

New Civil Liberties Alliance

July 21, 2021

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Mr. Thomas Moncure
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Attorney General
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Mr. David Farris
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Ms. Julie Zobel
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VIA EMAIL

*Re: GMU's Reopening Policy for Fall 2021
On Behalf of NCLA Client, Professor Todd Zywicki*

Dear Dr. Washington, Mr. Moncure, Mr. Farris, and Ms. Zobel:

It has come to our attention that George Mason University (GMU) has announced a reopening policy (the Policy) related to COVID-19 for the Fall 2021 semester. The Policy requires all unvaccinated faculty and staff members, including those who can demonstrate natural immunity through a prior COVID-19 infection, to wear masks on campus, physically distance, and undergo frequent COVID-19 testing. The Policy also seeks to strip employees who choose not to share their vaccination status (the statement delineating the Policy does not specify with whom), of their eligibility for future merit pay increases.¹

¹ The student policy is even more stringent, as it threatens students with suspension if they make the personal decision

The New Civil Liberties Alliance (NCLA) represents Professor Todd Zywicki of the Antonin Scalia Law School’s faculty in this matter. Professor Zywicki contracted and has fully recovered from COVID-19. As a result, he acquired robust natural immunity as confirmed in multiple positive SARS-CoV-2 antibody tests conducted over the past year. Professor Zywicki’s immunologist, Dr. Hooman Noorchashm, has advised him that, based on his personal medical and immunity status, it is not only *medically unnecessary* to undergo a vaccination procedure at the current time, but that doing so would create an affirmative risk of harm to him (*see* Declaration of Dr. Hooman Noorchashm, attached as Exhibit A). Yet, if he follows his doctor’s advice and chooses not to receive a COVID-19 vaccine, relying on the robust natural immunity that he earned the hard way, he will be forced to abide by the rules governing unvaccinated employees. Since those rules—including wearing a mask and physically distancing on campus—diminish Professor Zywicki’s efficacy in performing his professional responsibilities, the Policy coerces him into receiving the vaccine.

Given his robust immunity, the Commonwealth of Virginia has no compelling state interest in overriding Professor Zywicki’s personal autonomy by effectively forcing him to be vaccinated (or suffer adverse professional consequences if he refuses). As a result, GMU’s Policy infringes upon Professor Zywicki’s rights under the Ninth and Fourteenth Amendments to the United States Constitution, and he should be exempted from it immediately. NCLA also urges GMU to reconsider its unconstitutional vaccination policy as a general matter, especially for students, faculty, and staff who can show naturally acquired immunity from an antibody test.

I. THE NEW CIVIL LIBERTIES ALLIANCE’S INTEREST IN THIS MATTER

NCLA is a nonpartisan, nonprofit civil-rights organization and public-interest law firm devoted to protecting constitutional freedoms and restoring civil liberties. The “civil liberties” of the organization’s name include rights at least as old as the Virginia and U.S. Constitutions themselves, such as trial by jury, due process of law, the right to be tried in front of an impartial and independent judge, the right to free expression without fear of censorship or reprisal, and the right to privacy and personal autonomy. Yet these selfsame rights are also very contemporary—and in dire need of renewed vindication—precisely because Congress, state legislatures, and federal, state, and local administrative agencies, including state university administrations, have trampled them for so long.

Even where NCLA has not yet brought a lawsuit to challenge an unconstitutional exercise of state power or infringement of fundamental rights, it encourages governmental entities to cease

to forgo COVID-19 vaccination.

encroaching upon civil liberties of their own volition. We believe that these governmental entities should continuously strive to establish meaningful limitations on administrative policymaking, rulemaking, adjudication, and enforcement, thereby avoiding unconstitutional overreach. For these reasons, NCLA advises GMU to reexamine and revamp its Policy.

II. PROFESSOR ZYWICKI AND GMU'S VACCINATION POLICY

Todd J. Zywicki is a GMU Foundation Professor of Law at the Antonin Scalia School of Law. He has been employed at GMU since August 1998, except for occasional service as a visiting professor at other law schools (including Georgetown University Law Center, Vanderbilt University Law School, and Boston College Law School) as well as high-level service in the United States government. He is one of the Law School's most frequently cited and influential scholars and has been an exemplary leader in service to GMU and the community.

On or around March 2, 2020, Professor Zywicki manifested symptoms of COVID-19 for several days, including chills and recurrent night sweats.² Fortunately, Professor Zywicki made a full recovery. In April of 2021, Professor Zywicki became ill with the Shingles virus, which caused facial paralysis that lasted for two weeks (*see* Ex. A at ¶ 7(d)).

Since his recovery from COVID-19, Professor Zywicki has undergone repeated SARS-CoV-2 antibody testing, confirming both that he previously contracted COVID-19 and that he has robust antibodies that prevent reinfection. Through American Red Cross (ARC) blood donation testing, Professor Zywicki received an unbroken string of positive COVID-19 antibody tests on July 25, 2020, September 29, 2020, December 16, 2020, and February 9, 2021. Professor Zywicki requested these tests because he had volunteered to teach in-person beginning in the Fall 2020 semester and wanted to reassure students of his immunity status.

Following consultation with Dr. Noorchashm on June 1, 2021, Professor Zywicki obtained a full antibody screening test from LabCorp, which confirmed in greater detail and specificity the ARC test results. According to Dr. Noorchashm, Professor Zywicki's current levels of antibodies and immune protection are "comparable to those" of individuals in his age range and in similar health who have received COVID-19 vaccinations, and these levels provide sufficient and durable protection against reinfection and transmission (*see* Ex. A at ¶ 7(f)).

Based on his analysis of Professor Zywicki's antibodies screening test and overall medical

² Owing to the scarcity of COVID-19 tests at the time, and the requirement that such tests only be provided by a doctor's order, Professor Zywicki was unable to obtain a PCR test.

history, Dr. Noorchashm concluded that *it is not medically necessary* for Professor Zywicki to undergo a full-course vaccination procedure in order to protect himself or the community from infection. In addition, he determined that such treatment would expose Professor Zywicki to a heightened risk of adverse side-effects that would exceed any speculative benefit the vaccine could confer on someone already protected with antibodies (*see* Ex. A at ¶¶ 12-34). For this reason, Dr. Noorchashm’s expert medical opinion is that *prescribing a full vaccine course would violate medical ethics rules which stipulate that any treatment be “medically necessary”* (*see* Ex. A at ¶¶ 9-12) (emphasis added).

On June 28, 2021, via email, GMU announced its “campus reopening and vaccine requirements” for the upcoming Fall term. According to the email, “[a]ll employees will be *strongly encouraged* to get vaccinated, and required to share their vaccination status[.]” (emphasis added). Furthermore, disclosure of vaccination status “will be a prerequisite for eligibility for any merit pay increases.” The Policy requires unvaccinated employees to “wear masks while on campus, physically distance, and undergo frequent COVID-19 testing” and contains no mention of exemptions for faculty and staff with naturally acquired immunity to COVID-19 via recovery from prior infection.

Based on personal information and correspondence, Professor Zywicki has been informed that the GMU “campus reopening and vaccine requirements” policy is led by two individuals: David Farris, Executive Director of Safety and Emergency Management³; and Julie Zobel, Assistant Vice President, Safety, Emergency and Enterprise Risk Management.⁴ Mr. Farris has an undergraduate degree in Biology, a master’s degree in Business Administration, and a Ph.D. in Education. He began employment at GMU as “Chemical Hygiene Officer” and subsequently was also tasked with fire safety management responsibilities. Ms. Zobel holds a bachelor’s degree in Hazardous Materials/Environmental Management and Civil Engineering, a master’s degree in Civil Engineering, and a Ph.D. in Biodefense. Based on their publicly available biographies, neither Mr. Farris nor Ms. Zobel has any medical credentials.

III. GMU’S POLICY WOULD NOT WITHSTAND A LEGAL CHALLENGE, IN ALL LIKELIHOOD

As an administrative unit of the Commonwealth of Virginia, and in contrast to private employers, those who make policy at public universities such as GMU are legally obligated to ensure that those policies do not violate the United States Constitution.⁵ GMU’s policy amounts to a vaccine

³ *See* https://ehs.gmu.edu/faculty_staff/david-farris/.

⁴ *See* https://ehs.gmu.edu/faculty_staff/julie-zobel/.

⁵ *See, e.g., Tinker v. Des Moines Indep. Community Sch. Dist.*, 393 U.S. 503, 506 (1969) (explaining that “[i]t can hardly be argued that either students or teachers shed their constitutional rights to freedom of speech or expression at the schoolhouse gate. This has been the unmistakable holding of this Court for almost 50 years.”).

mandate. As courts have recognized, “the line between ‘incentive’ and ‘coercion’ is thin.”⁶ Coercion “by definition, is designed to induce a person to do that which the person offering the incentive wishes done.”⁷

Forcing faculty who are not vaccinated to wear masks and socially distance impairs their ability to perform their professional duties. Face coverings impede a professor’s ability to effectively communicate with students in a lecture environment. A conspicuous face covering also stigmatizes the wearer, and may create irrational fear, anxiety, and animus from students and other faculty.

Social distancing requirements similarly inhibit a professor’s ability to hold office hours or have lunches with students, participate in faculty workshops and meetings, and attend certain academic events. Such impediments mean that unvaccinated professors cannot carry out their responsibilities as effectively as their vaccinated counterparts, jeopardizing teaching evaluations, future student enrollment, opportunities for academic collaboration, reputational standing, pay raises and other professional opportunities. Thus, while the Policy purports not to require vaccination, it places such an enormous amount of pressure upon employees to receive the vaccine (to avoid being professionally handicapped) that it amounts to an ineluctable mandate.⁸

The Supreme Court has recognized that various parts of the Bill of Rights, including the Ninth Amendment, as well as the Fourteenth Amendment, grant privacy rights to individuals. On this basis, it has held that a “forcible injection ... into a nonconsenting person’s body represents a substantial interference with that person’s liberty[.]”⁹ Subsequent Supreme Court decisions have made explicit that the right to “refus[e] unwanted medical care”¹⁰ is “so rooted in our history, tradition, and practice as to require special protection under the Fourteenth Amendment.”¹¹ Because the Policy infringes upon a fundamental, constitutional right not to receive a vaccine against one’s will, should GMU face a lawsuit on that basis, the school will be required to demonstrate that its Policy furthers a compelling state interest and is narrowly tailored to effectuate that interest.¹²

⁶ *Enterprises v. Volvo Cars of N.A., LLC*, 2:14-CV-360, 2016 WL 4480343, at *10 (S.D. Ohio Aug. 25, 2016). *See also Kansas v. U.S.*, 214 F.3d 1196, 1202 (10th Cir. 2000) (explaining, in reference to Congress’s spending powers, “[t]he boundary between incentive and coercion has never been made clear[.]”).

⁷ *Enterprises*, 2016 WL 4480343 at *10.

⁸ *See Needleman v. Bohlen*, 457 F. Supp. 942, 945-46 (D. Mass. 1978) (recognizing that public employees, including tenured faculty, have a legitimate expectation that future pay-raises or promotions will not be withheld).

⁹ *Washington v. Harper*, 494 U.S. 210, 229 (1990).

¹⁰ *Cruzan v. Director, Missouri Department of Public Health*, 497 U.S. 261, 278 (1990).

¹¹ *Washington v. Glucksberg*, 521 U.S. 702, 722 n.17 (1997).

¹² *See, e.g., Mohamed v. Holder*, 266 F. Supp. 3d 868, 877 (E.D. Va. 2017) (“If a fundamental right is implicated and strict scrutiny therefore applies, a law will not be upheld unless the government demonstrates that the law is necessary to further a compelling governmental interest and has been narrowly tailored to achieve that interest.”).

Similarly—and also under the Fourteenth Amendment—government policies that are premised upon treating groups of people differently must be “rationally related to a legitimate state interest.”¹³ Thus, to prevail in a legal challenge to its Policy, GMU would have to demonstrate that it has a compelling state interest in treating employees with natural immunity differently from those who have been vaccinated, and that this Policy is the least restrictive means of achieving that end.¹⁴

GMU cannot show that it has a compelling interest in coercing Professor Zywicki into receiving a COVID-19 vaccine. Nor can GMU show a compelling interest in treating him differently from employees who have received the vaccine. Substantial research establishes that a COVID-19 infection creates immunity to the virus at least as robust and long lasting as that achieved through vaccination (*see* Ex. A at ¶¶ 16-17; Affidavit of Drs. Bhattacharya and Kulldorff, attached as Exhibit B at ¶¶ 15-23). For example, a recent study conducted by researchers at Cleveland Clinic of 1,359 unvaccinated individuals previously infected with COVID-19 found *zero* reinfections.¹⁵ The researchers’ conclusion that “individuals who have had SARS-CoV-2 infection are unlikely to benefit from COVID-19 vaccination[,]” echoes other studies determining that natural immunity is no less effective in combatting COVID-19 infection – whether from the original virus or any of the mutant variants – than immunity conferred through any of the three vaccines approved for use in the United States (*see* Ex. A at ¶¶ 12-34; Ex. B at ¶¶ 15-23, 28-32).

Nor is there any evidence or reason to believe that natural immunity provides less durable immunity than vaccination.¹⁶ This is especially so in light of Professor Zywicki’s recent antibodies screening test, which shows that he has ongoing and robust immune protection. In fact, growing recognition of the highly protective character of natural immunity has recently led the European Union to recognize “a record of previous infection” as a valid substitute for natural immunity (*see* Ex. A at ¶ 27). Likewise, the Commonwealth of Virginia’s rule governing vaccination of school children for measles, mumps, rubella, and varicella (chickenpox) explicitly exempts from the requirements those who can demonstrate existing immunity through serological testing that measures protective

¹³ *See, e.g., City of Cleburne, Tex. v. Cleburne Living Ctr.*, 473 U.S. 432, 432 (1985).

¹⁴ *See id.*

¹⁵ Nabin K. Shrestha, et al., *Necessity of COVID-19 Vaccination In Previously Infected Individuals*, MEDRXIV (June 5th, 2021), <https://www.medrxiv.org/content/10.1101/2021.06.01.21258176v2>.

¹⁶ *Id.* *See also* 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 (April 20, 2021), <https://www.medrxiv.org/content/10.1101/2021.04.20.21255670v1.full.pdf>; Smerconish, *Should Covid Survivors and the Vaccinated be Treated the Same?*: Interview with Jay Bhattacharya, Professor of Medicine at Stanford University (CNN June 12, 2021), <https://www.cnn.com/videos/tv/2021/06/12/should-covid-survivors-and-the-vaccinated-be-treated-the-same.cnn>; Marty Makary, *The Power of Natural Immunity*, WALL STREET JOURNAL (June 8, 2021, 12:55 PM), <https://www.wsj.com/articles/the-power-of-natural-immunity-11623171303> (last visited June 29, 2021).

antibodies.¹⁷ To put it bluntly, natural immunity has long been recognized by the medical community and in public policy as a reason not to receive a vaccine, and certainly not to mandate one. Nothing is achieved in the way of promoting his own or the community's safety by requiring Professor Zywicki to undergo a COVID-19 vaccine procedure against his will.

To the contrary, Professor Zywicki's physician has advised him that, given his natural immunity, a COVID-19 vaccination is medically unnecessary. Thus, forcing him to receive the vaccine is itself a violation of the rules governing medical ethics because *any* medical procedure, including any vaccination, runs *some* risk of adverse effects (*see* Ex. A at ¶¶ 12-34; Ex. B at ¶¶ 25-27). The currently approved COVID-19 vaccines are no exception.

It is also critically important to understand that none of the currently approved vaccines has been tested in clinical trials for its safety and efficacy on individuals who have recovered from COVID-19. Indeed, *survivors of previous COVID-19 infections have specifically been excluded from the trials conducted so far*. Current evidence indicates that vaccination presents a *heightened* risk of adverse side effects—including serious ones—to those who have previously contracted and recovered from COVID-19 (*see* Ex. A at ¶¶ 22-26; Ex. B at ¶ 27). Confirming the opinion of Dr. Noorchashm, a recent research paper concluded that “we cannot exclude the possibility that the vaccination of a growing number of [individuals] with preexisting immunity to SARS-Cov-2 may trigger unexpectedly intense, albeit very rare, inflammatory and thrombotic reactions in previously immunized and predisposed individuals.”¹⁸ Dr. Noorchashm is particularly concerned due to Professor Zywicki's recent bout of shingles. As the doctor explains, “the causal virus, Herpes Zoster, resides in nerves and, in my opinion, can be reactivated by an unnecessary COVID-19 vaccination” (*see* Ex. A at ¶ 19).

GMU's Policy forces Professor Zywicki to choose between risking injury to his health on one hand and sustaining injury to his career on the other. By threatening adverse professional and personal consequences, GMU's Policy directly harms Professor Zywicki's autonomy and dignity. It also forces him to endure the stress and anxiety of choosing between his commitment to his health and to his teaching career. Given that his demonstrated natural immunity renders his vaccination status irrelevant with respect to his ability to safely teach students and perform his duties as a faculty colleague, GMU's irrational Policy constitutes no less a needless assault on Professor's Zywicki's privacy and dignity than requiring him to make daily disclosures of other private and potentially embarrassing medical conditions (*see* Ex. B at ¶¶ 35-44). For this reason, the Policy entails a clear and unequivocal violation

¹⁷ 12 Va. Admin. Code § 5-110-80 (2021).

¹⁸ Angeli et al., *SARS-CoV-2 Vaccines: Lights and Shadows*, 88 EUR. J. INTERNAL MED. 1, 8 (2021).

of Professor Zywicki's Ninth and Fourteenth Amendment Constitutional rights.

Masking and social distance requirements also unnecessarily restrict Professor Zywicki's First Amendment rights, specifically his freedom of expression, association and assembly.¹⁹ Because, for the reasons discussed above, the classification between vaccinated faculty and those with natural immunity defies rationality, the University's discriminatory policy is unlawful. In fact, the irrationality of GMU's Policy is further exposed by its acceptance of the Johnson & Johnson/Janssen vaccine, which is shown to be only 66.3% effective in clinical trials²⁰, a level of immunological protection substantially lower than that conferred by natural immunity.²¹

In addition to violating Professor Zywicki's constitutional rights, the Policy conflicts with federal law. None of the three vaccines approved for use in the United States has received full Food and Drug Administration (FDA) approval. Rather, they have only been granted Emergency Use Authorization (EUA) status. The governing federal statute mandates that those being administered a medical product approved for use under it be informed of the option to accept or refuse its administration, and of alternatives.²² GMU's coercive Policy flies in the face of the intent and the spirit of the EUA statute. It thus violates the Supremacy Clause of the United States Constitution, which dictates that a state or local law is preempted when it creates "as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."²³ The federal policy to allow individuals to choose for themselves to refuse the COVID vaccines is for naught if GMU creates a contrary policy requiring such vaccines to be taken. In short, the federal and state policies cannot coexist.

Finally, tying the disclosure of medical records to merit-based pay raises—as GMU's Policy does—raises significant privacy concerns. The Virginia Department of Human Resource Management has advised state agencies that "asking for vaccination status is sensitive to many and can also lead to legal liabilities that agency leaders may not be prepared to address."²⁴ Additionally, the recent proliferation of data breaches raises substantial security concerns about the ability of organizations,

¹⁹ See *Tinker*, 593 U.S. 503 (holding that a student's wearing of an armband was a type of symbolic act protected by the First Amendment's free speech clause).

²⁰ *Johnson & Johnson's Janssen COVID-19 Vaccine Overview and Safety*, CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC), June 23, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/janssen.html>.

²¹ MEDRXIV, *supra* note 9.

²² See 21 U.S.C. § 360bbb-3(e)(1)(A).

²³ *Arizona v. United States*, 567 U.S. 387, 399-400 (2012); see also U.S. Const. art. VI, cl. 2.

²⁴ Guidance on Face Coverings and Vaccinations Resulting from CDC Update on May 13, 2021 and Executive Order 72, Virginia Department of Human Resource Management (May 15, 2021).

such as universities, to safely store sensitive medical records.²⁵ Virginia personal and medical data breach statutes, which impose significant penalties for statutory violations, may also raise liability issues with respect to the requirement that GMU faculty upload medical records to an online portal.²⁶

It is true that forcing all employees (and students) to disclose confidential medical information into an online portal would ease the bureaucratic burden of surveilling the private health decisions of those who work and attend school at GMU. Indeed, the “online portal” could be used to monitor students, faculty, and staff to ensure that they are eating enough vegetables, exercising regularly, abstaining from alcohol, not staying up too late, and otherwise adopting health habits that will strengthen their immunity and thereby protect the GMU community from the risk of COVID-19 spread. But there is no “bureaucratic convenience” exception to the Constitution. Before a state actor can impose on or restrict an individual’s privacy and autonomy, the state must demonstrate that its end is justified by a legitimate state interest and that the means it has chosen are the least-intrusive available to accomplish that end.

IV. GMU RISKS LEGAL ACTION IF IT DOES NOT CHANGE ITS POLICY IMMEDIATELY

As noted by Drs. Bhattacharya and Kulldorff in their Declaration, universities hold a unique position of public trust in building respect for sound principles of science and ethics (*see* Ex. B at ¶¶ 35-44). Bhattacharya and Kulldorff also observe that “[i]t is unethical to coerce low-risk Americans to take the vaccine, such as students and those with natural immunity, while older high-risk individuals in Asia, Africa and Latin America are dying from COVID19 because there are not enough vaccines available in those countries” (Ex. B at ¶ 40). GMU has an opportunity to be a leader in developing a rational, scientifically-based, and humane policy that honors the judgment of Professor Zywicki and others who have natural immunity to be free from invidious discrimination though they choose not to subject themselves to medically unnecessary vaccinations that could benefit people who need them (*see* Ex. B at ¶¶ 35-44).

The motto of GMU is “Freedom and Learning.”²⁷ This vision is backed by the “Mason idea,” which is that “Mason at its core is innovative, diverse, entrepreneurial, and accessible.” The motto of the law school, where Professor Zywicki has dedicated his professional career, is “Learn. Challenge. Lead.” These values are exemplified by the life of George Mason himself, who refused to sign the

²⁵ Lance Whitney, *2020 Sees Huge Increase in Records Exposed in Data Breaches*, TECHREPUBLIC (Jan. 21, 2021, 10:50 AM), <https://www.techrepublic.com/article/2020-sees-huge-increase-in-records-exposed-in-data-breaches/>.

²⁶ Va. Code Ann. § 18.2-186.6; § 32.1-127.1:05.

²⁷ <https://vision.gmu.edu/the-mason-vision/>.

United States Constitution because it lacked a Bill of Rights to protect individual liberties, and of Justice Antonin Scalia, who through force of intellect, independent thinking, and commitment to the rule of law transformed American jurisprudence. GMU employees are told that the Mason idea “reminds us that we are committed to be a university *for* the world, drawn together to work across cultures, bring new perspectives and solutions to the world’s most pressing problems and preparing our solutions to navigate in it.”²⁸

In sum, although the Policy may be well-intentioned, GMU has breached its constitutional and ethical obligations by interfering with health decisions that should reside with individuals and their medical providers. Given the lack of GMU’s knowledge as to Professor Zywicki’s specific health circumstances, the University is in no position to evaluate the risks and benefits associated with vaccinating the professor. As Professor Zywicki possesses natural immunity to the virus, GMU similarly lacks any interest—let alone a compelling one—in coercing him into receiving a COVID-19 vaccine or foisting burdens upon him that jeopardize his ability to perform his professional responsibilities. NCLA therefore urges GMU to re-examine its Policy, to deem natural immunity at least equivalent to that achieved through vaccination, and to confirm that Professor Zywicki will not lose eligibility for future pay raises (merit or otherwise) if he does not wish to share his vaccination status. Please inform the undersigned of any decision to change GMU’s policy as soon as possible, but certainly before July 28. Professor Zywicki would have to receive the vaccine as the Policy currently stands by August 1. Rest assured that NCLA is always prepared to file appropriate legal action to protect the rights of our clients and all Americans.

Sincerely,

Jenin Younes

Jenin Younes

Litigation Counsel

Harriet Hageman

Senior Litigation Counsel

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New Civil Liberties Alliance

cc:

Mr. Ken Randall

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²⁸ *Id.*

Exhibit A

Declaration of Dr. Hooman Noorchashm, MD, PhD

I, Dr. Hooman Noorchashm, MD, PhD, provide the following Declaration:

Background

1. I graduated from the Perelman School of Medicine at the University of Pennsylvania with a Doctorate degree in immunology and have taught and practiced clinical medicine for nearly two decades. In addition to an academic career in medicine, I am an advocate for patient safety and medical ethics.

2. I have served faculty appointments at the University of Pennsylvania School of Medicine, Harvard Medical School Brigham and Women's Hospital, Thomas Jefferson University Hospital, and Philadelphia VA Hospital. I have authored over 65 articles, abstracts, and reviews in peer-reviewed medical journals, including the New England Journal of Medicine, Journal of Immunology, Nature Medicine, American Journal of Transplantation, Critical Care Medicine, and Diabetes. I have testified on numerous occasions before the Food and Drug Administration (FDA) and state legislatures on issues related to medicine, patient safety, and patients' rights.

3. In 2013, my wife Dr. Amy Reed underwent an unnecessary hysterectomy operation, which we later learned caused stage 4 leiomyosarcoma, and she eventually died.

4. Before her death, my wife and I began spreading awareness of the procedure's danger and advocating for patient safety and patients' rights. In recognition of those efforts, I received a Health Policy Heroes Award from the National Center for Health Research in 2015.

5. To continue the work that Amy and I started, I founded the American Patient Defense Union, Inc. (APDU), an organization dedicated to advocating for patient rights and

autonomy, preserving the integrity and sacred relationship between doctors and their patients, and protecting doctor and patient decisions about medical treatments from third-party influence.¹

Professor Zywicki's Medical Condition

6. On May 27, 2021, Professor Zywicki contacted me for advice on how to determine the status of his immunity to COVID-19 and the likelihood of having been infected. I agreed to review his case and provide my opinion.

7. During a phone call that same day, Professor Zywicki informed me of the following relevant facts:

- a. In early March 2020 he fell ill with a set of symptoms (chills, night sweats, fatigue, mental fogginess) that have been identified as consistent with a COVID-19 infection.
- b. At this early stage of the pandemic, COVID-19 tests were scarce and required a doctor's prescription, so Professor Zywicki tried but was unable to procure one.
- c. Professor Zywicki subsequently tested positive several times for COVID-19 antibodies when donating blood at the American Red Cross.
- d. He further informed me that he had recently recovered from a severe shingles infection that had caused paralysis in the left side of his face for nearly two weeks. Professor Zywicki was concerned by news reports that suggested a possible relationship between the COVID-19 vaccine and reemergence of shingles, which is a virus.²

¹ See Hooman Noorchashm, *Why Does Every American Need The American Patient Defense Union (APDU)?*, MEDIUM.COM (Oct. 17, 2017), <https://noorchashm.medium.com/why-every-american-needs-the-american-patient-defense-union-apdu-2912e1fee5d4>.

² See, e.g., American Academy of Allergy Asthma & Immunology, *Shingles following Pfizer COVID-19 vaccine* (Apr. 29, 2021), <https://www.aaaai.org/allergist-resources/ask-the-expert/answers/2021/shingles-covid>.

- e. After an extensive discussion about his medical condition, I issued a prescription for full COVID-19 serological screening, which was conducted on June 1, 2021, at LabCorp. I examined the results and, as expected, the test confirmed that Professor Zywicki had previously recovered from SARS-CoV-2 and had a positive IgG Spike Antibody assay and a positive SARS-CoV-2 Nucleocapsid result.
- f. Professor Zywicki's semiquantitative antibody reading measured 715.6 U/ml—approximately 900 times higher than the baseline level of <0.8. This level is comparable to that I have seen empirically in vaccinated persons who share his age and health profile, including myself. In my opinion, Professor Zywicki's spike antibody level is highly likely to be far above the minimum necessary to provide adequate protection against re-infection from the SARS-CoV-2 virus.

Principles of Medical Ethics and George Mason University's (GMU's) Vaccine Mandate

8. There are four basic principles governing medical ethics in the United States: (1) autonomy, (2) justice, (3) beneficence, and (4) non-maleficence.

9. A highly influential public health framework proposed by Childress, et al., lists five conditions that public health interventions must satisfy: (1) effectiveness, (2) proportionality, (3) necessity, (4) least infringement, and (5) public justification.³

10. The principle of necessity is reinforced by the principle of “least infringement,” which requires that any intervention “seek to minimize the infringement of general moral considerations.” In particular, “when a policy infringes autonomy, public health agents should seek

³ James F. Childress, et al., *Public Health Ethics: Mapping the Terrain*, 30(2) J. LAW & MED. ETHICS 170 (2002).

the least restrictive alternative; when it infringes privacy, they should seek the least intrusive alternative.”⁴

11. The principle of proportionality is also a defense against one-size-fits-all approaches that can cause harm in the context of medicine.

It is Medically Unnecessary for Professor Zywicki to Undergo Vaccination Against SARS-CoV-2, and Forcing Him to Do So Would Subject Him to an Elevated Risk of Adverse Side Effects

12. It is my opinion that undergoing a full course vaccination (two doses of an mRNA vaccination or one dose of the Johnson and Johnson [J&J] vaccine) is medically unnecessary, creates a risk of harm, and provides no benefit either to Professor Zywicki or the GMU community.

13. Multiple positive antibody tests conducted over the past year have confirmed that Professor Zywicki contracted and recovered from the SARS-CoV-2 virus at some point in the past. His recent semi-quantitative antibodies screening test establish that his immune protection, as measured by his repeated antibody tests, remains quite high.

14. A series of epidemiological studies have demonstrated to a reasonable degree of medical certainty that natural immunity following infection and recovery from the SARS-CoV-2 virus provides robust and durable protection against reinfection, at levels equal to or better than the *most effective* vaccines currently available.⁵

15. For example, according to the Centers for Disease Control (CDC), in clinical trials the J&J vaccine provides an efficacy of only 66.3%—*far* below any measured efficacy of natural immunity to date.

⁴ *Id.*

⁵ Cites (Cleveland clinic, England, Israel, etc.); N. Kojima, et al., *Incidence of Severe Acute Respiratory Syndrome Coronavirus-2 infection among previously infected or vaccinated employees*, <https://www.medrxiv.org/content/10.1101/2021.07.03.21259976v2> (July 8, 2021).

16. Natural immunity protection to SARS-CoV-2 has already proven long-lasting and experience with prior coronaviruses strongly indicates that T-cell immunity provided by natural immunity could last years or even decades.

17. I also believe that natural infection provides broad-based protection against current SARS-CoV-2 variants. Unlike vaccine-induced immunity, which is specialized to target the Spike-protein of the original Wuhan variant of the SARS-CoV-2 virus, natural immunity recognizes the full complement of SARS-CoV-2 proteins, enabling it to provide protection against a greater array of variants. Of course, my opinion will be subject to revision as variants arise in the future and clinical information becomes available.

18. Furthermore, based on my analysis of the clinical medical literature to date, undergoing a full course of vaccine treatment (two doses of mRNA or one dose of J&J vaccine) as required by GMU's vaccine mandate, in a setting of a prior infection and being immune, would expose Professor Zywicki to an elevated risk of adverse effects, including serious ones, when compared with individuals who have never contracted COVID-19.

19. In particular, Professor Zywicki's bout of Shingles concerns me because the causal virus, Herpes Zoster, resides in nerves and, in my opinion, can be reactivated by an unnecessary COVID-19 vaccination.

20. Any medical procedure carries the risk of adverse side effects. The SARS-CoV-2 vaccines are no exception. In many cases, the benefits of curing, mitigating, or preventing greater harm justifies undertaking a particular medical intervention notwithstanding any associated risk. But basic principles of medical ethics mandate that any potential benefits be weighed against the risks associated with the procedure.

21. Because Professor Zywicki has previously been infected with and recovered from SARS-CoV-2, in my opinion, a vaccination is unnecessary and could only subject the professor to the risk of harm.

22. Additionally, it is becoming clear that undergoing vaccination in the setting of having had a prior infection subjects him to an elevated risk of adverse side effects compared to those who have not previously been infected. Existing clinical reports indicate that individuals with a prior infection and natural immunity actually face an *elevated* risk of adverse effects from receiving the vaccine compared to those who have never contracted COVID-19.

23. According to a study in the medical journal *Life* (March 2021), “*our study links prior COVID-19 illness with an increased incidence of vaccination side effects* and demonstrates that mRNA vaccines cause milder, less frequent systemic side effects but more local reactions.”⁶ The elevated side effects identified in the article include events such as anaphylaxis, swelling, flu-like illness, breathlessness, fatigue, and others, some requiring hospitalization.

24. A study published in *The Lancet Infectious Diseases* (July 1, 2021) examined reports from 627,383 individuals using the COVID Symptom Study app. The authors reported a higher incidence of both systemic and local side effects from receiving the first vaccine dose for those who had previously been infected with COVID-19 compared to those who had not previously been infected.⁷

25. A study conducted at Mount Sinai Icahn School of Medicine also found among those receiving their first vaccine dose, “vaccine reactogenicity” was “substantially more pronounced in individuals with pre-existing immunity” than those who had not previously been

⁶ Alexander G. Mathioudakis, et al., *Self-Reported Real-World Safety and Reactogenicity of COVID-19 Vaccines: A Vaccine Recipient Survey*, 11 LIFE 249 (Mar. 2021).

⁷ Cristina Menni, *Vaccine side-effects and SARS-CoV-2 infection after vaccination in users of the COVID symptom study app in the UK: a prospective observational study*, 21 LANCET INFECTIOUS DISEASES 939-49 (July 2021).

infected and those with pre-existing immunity experienced “systemic side effects with a significantly higher frequency” than those who had not previously been infected.

26. In addition, there are numerous nonsystematic reports of individuals who have had unusually severe adverse reactions to vaccination shortly after recovering from COVID-19 infections.⁸

27. Notably many of these studies focused on the adverse effects of receiving just the *first* dose of a vaccine. They do not examine the frequency or severity of receiving a second dose of a vaccine. This uncertainty is especially important in light of the widespread recognition that those with natural immunity gain no significant benefit from receipt of a second vaccine dose (as is required by GMU’s mandatory vaccination policy).

28. It is a fundamental principle of immunology that “vaccinating a person who is recently or concurrently infected can reactivate, or exacerbate, a harmful inflammatory response to the virus. This is NOT a theoretical concern.”⁹ This applies to SARS-CoV-2 just as it does to viruses such as shingles.

29. Notably, Professor Zywicki was specifically cautioned against receiving a shingles vaccine for several months after recovering from his shingles infection this spring. This is proper medical advice.

30. To date, none of the vaccines in current application have been systematically or adequately tested for safety or efficacy in individuals who have previously been infected and

⁸ See *Multisystem Inflammatory Syndrome after SARS-CoV-2 Infection and COVID-19 Vaccination*, 27 (Number 7) EMERGING INFECTIOUS DISEASE (July 2021) (Centers for Disease Control and Prevention Dispatch); see also Hooman Noorchashm, *CDC Knows Vaccine Associated Critical Illness and Myocarditis are Linked to Prior COVID-19 Infections*, MEDIUM.COM (Jun 2, 2021), <https://noorchashm.medium.com/cdc-knows-vaccine-associated-critical-illness-and-myocarditis-are-linked-to-prior-covid-19-62942c39c5ca>.

⁹ Hooman Noorchashm, *The Recently Infected and Already Immune DO NOT Benefit from COVID-19 Vaccination*, MEDIUM.COM (Jun 1, 2021), <https://noorchashm.medium.com/the-recently-infected-and-already-immune-do-not-benefit-from-covid-19-infection-7453886e8c89>.

recovered from SARS-CoV-2. In fact, Covid survivors *have overall been largely excluded* from Phase III vaccine clinical trials.¹⁰ Thus, any determination with respect to the safety profile of the vaccines in this population, of which Professor Zywicki is a member, can only be inferred from clinical studies in the time since the vaccines have been put into widespread application.

31. In contrast to the determination that Professor Zywicki and I have reached after consultation about the details of his personal situation and medical history, GMU is inappropriately, and in violation of the rules governing medical ethics, imposing a “one-size-fits-all” vaccine mandate on every member of the GMU community.

32. GMU does not know the details of Professor Zywicki’s situation, including preexisting conditions he may have that could exacerbate the potential for adverse effects, the recentness of any COVID-19 infection, the presence of any other infections that might be relevant to his decision, and evidence of his existing immunity levels or potential for adverse effects, such as the results of any quantitative antibodies screening test.

33. GMU’s vaccine mandate is forcing Professor Zywicki to choose between following his doctor’s medical advice on one hand and being subject to GMU’s punishment – which includes being forced to socially distance, wear a mask, and undergo frequent COVID-19 testing – on the other. No patient should be put in such a position.

34. As with all patients, Professor Zywicki and his doctors should determine his future course of medical treatment. Thus, I will continue to monitor Professor Zywicki’s antibody levels as SARS-CoV-2 variants arise and/or immune protection starts to wane.

¹⁰ See Fabio Angeli, *SARS-CoV-2 vaccines: Lights and shadows*, 88 EUROPEAN J. OF INTERNAL MEDICINE 1-8 (2021).

GMU's Goals in Promoting Community Safety Can Be Accomplished More Effectively and with Less Harm Through Alternative, Less-Restrictive Means

35. Protecting the GMU community from COVID-19 transmission can be achieved without exposing COVID survivors in the community to the risk of harm, in contrast to GMU's current vaccination plan.

36. The emerging consensus in the clinical literature on the protective benefits of natural immunity compared to the elevated risks of indiscriminately vaccinating these individuals has led me to start the #ScreenB4Vaccine movement.¹¹ #ScreenB4Vaccine contains two elements: (1) testing for the presence of natural immunity through widespread antibody testing, and (2) for those who lack natural immunity or sufficient immunity protection, to test for presence of an active infection, before vaccination.

37. In fact, growing recognition of the highly protective character of natural immunity in preventing reinfection, along with the elevated risk of vaccinating those who have natural immunity, has recently led the European Union to recognize "a record of previous infection" as a valid substitute for vaccination.¹²

38. In short, just because an individual is vaccinated does not guarantee he is immune and just because he is not vaccinated does not mean he is not immune.

39. Instead of focusing its policy on blanket vaccination, therefore, GMU's policy should instead focus on *immunity*, regardless of how it is obtained.

¹¹ See Hooman Noorchashm, *What is #ScreenB4Vaccine? And Why Is It Necessary for Keeping Every American Maximally Safe in the COVID-19 Pandemic?* MEDIUM.COM (May 7, 2021), <https://noorchashm.medium.com/what-is-screenb4vaccine-80b639c4984e>.

¹² See Julia Buckley, *EU Digital Covid Certificate: Everything you need to know*, CNN.COM (June 9, 2021), <https://www.cnn.com/travel/article/eu-covid-certificate-travel-explainer/index.html>.

Conclusion

40. I call on GMU to act responsibly and, based on the principles of sound medical ethics and immunology, to recognize the importance of natural immunity in providing equal or better protection than existing vaccines. Such a policy would also acknowledge, and therefore avoid, the elevated risk of side effects from vaccination among those who have already survived a SARS-CoV-2 infection.

Respectfully submitted,

/s/ Hooman Noorchasm

Hooman Noorchashm MD, PhD.

Exhibit B

Joint Declaration of Dr. Jayanta Bhattacharya and Dr. Martin Kulldorff

We, Drs. Jayanta (“Jay”) Bhattacharya and Martin Kulldorff provide the following Joint Declaration:

Background

1. Dr. Jay Bhattacharya is a Professor of Medicine at Stanford University and a research associate at the National Bureau of Economic Research. He is also Director of Stanford’s Center for Demography and Economics of Health and Aging. He holds an M.D. and Ph.D. from Stanford University. He has published 152 scholarly articles in peer-reviewed journals in the fields of medicine, economics, health policy, epidemiology, statistics, law, and public health, among others. His research has been cited in the peer-reviewed scientific literature more than 11,000 times.

2. Dr. Martin Kulldorff is a Professor of Medicine at Harvard Medical School, and he is a biostatistician and epidemiologist at Brigham and Women’s Hospital. He holds a Ph.D. from Cornell University. He is the author of 237 published articles in leading medical, epidemiological, statistics, and science journals, cited over 25,000 times in peer-reviewed scientific journals. Dr. Kulldorff is recognized internationally for his foundational research on the monitoring of vaccines and other medical health and safety issues. His methods are routinely used by the CDC and other public health agencies around the world.

3. Both of us have dedicated our professional careers to the analysis of health policy, including infectious disease epidemiology and policy, and the safety and efficacy of medical interventions.

4. We have both studied extensively and commented publicly on the necessity and safety of vaccine requirements for those who have contracted and recovered from COVID-19 (individuals who have “natural immunity”). We are intimately familiar with the emergent scientific and medical literature on this topic and pertinent government policy responses to the issue both in the United States and abroad.

5. Our assessment of vaccine immunity is based on studies related to the efficacy and safety of the three vaccines that have received Emergency Use Authorization (EUA) from the Food and Drug Administration (FDA) for use in the United States. These include two mRNA technology vaccines (manufactured by Pfizer-BioNTech and Moderna) and an adenovirus vector vaccine technology (manufactured by Johnson & Johnson).

6. Neither of us has received any financial or other compensation to prepare this Declaration. Nor have we ever received any personal or research funding from any pharmaceutical company. In writing this, we are motivated solely by our commitment to public health.

7. Neither of us has an existing doctor-patient relationship with Professor Zywicki.

8. We have been asked to provide our opinion on several matters related to George Mason University’s (GMU or University) vaccine policy for faculty and staff (the “mandatory vaccination” policy), including the following:

- a. Whether, based on the current medical and scientific knowledge, natural immunity is categorically inferior to vaccine immunity to prevent reinfection and transmission of the SARS-CoV-2 virus;
- b. Whether, based on the existing medical and scientific understanding of SARS-CoV-2 transmission and recovery, there is any categorical distinction between natural immunity and vaccine immunity; and

- c. An assessment of the comparative safety to recipients of administering vaccines to those who have natural immunity relative to immunologically naïve recipients with no prior history of COVID infection.

9. Our opinions are summarized in a recent article we published and which we reaffirm here: “[R]ecovered COVID patients have strong, long-lasting protection against severe disease if reinfected, and evidence about protective immunity after natural infection is at least as good as from the vaccines. Hence, it makes no sense to require vaccines for recovered patients. For them, it simply adds a risk, however small, without any benefit.”¹

Mortality Risk from COVID-19 Infection and Corresponding Marginal Benefit From Vaccination Varies By Orders of Magnitude Based on Age

10. The mortality risk posed by COVID infection is a fundamental parameter necessary to understand the lack of net public health benefits from vaccine mandates and passports. The best evidence on the infection fatality rate from SARS-CoV-2 infection (that is, the fraction of infected people who die due to the infection) comes from seroprevalence studies. The definition of seroprevalence of COVID-19 is the fraction of people within a population who have specific antibodies against SARS-CoV-2 in their bloodstream. Seroprevalence studies provide better evidence on the total number of people who have been infected than do case reports or a positive reverse transcriptase-polymerase chain reaction (RT-PCR) test counts; these both miss infected people who are not identified by the public health authorities or do not volunteer for RT-PCR testing. Because they ignore unreported cases in the denominator, fatality rate estimates based on case reports or positive test counts are substantially biased upwards. According to a meta-analysis (published by the World Health Organization) by Dr. John Ioannidis of every seroprevalence study

¹ Martin Kuldorff and Jay Bhattacharya, *The ill-advised push to vaccinate the young*, THEHILL.COM (June 17, 2021), <https://thehill.com/opinion/healthcare/558757-the-ill-advised-push-to-vaccinate-the-young?rl=1>.

conducted with a supporting scientific paper (74 estimates from 61 studies and 51 different localities worldwide), the median infection survival rate from COVID-19 infection is 99.77%. For COVID-19 patients under 70, the meta-analysis finds an infection survival rate of 99.95%.² A newly released meta-analysis by scientists independent of Dr. Ioannidis' group reaches qualitatively similar conclusions.³

11. The mortality risk for those infected with SARS-CoV-2 is not the same for all patients. Older patients are at higher risk of death if infected, while younger patients face a vanishingly small risk.⁴ The same is true for hospitalization risk, which is similarly age-dependent. The best evidence on age-specific infection fatality rates comes again from seroprevalence studies.

12. The CDC's best estimate of the infection fatality ratio for people ages 0-19 years is 0.00002, meaning infected children have a 99.998% infection survivability rate.⁵ The CDC's best estimate of the infection fatality rate for people ages 20-49 years is 0.0005, meaning that young adults have a 99.95% survivability rate. The CDC's best estimate of the infection fatality rate for people age 50-64 years is 0.006, meaning this age group has a 99.4% survivability rate. The CDC's best estimate of the infection fatality rate for people ages 65+ years is .09, meaning seniors have a 91.0% survivability rate.

13. A study of the seroprevalence of COVID-19 in Geneva, Switzerland (published in the *Lancet*)⁶ provides a detailed age breakdown of the infection survival rate in a preprint

² Ioannidis JPA, *Infection fatality rate of COVID-19 inferred from seroprevalence data*, BULL WORLD HEALTH ORGAN (Jan 1, 2021).

³ Andrew T. Levin, et al., *Assessing the Age Specificity of Infection Fatality Rates for COVID-19: Meta-Analysis & Public Policy Implications*, MEDRXIV (Aug. 14, 2020), <https://bit.ly/3gpIoIV>.

⁴ Kulldorff M., *COVID-19 Counter Measures Should Be Age-Specific*, LINKEDIN (Apr. 10, 2020), <https://www.linkedin.com/pulse/covid-19-counter-measures-should-age-specific-martin-kulldorff/>.

⁵ Centers for Disease Control and Prevention, *COVID-19 Pandemic Planning Scenarios*, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html>.

⁶ Silvia Stringhini, et al., *Seroprevalence of Anti-SARS-CoV-2 IgG Antibodies in Geneva, Switzerland (SEROCoV-POP): A Population Based Study*, THE LANCET (June 11, 2020), <https://bit.ly/3l87S13>.

companion paper⁷: 99.9984% for patients 5 to 9 years old; 99.99968% for patients 10 to 19 years old; 99.991% for patients 20 to 49 years old; 99.86% for patients 50 to 64 years old; and 94.6% for patients above 65 years old.

14. In summary, the mortality risk posed by COVID infection in the young is vanishingly small, while the threat posed to the elderly is orders of magnitude higher. One direct corollary of this point is that the corresponding personal benefit from vaccination, at least as far as mortality risk is concerned, is orders of magnitude lower for the young relative to the elderly.

Both Vaccine Immunity and Natural Immunity Provide Durable Protection Against Reinfection and Against Severe Outcomes If Reinfected

15. Both vaccine-mediated immunity and natural immunity after recovery from COVID infection provide extensive protection against severe disease from subsequent SARS-CoV-2 infection. There is no reason to presume that vaccine immunity provides a higher level of protection than natural immunity. Since vaccines arrived one year after the disease, there is stronger evidence for long lasting immunity from natural infection than from the vaccines.

16. Both types are based on the same basic immunological mechanism—stimulating the immune system to generate an antibody response. In clinical trials, the efficacy of those vaccines was initially tested by comparing the antibodies level in the blood of vaccinated individuals to those who had natural immunity. Later Phase III studies of the vaccines established 94%+ clinical efficacy of the mRNA vaccines against severe COVID illness.^{8,9} A Phase III trial

⁷ Francisco Perez-Saez, et al., *Serology-Informed Estimates of SARS-COV-2 Infection Fatality Risk in Geneva, Switzerland*, OSF PREPRINTS (June 15, 2020), <https://osf.io/wdbpe/>.

⁸ Baden LR, El Sahly HM, Essink B, Kotloff K, Frey S, Novak R, Diemert D, Spector SA, Roupheal N, Creech CB, McGettigan J, Khetan S, Segall N, Solis J, Brosz A, Fierro C, Schwartz H, Neuzil K, Corey L, Gilbert P, Janes H, Follmann D, Marovich M, Mascola J, Polakowski L, Ledgerwood J, Graham BS, Bennett H, Pajon R, Knightly C, Leav B, Deng W, Zhou H, Han S, Ivarsson M, Miller J, Zaks T., *COVE Study Group. Efficacy and Safety of the mRNA-1273 SARS-CoV-2 Vaccine*, N ENGL J MED (Feb. 4, 2021).

⁹ Polack FP, Thomas SJ, Kitchin N, Absalon J, Gurtman A, Lockhart S, Perez JL, Pérez Marc G, Moreira ED, Zerbini C, Bailey R, Swanson KA, Roychoudhury S, Koury K, Li P, Kalina WV, Cooper D, Frenck RW Jr, Hammitt LL,

showed 85% efficacy for the Johnson and Johnson adenovirus-based vaccine against severe disease.¹⁰

17. Immunologists have identified many immunological mechanisms of immune protection after recovery from infections. Studies have demonstrated prolonged immunity with respect to memory T and B cells¹¹, bone marrow plasma cells¹², spike-specific neutralizing antibodies¹³, and IgG+ memory B cells¹⁴ following naturally acquired immunity.

18. Multiple extensive, peer-reviewed studies comparing natural and vaccine immunity have now been published. These studies overwhelmingly conclude that natural immunity provides equivalent or greater protection against severe infection than immunity generated by mRNA vaccines (Pfizer and Moderna).

Türeci Ö, Nell H, Schaefer A, Ünal S, Tresnan DB, Mather S, Dormitzer PR, Şahin U, Jansen KU, Gruber WC, *Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine*, N ENGL J MED. (Dec. 31, 2020).

¹⁰ Sadoff J, Gray G, Vandebosch A, Cárdenas V, Shukarev G, Grinsztejn B, Goepfert PA, Truyers C, Fennema H, Spiessens B, Offergeld K, Scheper G, Taylor KL, Robb ML, Treanor J, Barouch DH, Stoddard J, Ryser MF, Marovich MA, Neuzil KM, Corey L, Cauwenberghs N, Tanner T, Hardt K, Ruiz-Guiñazú J, Le Gars M, Schuitemaker H, Van Hoof J, Struyf F, Douoguih M, *Safety and Efficacy of Single-Dose Ad26.COV2.S Vaccine against Covid-19*, N ENGL J MED (June 10, 2021), 2187-2201.

¹¹ Jennifer M. Dan, et al., *Immunological memory to SARS-CoV-2 assessed for up to 8 months after infection*, SCIENCE (Feb. 5, 2021) (finding that memory T and B and B cells were present up to eight months after infection, noting that “durable immunity against secondary COVID-19 disease is a possibility for most individuals”).

¹² Jackson S. Turner, et al., *SARS-CoV-2 infection induces long-lived bone marrow plasma cells in humans*, NATURE (May 24, 2021) (study analyzing bone marrow plasma cells of recovered COVID-19 patients reported durable evidence of antibodies for at least 11 months after infection, describing “robust antigen-specific, long-lived humoral immune response in humans”); Ewen Callaway, *Had COVID? You’ll probably make antibodies for a lifetime*, NATURE (May 26, 2021), <https://www.nature.com/articles/d41586-021-01442-9#:~:text=Many%20people%20who%20have%20been,recovered%20from%20COVID%2D191> (“The study provides evidence that immunity triggered by SARS-CoV-2 infection will be extraordinarily long-lasting” and “people who recover from mild COVID-19 have bone-marrow cells that can churn out antibodies for decades”).

¹³ Tyler J. Ripperger, et al., *Orthogonal SARS-Cov-2 Serological Assays Enable Surveillance of Low-Prevalence Communities and Reveal Durable Humor Immunity*, 53 IMMUNITY, Issue 5, pp. 925-933 E4 (Nov. 17, 2020) (study finding that spike and neutralizing antibodies remained detectable 5-7 months after recovering from infection).

¹⁴ Kristen W. Cohen, et al., *Longitudinal analysis shows durable and broad immune memory after SARS-CoV-2 infection with persisting antibody responses and memory B and T cells*, MEDRXIV (Apr. 27, 2021), <https://www.medrxiv.org/content/10.1101/2021.04.19.21255739v1> (study of 254 recovered COVID patients over 8 months “found a predominant broad-based immune memory response” and “sustained IgG+ memory B cell response, which bodes well for rapid antibody response upon virus re-exposure.” “Taken together, these results suggest that broad and effective immunity may persist long-term in recovered COVID-19 patients”).

19. Specifically, studies confirm the efficacy of natural immunity against reinfection of COVID-19¹⁵ and show that the vast majority of reinfections are less severe than first-time infections.¹⁶ For example, an Israeli study of approximately 6.4 million individuals demonstrated that natural immunity provided equivalent if not better protection than vaccine immunity in preventing COVID-19 infection, morbidity, and mortality.¹⁷ Of the 187,549 unvaccinated persons with natural immunity in the study, only 894 (0.48%) were reinfected; 38 (0.02%) were hospitalized, 16 (0.008%) were hospitalized with severe disease, and only one died, an individual

¹⁵ Nabin K. Shrestha, et al., *Necessity of COVID-19 vaccination in previously infected individuals*, MEDRXIV (preprint), <https://www.medrxiv.org/content/10.1101/2021.06.01.21258176v3>. (“not one of the 1359 previously infected subjects who remained unvaccinated had a SARS-CoV-2 infection over the duration of the study “and concluded that those with natural immunity are “unlikely to benefit from covid-19 vaccination”); Galit Perez, et al., *A 1 to 1000 SARS-CoV-2 reinfection proportion in members of a large healthcare provider in Israel: a preliminary report*, MEDRXIV (Mar. 8, 2021), <https://www.medrxiv.org/content/10.1101/2021.03.06.21253051v1> (Israeli study finding that approximately 1/1000 of participants were reinfected); 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 (June 9, 2021), <https://jamanetwork.com/journals/jama/fullarticle/2781112?resultClick=1> (study of international airline passengers arriving in Qatar found no statistically significant difference in risk of reinfection between those who had been vaccinated and those who had previously been infected); Stefan Pilz, et al., *SARS-CoV-2 re-infection risk in Austria*, EUR. J. CLIN. INVEST. (2021), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7988582/> (previous SARS-CoV-2 infection reduced the odds of re-infection by 91% compared to first infection in the remaining general population); Aodhan Sean Breathnach, et al., *Prior COVID-19 protects against reinfection, even in the absence of detectable antibodies*, 82 J. OF INFECTION e11-e12 (2021) <https://doi.org/10.1016/j.jinf.2021.05.024> (.0.86% of previously infected population in London became reinfected); Alison Tarke, *Negligible impact of SARS0CoV-2 variants on CD4 and CD8 T cell reactivity in COVID-19 exposed donors and vaccines*, BIORXIV (Mar. 1, 2021), <https://www.biorxiv.org/content/10.1101/2021.02.27.433180v1> (an examination of the comparative efficacy of T cell responses to existing variants from patients with natural immunity compared to those who received an mRNA vaccine found that the T cell responses of both recovered Covid patients and vaccines were effective at neutralizing mutations found in SARS-CoV-2 variants).

¹⁶ Laith J. Abu-Raddad, et al., *SARS-CoV-2 reinfection in a cohort of 43,000 antibody-positive individuals followed for up to 35 weeks*, MEDRXIV (Feb. 8, 2021), <https://www.medrxiv.org/content/10.1101/2021.01.15.21249731v2> (finding that of 129 reinfections from a cohort of 43,044, only one reinfection was severe, two were moderate, and none were critical or fatal); Victoria Jane Hall, et al., *SARS-CoV-2 infection rates of antibody-positive compared with antibody-negative health-care workers in England: a large, multicentre, prospective cohort study*, 397 LANCET: 1459-69 (Apr. 9, 2021), <https://pubmed.ncbi.nlm.nih.gov/33844963/> (finding “a 93% lower risk of COVID-19 symptomatic infection... [which] show[s] equal or higher protection from natural infection, both for symptomatic and asymptomatic infection”); Aidan T. Hanrah, et al., *Prior SARS-CoV-2 infection is associated with protection against symptomatic reinfection*, 82 JOURNAL OF INFECTION, Issue 4, E29-E30 (Apr. 1, 2021), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7832116/> (Apr. 1, 2021) (examined reinfection rates in a cohort of healthcare workers and found “no symptomatic reinfections” among those examined and that protection lasted for at least 6 months).

¹⁷ 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 (pre-print), <https://www.medrxiv.org/content/10.1101/2021.04.20.21255670v1>.

over 80 years of age. In summary, the overwhelming conclusion of the pertinent scientific literature is that natural immunity is at least as effective against subsequent reinfection as even the most effective vaccines.

20. Based on such evidence, many scientists have concluded that natural protection against severe disease after COVID recovery is likely to be long-lasting. A survey article published on June 30, 2021, in the *British Medical Journal* concluded, “[t]here 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 have been vaccinated.”¹⁸

21. These findings of highly durable natural immunity should not be surprising, as they hold for SARS-CoV-1 and other respiratory viruses. According to a paper published in *Nature* in August 2020, 23 patients who had recovered from SARS-CoV-1 still possess CD4 and CD8 T cells, 17 years after infection during the 2003 epidemic.¹⁹ A *Nature* paper from 2008 found that 32 people born in 1915 or earlier still retained some level of immunity against the 1918 flu strain—some 90 years later.²⁰

22. In contrast to the concrete findings regarding the robust durability of natural immunity, it is yet unclear in the scientific literature how long-lasting vaccine-induced immunity will be. Notably, the researchers argue that they can best surmise the predicted durability of vaccine immunity by looking at the expected durability of natural immunity.²¹

¹⁸ Chris Baranjud, *How long does covid-19 immunity last?* 373 *BMJ* (2021) (emphasis added).

¹⁹ Nina Le Bert, *SARS-CoV-2-specific T cell immunity in cases of COVID-19 and SARS, and uninfected control*, *NATURE* (Aug. 2020).

²⁰ Xiacong Yu, et al., *Neutralizing antibodies derived from the B cells of 1918 influenza pandemic survivors*, *NATURE* (2008).

²¹ Heidi Ledford, *Six months of COVID vaccines: what 1.7 billion doses have taught scientists*, 594 *NATURE* 164 (June 10, 2021), <https://www.nature.com/articles/d41586-021-01505-x> (study notes that “Six months is not much time to collect data on how durable vaccine responses will be.... In the meantime some researchers are looking to natural immunity as a guide.”).

23. In short, there is no medical or scientific reason to believe that vaccine immunity will prove longer-lasting than natural immunity, much less that all currently approved vaccines will be expected to prove more durable than natural immunity despite their different technological foundations and dosing protocols.

Vaccine Side Effects Do Occur, Including Rare But Deadly Side Effects

24. Though the COVID vaccines are safe by the standards of many other vaccines approved for use in the population, like all medical interventions, they have side effects. In summarizing the evidence on vaccine side effects, the CDC lists both common side effects, at least one of which occurs in over half of all people who receive the vaccines, as well as deadly side effects that occur rarely in demographic subsets of the vaccinated population.

25. The common side effects include pain and swelling at the vaccination site and fatigue, headache, muscle pain, fever, and nausea for a limited time after vaccination.²² Less common but severe side effects also include severe and non-severe allergic (anaphylactic) reactions that can occur immediately after vaccination, which can typically be treated with an epinephrine injection if it occurs.²³ Finally, the CDC's vaccine safety committee has identified rare but deadly side effects, including a heightened risk of clotting abnormalities²⁴ in young women after the Johnson & Johnson (J&J) vaccination, elevated risks of myocarditis and pericarditis²⁵ in young people — but especially young men — after mRNA vaccination, and higher risk of

²² Centers for Disease Control, *Possible Side Effects After Getting a COVID-19 Vaccine* (June 24, 2021), <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/expect/after.html>.

²³ Centers for Disease Control, *What to Do If You Have an Allergic Reaction after Getting a COVID-19 Vaccine* (June 24, 2021), <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/allergic-reaction.html>.

²⁴ Martin Kullendorff, *The Dangers of Pausing the J&J Vaccine*, THE HILL (April 17, 2021), <https://thehill.com/opinion/healthcare/548817-the-dangers-of-pausing-the-jj-vaccine>.

²⁵ Centers for Disease Control, *Myocarditis and Pericarditis after Receipt of mRNA COVID-19 Vaccines Among Adolescents and Young Adults* (May 28, 2021), <https://www.cdc.gov/vaccines/covid-19/clinical-considerations/myocarditis.html>.

Guillane-Barre Syndrome²⁶ after the J&J vaccine. There is still the possibility of severe side effects that have yet to be identified as the vaccines have been in use in human populations for less than a year. Active investigation to check for safety problems is still ongoing.

26. Though the CDC²⁷ still recommends the vaccines for children 12 years old and up despite the evidence of elevated risk of myocarditis, other analysts²⁸ have objected to overly rosy assumptions made in the CDC analysis about vaccine side effects. They suggest that the recommendation is fragile to minor perturbation in their assumptions. The critical point for our analysis – undisputed in the scientific literature – is that the vaccines do have side effects, some of which are severe and not all of which are necessarily known at this point in time.

27. Some clinical evidence indicates that those who have recovered from COVID-19 could have a *heightened* risk of adverse effects compared with those who have never had the virus.^{29 30} This may be because vaccine reactogenicity after the first dose is higher among those with prior immunity.³¹

²⁶ LaFraniere and Weiland, *FDA Attaches Warning of Rare Nerve Syndrome to Johnson & Johnson Vaccine*, NEW YORK TIMES (July 12, 2021), <https://www.nytimes.com/2021/07/12/us/politics/fda-warning-johnson-johnson-vaccine-nerve-syndrome.html>.

²⁷ Walensky, *CDC Director Statement on Pfizer's Use of COVID-19 Vaccine in Adolescents Age 12 and Older* (May 12, 2021), <https://www.cdc.gov/media/releases/2021/s0512-advisory-committee-signing.html>.

²⁸ Pegden, *Weighing myocarditis cases, ACIP failed to balance the harms vs benefits of 2nd doses* (June 24, 2021), <https://medium.com/@wpegden?p=d7d6b3df7cfb>.

²⁹ Alexander G. Mathioudakis, et al., *Self-Reported Real-World Safety and Reactogenicity of COVID-19 Vaccines: A Vaccine Recipient Survey*, 11 LIFE 249 (Mar. 2021).

³⁰ Cristina Menni, *Vaccine side-effects and SARS-CoV-2 infection after vaccination in users of the COVID symptom study app in the UK: a prospective observational study*, 21 LANCET INFECTIOUS DISEASES 939-49 (July 2021) (finding that “Systemic side-effects were more common (1.6 times after the first dose of ChAdOx1 nCoV-19 [i.e., AstraZeneca vaccine] and 2.9 times after the first dose of BNT162b2 [i.e., Pfizer/BioNTech vaccine]) among individuals with previous SARS-CoV-2 infection than among those without known past infection. Local effects were similarly higher in individuals previously infected than in those without known past infection (1.4 times after the first dose of ChAdOx1 nCoV-19 and 1.2 times after the first dose of BNT162b2).”).

³¹ Florian Krammer, et al., *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://www.medrxiv.org/content/10.1101/2021.01.29.21250653v1> (concluding that “vaccine reactogenicity after the first dose is substantially more pronounced in individuals with pre-existing immunity.” The authors note 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.”).

Variants Do Not Alter the Conclusion that Vaccine Mandates Are Unwarranted

28. Since its spread through the human population, the SARS-CoV-2 virus – an RNA virus – has been mutating, including some forms that are likely more transmissible than the original wild-type virus that emerged from Wuhan, China, in 2019. The virus will continue to mutate as it continues to spread. However, the possibility of such a mutation does not alter the conclusion that a vaccine mandate for young people is unwarranted.

29. First, the mutant variants do not escape the immunity provided by prior infection with the wild-type virus or vaccination.^{32,33,34} Although reinfection can occur, people who have been previously infected by the wild-type (non-variant) virus are unlikely to have a severe outcome (hospitalization or death) after exposure to a variant virus. A variant circulating in the population thus poses little additional risk of hospital overcrowding or excess mortality due to viral infection.

30. Second, theoretical work suggests that lockdowns place selective pressure that promotes the development and establishment of more deadly variants. This, in part, may explain why the most concerning variants have emerged in places like the U.K., South Africa, and California, where severe lockdowns have been imposed for extended periods.³⁵ While this hypothesis awaits a definitive empirical test, it is consistent with the *prima facie* evidence on mutant variants' development.

³² Alison Tarke, A., Sidney, J., Methot, N., Zhang, Y., Dan, J. M., Goodwin, B., Rubiro, P., Sutherland, A., da Silva Antunes, R., Frazier, A., Rawlings, S. A., Smith, D. M., Peters, B., Scheuermann, R. H., Weiskopf, D., Crotty, S., Grifoni, A., & Sette, A., *Negligible impact of SARS-CoV-2 variants on CD4 + and CD8 + T cell reactivity in COVID-19 exposed donors and vaccinees*, BIORXIV, 2021.02.27.433180 (2021), <https://doi.org/10.1101/2021.02.27.433180>.

³³ Wu, K., Werner, A. P., Moliva, J. I., Koch, M., Choi, A., Stewart-Jones, G. B. E., Bennett, H., Boyoglu-Barnum, S., Shi, W., Graham, B. S., Carfi, A., Corbett, K. S., Seder, R. A., & Edwards, D. K., *mRNA-1273 vaccine induces neutralizing antibodies against spike mutants from global SARS-CoV-2 variants*, BIORXIV : THE PREPRINT SERVER FOR BIOLOGY, 2021.01.25.427948 (2021), <https://doi.org/10.1101/2021.01.25.427948>.

³⁴ Redd, A. D., Nardin, A., Kared, H., Bloch, E. M., Pekosz, A., Laeyendecker, O., Abel, B., Fehlings, M., Quinn, T. C., & Tobian, A. A., *CD8+ T cell responses in COVID-19 convalescent individuals target conserved epitopes from multiple prominent SARS-CoV-2 circulating variants*, MEDRXIV : THE PREPRINT SERVER FOR HEALTH SCIENCES, 2021.02.11.21251585 (2021), <https://doi.org/10.1101/2021.02.11.21251585>.

³⁵ Moran J., *Mutant variations and the danger of lockdowns*, THE CRITIC MAGAZINE (March 2, 2021), <https://thecritic.co.uk/mutant-variations-and-the-danger-of-lockdowns/>.

31. Third, the variants have been widely spreading in many countries these past months, even as cases have dropped. This is true, for instance, in Florida, where the U.K. variant B.1.1.7 was widespread this past winter³⁶, but cases fell sharply over the same period that the variant has been spreading. That variants with an infectivity advantage – but no more lethality – make up a larger fraction of a smaller number of cases is an interesting scientific observation but not crucial for public health policy.

32. Fourth, the dissemination of vaccines that protect against hospitalizations and deaths upon COVID-19 infection throughout the older population in the United States has decoupled the growth in COVID-19 cases from COVID-19 mortality. Vaccinated people can still perhaps be infected but rarely have severe symptoms in response to infection. Throughout last year, a rise in cases was inevitably accompanied by an increase in deaths with a two-to-three-week lag. However, during this most recent wave, there has been little rise in daily deaths to accompany the rise in cases because of the deployment of the vaccine in the vulnerable older population in the United States. The same is true in Sweden and the U.K., where vaccines have been provided to the entirety of the vulnerable elderly population and more.³⁷ Because of the success of the American vaccination effort among the vulnerable elderly, COVID-19 cases and COVID-19 deaths are now effectively decoupled.

³⁶ US Centers for Disease Control, *US COVID-19 Cases Caused by Variants* (2021), <https://www.cdc.gov/coronavirus/2019-ncov/transmission/variant-cases.html>.

³⁷Jay Bhattacharya, Martin Kulldorff, and Sunetra Gupta, *Sweden's Lessons for the UK's Third Wave*, THE SPECTATOR (July 12, 2021), <https://www.spectator.co.uk/article/sweden-shows-that-the-uk-s-third-wave-won-t-sting>.

The Presence of Lingering Post-Viral Infection Symptoms in a Subset of Recovered COVID patients (“Long COVID”) Does Not Alter The Conclusion that Vaccine Mandates Are Unwarranted

33. Some analysts and politicians have used the possibility that a fraction of patients who recover from COVID infection will experience lingering symptoms to justify vaccine mandates and lockdown measures. Long COVID, as this phenomenon is called, includes a complex set of clinical outcomes with a poorly understood link to acute COVID infection.³⁸ One cross-sectional study found that about 30% of recovered COVID patients reported at least one symptom months after recovery, with fatigue and anosmia (loss of sense of smell) by far the most common.³⁹ A separate study with a more convincing longitudinal methodology, by contrast, concluded that 2.3% of patients experienced such symptoms three months after recovery.⁴⁰ Patients who suffered a more severe acute course of COVID, including hospitalization, were more likely to report lingering symptoms after recovery.⁴¹ A study of children who recovered from COVID found the same rate of long COVID symptoms as a control group of children who had no serological evidence of prior COVID infection.⁴² Some analysts have noted the similarity between “long COVID” symptoms and other functional somatic syndromes that sometimes occur after other viral infections and other triggers (and sometimes with no identifiable etiology).⁴³

³⁸ Nalbandian, A., Sehgal, K., Gupta, A. et al., *Post-acute COVID-19 syndrome*, NAT MED 27, 601–615 (2021), <https://doi.org/10.1038/s41591-021-01283-z>.

³⁹ Logue JK, Franko NM, McCulloch DJ, et al., *Sequelae in Adults at 6 Months After COVID-19 Infection*, JAMA NETW OPEN (2021);4(2):e210830, doi:10.1001/jamanetworkopen.2021.0830.

⁴⁰ Sudre, C.H., Murray, B., Varsavsky, T. et al., *Attributes and predictors of long COVID*, NAT MED 27, 626–631 (2021), <https://doi.org/10.1038/s41591-021-01292-y>.

⁴¹ Arnold DT, Hamilton FW, Milne A, et al., *Patient outcomes after hospitalisation with COVID-19 and implications for follow-up: results from a prospective UK cohort*, THORAX, 76:399-401 (2021).

⁴² Thomas Radtke, Agne Ulyte, Milo A Puhan, Susi Kriemler, *Long-term symptoms after SARS-CoV-2 infection in school children: population-based cohort with 6-months follow-up*, MEDRXIV (2021), <https://doi.org/10.1101/2021.05.16.21257255>.

⁴³ Ballering A, Olde Hartman T, Rosmalen J Long COVID-19, *persistent somatic symptoms and social stigmatization*, J EPIDEMIOLOG COMMUNITY HEALTH (2021).

34. To summarize, as with other viruses, long COVID symptoms occur in a minority of patients who recover from COVID and pose a real burden on patients who suffer from it. However, this fact does not alter the logic of our argument. On the contrary. After suffering through COVID, with or without long COVID, such individuals should not be forced to also endure common but mild vaccine adverse reactions or risk rare but serious adverse reactions. Moreover, the successful vaccine rollout in the United States – where every teenager and adult has free access to the vaccines – addresses the problem of long COVID, just as it addresses COVID-associated mortality.

Conclusion

35. A fundamental ethical principle guiding the practice of medicine is that any medical intervention, whether surgical, pharmacological, or a vaccine, should be recommended and undertaken only if it is deemed medically necessary. Any medical procedure, including vaccination, involves risk. No medical procedure is 100% safe, especially those involving a new vaccine which by definition has not been studied for long-term adverse side effects. For this reason, it is a fundamental principle of medical ethics that the risks of the procedure be balanced against the potential benefits.

36. As we established earlier, based on the scientific evidence to date, those who have recovered from a SARS-CoV-2 infection possess immunity as robust and durable as that acquired through vaccination. In Professor Zywicki's case, there is no doubt that, based on recent measures of his antibody levels and his history of prior COVID infection, he is protected by natural immunity (Dr. Bhattacharya has examined the results from Prof. Zywicki's laboratory tests). The existing clinical literature overwhelmingly indicates that the protection afforded to the individual and community from natural immunity is as effective and durable as the efficacy levels of the most

effective vaccines to date. There is no good reason from the point of view of Professor Zywicki's personal health that he should be vaccinated. At the very least, the decision should be left to Professor Zywicki and his doctors without coercion applied by the University.

37. There is also no community health reason for the University to mandate vaccinations since the vaccine is available to all teens and adults who want it. Indeed, based on our analysis of the existing medical and scientific literature, any policy mandating vaccinations that does not recognize natural immunity is irrational, arbitrary, and counterproductive to community health.⁴⁴

38. As we wrote in the *Wall Street Journal* this spring, “[t]he idea that everybody needs to be vaccinated is as scientifically baseless as the idea that nobody does. Covid vaccines are essential for older, high-risk people and their caretakers and advisable for many others. But those who've been infected are already immuneIf authorities mandate vaccination of those who don't need it, the public will start questioning vaccines in general Coercive vaccination policies would erode trust even further.”⁴⁵

39. We criticized those pushing for and implementing vaccine mandates as “undermining public trust in vaccines. In this sense, they are more dangerous than the small group of so-called anti-vaxxers have ever been.”

40. It is unethical to coerce low-risk Americans to take the vaccine, such as students and those with natural immunity, while older high-risk individuals in Asia, Africa and Latin

⁴⁴ Jay Bhattacharya, Sunetra Gupta, and Martin Kulldorff, *The Beauty of Vaccines and Natural Immunity*, SMERCONISH NEWSLETTER (June 4, 2021), <https://www.smerconish.com/exclusive-content/the-beauty-of-vaccines-and-natural-immunity>.

⁴⁵ Martin Kulldorff and Jay Bhattacharya, *Vaccine Passports Prolong Lockdowns*, WALL STREET JOURNAL (Apr. 6, 2021), <https://www.wsj.com/articles/vaccine-passports-prolong-lockdowns-11617726629>.

America are dying from COVID19 because there are not enough vaccines available in those countries.

41. Now that every American adult and teenager has free access to the vaccines, the case for a vaccine mandate is even weaker than it was in the spring when we wrote that *Wall Street Journal* piece. There is no good public health case for GMU to require proof of vaccination for employees and students to participate in University activities that do not involve care for high-risk patients. Since the successful vaccination campaign already protects the vulnerable population, the unvaccinated – especially recovered COVID patients – pose a vanishingly small threat to the vaccinated. They are protected by an effective vaccine that dramatically reduces the likelihood of hospitalization or death after infections to near zero and natural immunity, which provides benefits that are at least as strong.

42. With widespread vaccination of the vulnerable, asymptomatic people pose even less risk to the vulnerable than before the vaccine became available. At the same time, the requirement for a vaccine passport or other type of proof of vaccine undermines trust in public health because of its coercive nature. While vaccines are an excellent tool for protecting the vulnerable, COVID does not justify ignoring principles of good public health practice that caution against warrantless discrimination against segments of the population (in this case, the unvaccinated).

43. We recently observed that “[u]niversities used to be bastions of enlightenment. Now many of them ignore basic benefit-risk analyses, a staple of the toolbox of scientists; they deny immunity from natural infection; they abandon the global international perspective for

narrow nationalism; and they replace trust with coercion and authoritarianism. Mandating the COVID-19 vaccine thus threatens not only public health but also the future of science.”⁴⁶

44. Universities can be leaders in developing sensible policies grounded in sound scientific evidence and abide by the fundamental principles of medical ethics. Individuals who have recovered from COVID-19 should be exempt from any vaccine mandates and treated as in an identical position to those who have been vaccinated.

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⁴⁶ Martin Kulldorff and Jay Bhattacharya, *The ill-advised push to vaccinate the young*, THEHILL.COM (June 17, 2021), <https://thehill.com/opinion/healthcare/558757-the-ill-advised-push-to-vaccinate-the-young?r1=1>.