science brief observes that "SARS-CoV-2 infection decreased risk of subsequent infection by 80–93% for at least 6–9 months," with some studies showing "slightly higher protective

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[45] Sara Y. Tartof et al., "Effectiveness of mRNA BNT162b2 COVID-19 vaccine up to 6 months in a large integrated health system in the USA: a retrospective cohort study," *The Lancet* (Oct. 4, 2021), https://bit.ly/3MEg0V3.

[46] Hiam Chemaitelly et al., "Waning of BNT162b2 Vaccine Protection against SARS-CoV-2 Infection in Qatar," *N. England J. Med.*, vol. 385:24 (Dec. 9, 2021), https://bit.ly/34AGyFk.

effects (89–93%)," and "at least 50% protection against reinfection for 1–2 years following initial infection."[47]

Because natural immunity is at least as effective and durable as vaccine-based immunity, naturally-immune individuals are "unlikely to benefit from COVID-19 vaccination."[48] But forcing them to get the shot not only is unnecessary—it also significantly increases their risk of injury. Recent peer-reviewed evidence unfortunately confirms that negative side effects from vaccination are more common and more severe in persons with a prior Covid infection.[49] New York's

[47] Ctrs. for Disease Control & Prevention, Science Brief: SARS-CoV-2 Infection-Induced and Vaccine-Induced Immunity (updated Oct. 29, 2021), https://bit.ly/3i2ICcr. The CDC does suggest that vaccine-induced immunity is stronger than immunity from natural infection, but the study it cites is weak authority. *See ibid.* (citing Catherine H. Bozio et al., "Laboratory-confirmed COVID-19 among adults hospitalized with COVID-19-like illness," *Morbidity & Mortality Weekly Rpt.* (Nov. 5, 2021), https://bit.ly/3KuVC6S). Among other problems, the study compared naturally-immune individuals who were 90–225 days out from infection with vaccinated individuals who were 45–213 days out from vaccination. Because immunity—regardless of how gained—wanes over time, the lack of comparability between these two time periods means the results are biased in favor of vaccine-induced immunity. The study itself admits this weakness.

[48] Shrestha et al., *supra* note 32.

[49] Alexander G. Mathioudakis et al., "Self-Reported Real-World Safety and Reactogenicity of COVID-19 Vaccines: A Vaccine Recipient Survey," *Life* (Mar. 17, 2021), https://pubmed.ncbi.nlm.nih.gov/33803014/ ("A prior COVID-19 infection was associated with an increased risk of any side effect . . . [and] with an increased risk of severe side effects leading to hospital care."); Cristina Menni et al., "Vaccine side-effects and SARS-CoV-2 infection after vaccination in users of the COVID Symptom Study

mandate thus imposes significant individual harm without any corresponding public health benefit.

On this, New York is increasingly an outlier. Other countries treat natural immunity as equivalent to vaccination. The Netherlands recently extended the duration of its "natural immunity certificate," which can be used in lieu of a vaccine passport, from 180 days to 365 days.[50] A similar exemption was made for natural immunity in vaccine passports in the UK when the country required them.[51]

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app in the UK: A prospective observational study," *The Lancet Infectious Diseases*, vol. 21(7), pp.939–49 (July 1, 2021), https://bit.ly/3w7jrNY ("Systemic side-effects were more common [after one or two vaccine doses] among individuals with previous SARS-CoV-2 infection than among those without known past infection. Local effects were similarly higher. . . ."); Florian Krammer, "Robust spike antibody responses and increased reactogenicity in seropositive individuals after a single dose of SARS-CoV-2 mRNA vaccine," *medRxiv* (Feb. 1, 2021), https://bit.ly/3JdE9zu (concluding that "vaccine reactogenicity after the first dose is substantially more pronounced in individuals with pre-existing immunity"; noting that "quantitative serological assays that measure antibodies to the spike protein could be used to screen individuals prior to vaccination," which would "limit the reactogenicity experienced by COVID-19 survivors").

[50] Jennifer Block, "Vaccinating people who have had covid-19: why doesn't natural immunity count in the US?", *BMJ*, Sep. 13, 2021, https://bit.ly/35NrZz4.

[51] Tony Diver, "Vaccine passports will show 'natural immunity' for people who have had Covid," *MSN News* (June 15, 2021), https://bit.ly/3t7Srfi.

CONCLUSION

New York's Covid vaccine mandate doesn't hold up to scientific scrutiny. It incorrectly presumes that the Covid vaccines effectively halt transmission, and it wrongly ignores natural immunity. The mandate should not be allowed to override Petitioners' sincerely held religious beliefs. *Amici* respectfully urge the Court to grant the writ and reverse.

Respectfully submitted,

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