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The Ethics of COVID-19 Vaccine Mandates for Healthcare Workers: Public Health and Clinical Perspectives

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Vaccine policy and regulation for healthcare workers (HCWs) is generally different from that of the general public. Unique vaccine policy for HCWs is usually justified on the basis on either or both of the following premises: (i) their unique occupational status that poses higher risks of contracting communicable diseases, and (ii) their professional duties to care for and protect their patients[1]. Vaccine policy for HCWs ranges from persuasive (i.e., recommendations) to coercive (i.e., mandates), depending on the disease, vaccine safety and effectiveness, as well as the social context (e.g., whether there is an ongoing pandemic)[2].

In response to the COVID-19 pandemic, many hospitals and healthcare institutions required healthcare workers to be vaccinated against COVID-19 as a condition of their employment[3]. Because of their crucial

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[2] Colgrove, J. (2004). Between Persuasion and Compulsion: Smallpox Control in Brooklyn and New York, 1894-1902. *Bulletin of the History of Medicine, 78*(2), 349-378. Retrieved from https://www.jstor.org/stable/44448007?casa_token=Lj6PI3BtfUgAAAAA%3Aj1z4fWf5N9ZW4sZW-pMIeaVqOVrwyG53UKHUzQqq8b_jObog3PzM8JH_1BoUYsvN_LnE7lZ2EKb47bMg_HFvoiTWXLNWGN_-2gTZ1AfBizSUICEI_Uo&seq=1; Gur-Arie, R., Davidovitch, N., & Rosenthal, A. (2022). Intervention hesitancy among healthcare personnel: conceptualizing beyond vaccine hesitancy. *Monash Bioeth Rev*. doi:10.1007/s40592-022-00152-w

[3] Hawkins, D. (2021, May 29, 2021). 117 staffers sue over Houston hospital's vaccine mandate, saying they don't want to be 'guinea pigs'. *The Washington Post*. Retrieved from https://www.washingtonpost.com/nation/2021/05/29/texas-hospital-vaccine-lawsuit/; Gooch, K. (2021, April 16, 2021). Montana health system implements mandatory COVID-19 vaccinations.

role in fighting the pandemic and their heightened occupational exposure to COVID-19 patients, HCWs have been a central focus of COVID-19 vaccination campaigns[4]. Research consistently shows, however, that some HCW are hesitant to get vaccinated against COVID-19[5].

This article ethically evaluates government-imposed COVID-19 vaccine mandates for HCW. We define vaccine mandates (also referred to as mandatory vaccination) as the conditioning of employment and its accompanying benefits (social, societal, and financial) on vaccine uptake. We recognize that vaccine mandates can be conceptualized, defined, and implemented in a variety of different ways[6]. However, for the purposes of this article, when we reference COVID-19 vaccine mandates as a policy intervention, we are referring to a policy that results in the termination of a HCW's employment, should they refuse getting vaccinated without an approved exemption. Although some of our arguments can broadly apply to the ethics of vaccine mandates, our analysis focuses on government-imposed COVID-19 vaccine mandates among HCW in the United States. In particular, in November 2021, the United States Federal government imposed a vaccine mandate for employees of health-care facilities and companies the agency pays to treat Medicare or Medicaid beneficiaries[7]. This order was challenged but eventually upheld by the United States Supreme Court in January 2022[8]. We focus on vaccine mandates implemented by

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[4] Emanuel, E. J., Persad, G., Kern, A., Buchanan, A., Fabre, C., Halliday, D., . . . Richardson, H. S. (2020). An ethical framework for global vaccine allocation. *Science 369*, 1309-1312.

[5] Toth-Manikowski, S. M., Swirsky, E. S., Gandhi, R., & Piscitello, G. (2022). COVID-19 vaccination hesitancy among health care workers, communication, and policy-making. *Am J Infect Control, 50*(1), 20-25. doi:10.1016/j.ajic.2021.10.004

[6] Navin, M. C., & Attwell, K. (2019). Vaccine mandates, value pluralism, and policy diversity. *Bioethics, 33*(9), 1042-1049. doi:10.1111/bioe.12645

[7] Jaffe, S. (2021). Legal challenges threaten Biden's COVID-19 vaccine rule. *The Lancet, 398*, 1863-1864. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8601688/pdf/main.pdf

[8] Biden v Missouri No. 21A240 and 21A241 (Supreme Court of the United States 2022).

governments because throughout the COVID-19 pandemic, most public debate regarding COVID-19 vaccine mandates was motivated by their potential implementation at the government level, particularly in the United States[9]. This is an important distinction: most other vaccine mandates for HCW in the United States, like seasonal influenza vaccine mandates, have been traditionally implemented at the institutional level[10].

We proceed as follows. First, we argue that vaccine mandates, including COVID-19 vaccine mandate for HCWs, require moral justification. Accordingly, we evaluate arguments that attempt to meet this justificatory bar. Second, we consider arguments in support of COVID-19 vaccine mandates based on public health considerations. More specifically, we consider whether governments are permitted to mandate COVID-19 vaccines for HCWs in virtue of their broader responsibility to protect populations against infectious disease. Third, we address defenses of vaccine mandates that appeal to the claim that HCWs have professional obligations to get vaccinated against COVID-19 in order to protect themselves, their colleagues, and their patients from infection. Fourth, we consider the relevance of the apparent failures of healthcare institutions to protect the health and safety of their employees throughout the COVID-19 pandemic. We conclude that the case for COVID-19 vaccine mandates for HCWs is weak under circumstances as of writing. While others have argued for somewhat similar conclusions[11], they do not all consider the same array of arguments that we do.

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[9] Ibid; NASHP. (2022, September 17, 2022). State Efforts to Ban or Enforce COVID-19 Vaccine Mandates and Passports. Retrieved from https://www.nashp.org/state-lawmakers-submit-bills-to-ban-employer-vaccine-mandates/; KFF. (2022, February 10, 2022). State COVID-19 Data and Policy Actions. Retrieved from kff.org/report-section/state-covid-19-data-and-policy-actions-policy-actions/; The White House. National COVID-19 Preparedness Plan. Retrieved from https://www.whitehouse.gov/covidplan/

[10] Pitts, S. I., Maruthur, N. M., Millar, K. R., Perl, T. M., & Segal, J. (2014). A systematic review of mandatory influenza vaccination in healthcare personnel. *Am J Prev Med, 47*(3), 330-340. doi:10.1016/j.amepre.2014.05.035; Nowalk, M. P., Balasubramani, G. K., Zimmerman, R. K., Bear, T. M., Sax, T., Eng, H., . . . Ford, S. E. (2019). Influenza Vaccine Intention After a Medically Attended Acute Respiratory Infection. *Health Promot Pract, 20*(4), 539-552. doi:10.1177/1524839918782137

[11] Giubilini, A., Savulescu, J., Pugh, J., & Wilkinson, D. (2022). Vaccine mandates for healthcare workers beyond COVID-19. *J Med Ethics*. doi:10.1136/medethics-2022-108229

The concerns we raise about COVID-19 vaccine mandates for HCWs do not suffice to show that such mandates are *unjustified*. We accept that under certain circumstances, COVID-19 vaccine mandates for HCWs may be appropriate as a last resort to raise COVID-19 vaccine uptake among HCWs. And, as will become apparent, many of our objections turn on the relative inefficacy of the current vaccines at preventing transmission; if a vaccine that better prevented transmission were to become available, then those objections would not stand. Given the reality that COVID-19 vaccine mandates for HCWs have been and most likely will continue to be implemented, we indicate some steps that institutions can take to mitigate the ethical concerns we articulate.

1. The Demand for Justification of Mandates

Vaccine mandates can promote public health[12]. Nevertheless, we agree with public health ethics philosophy that requires a high justificatory bar before implementing vaccine mandates, particularly in the context of mandating COVID-19 vaccines for HCWs[13]. Two kinds of considerations can help understand this justificatory bar.

First, vaccine mandates can conflict, at face value with the value of individual autonomy in medical decision-making[14]. We generally do not require people to undergo medical interventions without

[12] Malone, K. M., & Hinman, A. R. (2003). Vaccination mandates: the public health imperative and individual rights. *Law in public health practice, 338*, 339-4020.
[13] Gur-Arie, R., Jamrozik, E., & Kingori, P. (2021). No Jab, No Job? Ethical Issues in Mandatory COVID-19 Vaccination of Healthcare Personnel. *BMJ Glob Health, 6*(2). doi:10.1136/bmjgh-2020-004877; Williams, B. M. (2022). The Ethics of Selective Mandatory Vaccination for COVID-19. *Public Health Ethics, 15*(1), 74-86. doi:10.1093/phe/phab028
[14] Zimmerman, F. J. (2017). Public Health Autonomy: A Critical Reappraisal. *Hastings Cent Rep, 47*(6), 38-45. doi:10.1002/hast.784; Bowen, R. A. R. (2020). Ethical and organizational considerations for mandatory COVID-19 vaccination of health care workers: A clinical laboratorian's perspective. *Clin Chim Acta, 510*, 421-422. doi:10.1016/j.cca.2020.08.003;

informed and fully voluntary consent, absent a compelling justification[15]. Moreover, it is important to emphasize that a vaccine mandate is a meaningful infringement on autonomy, even when the vaccine is both safe and effective. The intrusiveness of the intervention is not measured solely in terms of the burdensomeness of the vaccine itself, but of the burdensomeness of the intervention (the vaccine mandate). Vaccine mandates, including COVID-19 vaccine mandates, can impose significant emotional and autonomy-related harms[16]. For example, a vaccine mandate for HCWs could be experienced as a source of stress or a failure to respect one's independent judgment.

Public health ethicists have long argued that intrusive public health interventions—that is, interventions that interfere with the choices of autonomous individuals—must be justified according to a consistent set of standards[17]. One influential way of representing this demand for justification comes from the Nuffield Council on Bioethics, which developed an 'intervention ladder'[18]. The intervention ladder suggests that the demand for justification is greater, or the reasons for intervention need to be more compelling, as measures become more intrusive. Because they involve a mandatory medical intervention, vaccine mandates occupy 'higher rungs' of the intervention ladder, thereby requiring more justification. A related approach focuses on the availability of alternatives mechanisms for securing a desired public health outcome. In particular, public health ethicists endorse a 'least restrictive alternative' requirement,

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Giubilini, A., Savulescu, J., Pugh, J., & Wilkinson, D. (2022). Vaccine mandates for healthcare workers beyond COVID-19. *J Med Ethics*. doi:10.1136/medethics-2022-108229

[15] O'Neil, O. (2003). Some limits of informed consent. *Journal of Medical Ethics, 29*, 4-7.

[16] Navin, M. C., & Attwell, K. (2019). Vaccine mandates, value pluralism, and policy diversity. *Bioethics, 33*(9), 1042-1049. doi:10.1111/bioe.1264; Bardosh, K., de Figueiredo, A., Gur-Arie, R., Jamrozik, E., Doidge, J., Lemmens, T., . . . Baral, S. (2022). The unintended consequences of COVID-19 vaccine policy: why mandates, passports and restrictions may cause more harm than good. *BMJ Glob Health, 7*(5). doi:10.1136/bmjgh-2022-008684

[17] Mastroianni, A. C., Kahn, J. P., Kass, N. E., & Buchanan, D. R. (2019). Public Health Interventions: Ethical Implications. In *The Oxford Handbook of Public Health Ethics* (pp. 76-88).; Childress, J. F., Faden, R. R., Gaare, R. D., Gostin, L. O., Kahn, J., Bonnie, R. J., . . . Nieburg, P. (2002). Public Health Ethics: Mapping the Terrain. *Journal of Law, Medicine, and Ethics, 30*, 170-178.

[18] *Public health: ethical issues*. (2007). Retrieved from London: https://www.nuffieldbioethics.org/assets/pdfs/Public-health-ethical-issues.pdf

according to which all else equal, policies that involve less infringement of individual rights and interests are preferable to policies that involve greater infringement[19].

Second, vaccine mandates for HCW raise significant questions of justice and equity. The concern is as follows. On various theories of justice—both theories of social justice generally[20] and theories of justice that are specifically designed to inform public health interventions[21]—systematic patterns of disadvantage constitute an injustice. Prominent forms of such injustice involve systematically disadvantaged social groups—especially gender-based or race-based inequity. We join others in contending that concerns of justice arise when a policy or set of policies disproportionately burden members of systematically disadvantaged social groups[22]. Indeed, we might worry that such policies exacerbate or 'compound' existing injustices. As noted above, research suggests that COVID-19 vaccine mandates can burden unvaccinated HCWs; they can cause physical, emotional, or autonomy-related harms[23]. The justice concern, then, is that COVID-19 vaccine mandates could disproportionately burden members of already-disadvantaged groups. While we hardly claim to decisively show that mandates disproportionately burden members of already unfairly disadvantaged groups, we will give a few reasons that support such a claim; at the very least, we should worry that the relevant policies are unjust or exacerbate existing injustices.

One reason to worry about disproportionate burdens concerns the gender makeup of the global healthcare workforce. According to the World Health Organization (WHO), women make up 70% of the global

[19] Giubilini, A., Savulescu, J., Pugh, J., & Wilkinson, D. (2022). Vaccine mandates for healthcare workers beyond COVID-19. *J Med Ethics*. ; Childress, J. F., Faden, R. R., Gaare, R. D., Gostin, L. O., Kahn, J., Bonnie, R. J., . . . Nieburg, P. (2002). Public Health Ethics: Mapping the Terrain. *Journal of Law, Medicine, and Ethics, 30*, 170-178.
[20] Young, I. M. (2011). *Responsibility for Justice*. Oxford: Oxford University Press.
[21] Powers, M., & Faden, R. R. (2006). *Social Justice*. New York: Oxford University Press.
[22] Kass, N. E. (2001). An Ethics Framework for Public Health. *American Journal of Public Health, 91*(11), 1776-1782.
[23] Woolf, K., Gogoi, M., Martin, C. A., Papineni, P., Lagrata, S., Nellums, L. B., . . . Group, U.-R. S. C. (2022). Healthcare workers' views on mandatory SARS-CoV-2 vaccination in the UK: A cross-sectional, mixed-methods analysis from the UK-REACH study. *EClinicalMedicine, 46*, 101346. doi:10.1016/j.eclinm.2022.101346

health and social care workforce[24]. Accordingly, women would disproportionately be subject to the vaccine mandates, including COVID-19 vaccine mandates. Moreover, studies suggest gender differences in the intention to get vaccinated against COVID-19, with lower vaccination intentions among women[25]. So, it would appear the vaccine mandate is more burdensome for women than for men. Furthermore, we assume that gender injustice pervades the relevant society—the United States[26]. Accordingly, we should worry that vaccine mandates disproportionately burden an already unfairly disadvantaged group.

A second reason to worry about the justness of vaccine mandates arises due to racial differences in the intention to get vaccinated against COVID-19 among HCW, with heightened COVID-19 vaccine hesitancy among Black and Hispanic or Latino HCWs[27]. Given that women disproportionately make up the healthcare workforce, many of them of minority backgrounds (for example, more than one in five Black women in the labor force are employed in the healthcare sector[28]), we have additional reasons to worry that the relevant burdens disproportionately fall upon members of already unfairly disadvantaged social groups.

To summarize: Government implemented vaccine mandates for HCWs constitute an intrusive public health intervention that raises concerns of justice. Both the 'least restrictive alternative' requirement and

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[24] Vong, S., Ros, B., Morgan, R., & Theobald, S. (2019). Why are fewer women rising to the top? A life history gender analysis of Cambodia's health workforce. *BMC Health Serv Res, 19*(1), 595. doi:10.1186/s12913-019-4424-3

[25] Zintel, S., Flock, C., Arbogast, A. L., Forster, A., von Wagner, C., & Sieverding, M. (2022). Gender differences in the intention to get vaccinated against COVID-19: a systematic review and meta-analysis. *Z Gesundh Wiss*, 1-25. doi:10.1007/s10389-021-01677-w; Townsel, C., Moniz, M. H., Wagner, A. L., Zikmund-Fisher, B. J., Hawley, S., Jiang, L., & Stout, M. J. (2021). COVID-19 vaccine hesitancy among reproductive-aged female tier 1A healthcare workers in a United States Medical Center. *J Perinatol, 41*(10), 2549-2551. doi:10.1038/s41372-021-01173-9

[26] Mooney Cotter, A.-M. (2004). *Gender Injustice* (1st ed.): Routledge

[27] Momplaisir, F. M., Kuter, B. J., Ghadimi, F., Browne, S., Nkwihoreze, H., Feemster, K. A., . . . Green-McKenzie, J. (2021). Racial/Ethnic Differences in COVID-19 Vaccine Hesitancy Among Health Care Workers in 2 Large Academic Hospitals. *JAMA Netw Open, 4*(8), e2121931. doi:10.1001/jamanetworkopen.2021.21931

[28] Dill, J., & Duffy, M. (2022). Structural Racism And Black Women's Employment In The US Health Care Sector. *Health Aff (Millwood), 41*(2), 265-272. doi:10.1377/hlthaff.2021.01400

the Nuffield Ladder suggest that such policies must satisfy a significant justificatory threshold. Vaccine mandates must promote a significant public health goal while satisfying least restrictive alternative requirements. Moreover, alternative or additional measures that would avoid or mitigate the relevant injustices should be implemented, ideally in advance of mandating a vaccine. This demand that vaccine mandates meet the relevant justificatory threshold does not show that vaccine mandates for HCWs are unjustified. But a justification must be provided. Accordingly, we will assess whether prominent arguments that have been made in defense of mandates meet this justificatory burden.

2. Defenses of Mandates from the Government's Right to Protect Public Health

This section considers and evaluates arguments in support of COVID-19 vaccine mandates for HCWs that appeal to the government's role in promoting public health. There are two general types of public health-centered arguments that may support the government's right to implement vaccine mandates for HCWs: arguments based on the public health value of vaccine mandates generally; and arguments that turn on the specific role of HCWs in promoting public health.

2.1 Producing A Public Good

Many public health ethicists have argued that the government may be justified in mandating COVID-19 vaccines for the population as a whole – or, at least, large segments of it[29]. The argument for population-wide mandates turns principally on the public health benefit of widespread vaccination in this circumstance, and second, the claim that the government's interest in promoting these outcomes meets the justificatory burden discussed in Section 1. Sufficiently widespread vaccination with a sufficiently

[29] Mello, M. M., SIlverman, R. D., & Omer, S. B. (2020). Ensuring Uptake of Vaccines against SARS-CoV-2. *N Engl J Med, 383*(14), 1296-1299.; Shachar, C., & Rubinstein Reiss, D. (2020). When are Vaccine Mandates Appropriate? *AMA Journal of Ethics, 22*(1), E36-42. doi:10.1001/amajethics.2020.36.

effective vaccine produces community protection (often referred to as 'herd immunity'[30]). Community protection makes transmission far less likely and thereby protects those especially vulnerable to the virus—such as the immunocompromised, people unable to safely get vaccinated, or, in the case of COVID-19, older individuals, and individuals with various comorbidities[31]. Moreover, the government may be in a unique position to promote widespread uptake of vaccination across the entire population, at numbers which may be sufficient to produce a public good such as virus containment and community protection[32].

Yet there are two problems with this argument. First, and most fundamentally, while available COVID-19 vaccines provide significant protection to the recipient against severe illness and death from COVID-19 disease, their ability to prevent transmission is currently limited[33]. Mass vaccination yields meaningful community protection only if vaccines have a meaningful ability to prevent transmission to third parties[34]. If HCWs who get vaccinated against COVID-19 are not meaningfully contributing to preventing viral transmission, they are also not contributing to generating community protection[35]. It is also relevant to

[30] Project, V. K. (March 11, 2022). Herd immunity (Herd protection). Retrieved from https://vk.ovg.ox.ac.uk/vk/herd-immunity

[31] WHO. (2021). *Actions for consideration in the care and protection of vulnerable populations from COVID-19*. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/333043/WPR-DSE-2020-021-eng.pdf?sequence=5&isAllowed=y

[32] Attwell, K., & Navin, M. (2021, February 26, 2021). Bosses Shouldn't Demand That You Be Vaccinated. *The New York Times*. Retrieved from https://www.nytimes.com/2021/02/26/opinion/business-economics/company-vaccine-requirements.html?smid=tw-share

[33] Stokel-Walker, C. (2022). What do we know about covid vaccines and preventing transmission? *BMJ, 376*, o298. doi:10.1136/bmj.o298; Eyre, D. W., Taylor, D., Purver, M., Chapman, D., Fowler, T., Pouwels, K. B., . . . Peto, T. E. A. (2022). Effect of Covid-19 Vaccination on Transmission of Alpha and Delta Variants. *N Engl J Med, 386*(8), 744-756. doi:10.1056/NEJMoa2116597; Kollewe, J. (2022, May 7, 2022). Vaccine to stop Covid transmission should now be top priority, says leading UK scientist. *The Guardian*. Retrieved from theguardian.com/business/2022/may/07/vaccine-to-stop-covid-transmission-should-now-be-top-priority-says-leading-uk-scientist

[34] Heymann, D. L., & Aylward, R. B. (2006). Mass Vaccination: When and Why. In *Mass Vaccination: Global Aspects — Progress and Obstacles* (pp. 1-16). Berlin, Heidelberg: Springer.

[35] Ioannou, P., Karakonstantis, S., Astrinaki, E., Saplamidou, S., Vitsaxaki, E., Hamilos, G., . . . Kofteridis, D. P. (2021). Transmission of SARS-CoV-2 variant B.1.1.7 among vaccinated health care workers. *Infect Dis (Lond), 53*(11), 876-879. doi:10.1080/23744235.2021.1945139

consider that even mass public COVID-19 vaccination is not currently able to eliminate community transmission of COVID-19[36].

But even if the vaccines were to provide protection to third parties, vaccine mandates implemented for just health care institutions cannot produce the public good of community protection. The force of this line of argument varies depending on the relationship between a private institution and the broader community. An isolated institution with residential capacity, such as a liberal arts college, may be able to achieve a limited form of community protection for its community, but only on the condition of near-total isolation from the outside community. For example, throughout the COVID-19 pandemic, university- and college-level COVID-19 mandates were not able to fully prevent COVID-19 transmission among students, faculty, and staff, given the integration of higher-learning institutions in greater communities[37]. Furthermore, hospitals, in contrast with small colleges, are a vital resource on which the health of a broader community depends. A hospital by its very nature cannot close its doors to the broader community that it serves. Accordingly, it seems unlikely that a vaccine mandate that targets HCWs, on its own, could produce and sustain the public good of community protection for the broader community that it serves. Since a mandate for HCWs in particular will not produce the public good of community protection, then the appeal to the government's role in producing community protection would fail to justify a mandate—even if the vaccine were effective at preventing viral transmission.

2.2 Contributing to Reduced Transmission

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[36] Kadkhoda, K. (2021). Herd Immunity to COVID-19. *Am J Clin Pathol, 155*(4), 471-472. doi:10.1093/ajcp/aqaa272; Singanayagam, A., Hakki, S., Dunning, J., Madon, K. J., Crone, M. A., Koycheva, A., . . . Lackenby, A. (2022). 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, 22*(2), 183-195. doi:10.1016/s1473-3099(21)00648-4

[37] Binkley, C. (2021, December 15, 2021). College campuses are readjusting their approach to safety measures as Omicron cases rise. *Health Coronavirus.* Retrieved from https://fortune.com/2021/12/15/colleges-on-campus-covid-measures-omicron-variant/

The fact that the relevant vaccines do poorly at preventing transmission obviates a distinct rationale in defense of mandates for healthcare institutions. Some might point out that even if healthcare institutions, as extensions of government, cannot create a public good by eliminating community transmission on their own, then the benefit of increased vaccination uptake among HCWs can still provide significant local benefit by reducing the transmission rate. Arguably, any reduction in transmission is a benefit enjoyed by the broader community in which an institution is located.

But, as noted above, while available COVID-19 vaccines provide significant protection to the recipient against severe illness and death from COVID-19 disease, their ability to prevent transmission is limited[38]. This matters because it is directly related to the strength of the public health case in favor of COVID-19 vaccine mandates for HCWs. We will assume with others that the most compelling kind of public health argument focuses on preventing harm to third parties or producing various public goods[39]. Such arguments are especially compelling because they are consistent with what has come to be known as 'the harm principle,' which states that restricting individual liberty is justifiable only if doing so prevents harm to third parties. Even if one does not endorse the harm principle, however, liberal theories of political morality tend to be hostile to purely paternalistic justifications of policy. If our assumption is correct, then the strongest argument in favor of adopting vaccine mandates as public health interventions appeals to vaccines' ability to prevent harm to others or produce public goods such as community protection. For example, the measles, mumps, and rubella (MMR) vaccine is frequently mandated for school-aged

[38] Stokel-Walker, C. (2022). What do we know about covid vaccines and preventing transmission? *BMJ, 376*, o298. doi:10.1136/bmj.o298; Eyre, D. W., Taylor, D., Purver, M., Chapman, D., Fowler, T., Pouwels, K. B., . . . Peto, T. E. A. (2022). Effect of Covid-19 Vaccination on Transmission of Alpha and Delta Variants. *N Engl J Med, 386*(8), 744-756. doi:10.1056/NEJMoa2116597

[39] Faden, R. R., Bernstein, J., & Shebaya, S. (2020). Public Health Ethics. In *Stanford Encyclopedia of Philosophy*. (Reprinted from: July 8, 2020); Jones, M. M., & Bayer, R. (2007). Paternalism and its discontents: motorcycle helmet laws, libertarian values, and public health. *Am J Public Health, 97*(2), 208-217. doi:10.2105/AJPH.2005.083204

children, justified primarily by producing the public good of community protection or preventing direct harm to others[40]. Yet these rationales do not straightforwardly support COVID-19 vaccine mandates for HCW since COVID-19 vaccines are not nearly as effective at preventing transmission.

Second, this argument fails to make it clear why HCWs in particular should bear the burden of a vaccine mandate, relative to other populations within a community. If the public health justification for COVID-19 vaccine mandates primarily rests on reduced community transmission, then it would appear arbitrary to single out HCWs, as opposed to other workers, for vaccine mandates—unless they have a special professional obligation that entails getting vaccinated, a topic we return to below.

Third, if there were no other feasible ways to reduce COVID-19 transmission by HCWs, then vaccine mandates could be justified on public health grounds. But, in practice, there are other less intrusive non-pharmaceutical interventions (NPIs) which prevent HCWs from transmitting COVID-19, including high-quality face masks (also known as 'respirators': N95s or KN95s[41]) or improved ventilation[42]. The existence of these less intrusive options presents an additional challenge to advocating for COVID-19 vaccine mandates for HCWs from a public health ethics perspective. Policies designed to discourage "presenteeism" among HCW—i.e., coming to work when sick—can also be effective ways to limit rates of infection in the healthcare setting[43], particularly given heightened levels of presenteeism during the

[40] Hendrix, K. S., Sturm, L. A., Zimet, G. D., & Meslin, E. M. (2016). Ethics and Childhood Vaccination Policy in the United States. *Am J Public Health, 106*(2), 273-278. doi:10.2105/AJPH.2015.302952; Hadjipanayis, A., Dornbusch, H. J., Grossman, Z., Theophilou, L., & Brierley, J. (2020). Mandatory vaccination: a joint statement of the Ethics and Vaccination working groups of the European Academy of Paediatrics. *Eur J Pediatr, 179*(4), 683-687. doi:10.1007/s00431-019-03523-4

[41] Chen, J. (2022, May 13, 2022). The Best Reusable Face Masks. *The New York Times*. Retrieved from https://www.nytimes.com/wirecutter/reviews/best-cloth-face-masks/

[42] Flaxman, S., Mishra, S., Gandy, A., Unwin, H. J. T., Mellan, T. A., Coupland, H., . . . Bhatt, S. (2020). Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. *Nature, 584*(7820), 257-261. doi:10.1038/s41586-020-2405-7

[43] Edmond, M. B. (2019). Mandatory Flu Vaccine for Healthcare Workers: Not Worthwhile. *Open Forum Infect Dis, 6*(4), ofy214. doi:10.1093/ofid/ofy214

COVID-19 pandemic[44]. Given that these NPIs are less intrusive than a COVID-19 vaccine mandate and given the limited efficacy of the COVID-19 vaccine in preventing transmission, then the least restrictive alternative requirement and the Nuffield Ladder imply that we should favor NPIs over a mandate for HCWs.

2.3 The Utility of HCWs in Promoting Public Health

Aside from achieving a public good such as community protection or reduced transmission, it could be argued that the indispensability of HCWs in promoting public health justifies imposing a vaccine mandate on them. According to this defense, protecting HCWs against COVID-19 provides societal value by enabling them to continue caring for and treating other COVID-19 patients. This argument avoids the previous objections because even though COVID-19 vaccines do poorly at preventing transmission to third parties, the vaccines *do* meaningfully protect the recipient of the vaccine.

Importantly, according to this argument, HCWs are not merely being protected for their own sake, but also due to broader considerations of social utility[45]. In other words, shortages of medical staff risk deprive COVID-19 patients and other patients of medical care. Since HCWs are especially valuable in contributing to a public's health during a pandemic in this respect, we cannot afford any illness among them. On this view, a COVID-19 vaccine mandate for HCWs is justified because it would ensure that fewer HCWs get sick, which promotes social utility by ensuring their ability to help care for others[46]. In

[44] Eisen, D. (2020). Employee presenteeism and occupational acquisition of COVID-19. *Med J Aust, 213*(3), 140-140 e141. doi:10.5694/mja2.50688
[45] Hearn, J. D. (2013). Social Utility and Pandemic Influenza Triage. *Medicine and Law, 32*, 177-190. Retrieved from https://heinonline.org/HOL/LandingPage?handle=hein.journals/mlv32&div=21&id=&page=%20DOI
[46] ÇİFtÇİ, M. (2022). The Increase in the Social Utility of the Geriatric Population Gained from the Human Health Workers during the Pandemic. *Konuralp Tıp Dergisi*. doi:10.18521/ktd.1059885

reply, however, appealing to the social utility of vaccinating HCWs has troubling implications in two respects.

First, promoting social utility at the cost of HCW autonomy serves as a concerning foundation for other policies. For instance, employers might require HCW to take medication in order to work longer hours, mandate that they eat healthy diets, or take other steps to maximize their efficacy. Though the logistical challenges to these policies are presumably greater than successfully implementing a vaccine mandate for HCWs, many would think that this would be objectionable—even if those logistical impediments did not exist—in virtue of their intrusiveness and pervasiveness. That is, even if we could regulate HCWs through multiple avenues to maximize their work productivity—and thereby maximize their social utility, respect for individual choice, and affording HCWs choice over their bodies count against such policies.

Second, requiring HCWs to make decisions about whether to undergo medical interventions in order to ensure that they are maximally useful would arguably be a failure of respect for their capacity for autonomous choice, especially when HCWs do not wish to get vaccinated[47]. To mandate vaccines in the face of opposition in order to maximize HCW's productivity would be a case of treating them like tools that society uses to accomplish collective goals rather than respecting HCWs as persons who are especially valuable during a pandemic[48].

3. Professional Ethics Arguments in Support of COVID-19 Vaccine Mandates

[47] Kates, O. S., Stock, P. G., Ison, M. G., Allen, R. D. M., Burra, P., Jeong, J. C., . . . Wall, A. (2022). Ethical review of COVID-19 vaccination requirements for transplant center staff and patients. *Am J Transplant, 22*(2), 371-380. doi:10.1111/ajt.16878

[48] ÇİFtÇİ, M. (2022). The Increase in the Social Utility of the Geriatric Population Gained from the Human Health Workers during the Pandemic. *Konuralp Tıp Dergisi*. doi:10.18521/ktd.1059885

A distinct way to justify a COVID-19 vaccine mandate for HCWs involves invoking the professional ethical obligations of HCWs rather than simply appealing to the permissions of government to promote population health. The basic argumentative strategy involves the following claims: (i) HCWs have professional ethical obligations to care for and protect their patients; (ii) these obligations require HCWs to get vaccinated; and (iii) these obligations may be enforced in the form of requiring HCWs to get vaccinated. We agree with (i)—HCWs do have special obligations of the relevant sort. We will grant (iii)—that if HCWs' professional obligations implied an obligation to get vaccinated against certain diseases like COVID-19, then a COVID-19 vaccine mandate for HCW could be justifiably enforced against them. Moreover, this argumentative strategy avoids some of the problems that emerged in the previous section. For instance, the appeal to obligations of HCWs can explain why HCWs, in particular, should be subject to mandates rather than subjecting lots of different kinds of workers to vaccine mandates; that is, by appealing to the obligations of HCWs, defenders of mandates can avoid the charge of arbitrariness.

We argue, however, that many HCWs who refuse COVID-19 vaccination do not straightforwardly violate their professional obligations—that is, we deny (ii). In this section, we unpack three considerations associated with HCW obligations that could serve as the basis for institutionally implementing a COVID-19 vaccine mandate for HCW: (1) duties of beneficence (2); duties of nonmaleficence; and (3) doing one's fair share in a public health crisis. We suggest that none of these three considerations decisively establishes an obligation to get vaccinated on the part of HCWs. In other words, the claim that COVID-19 vaccine mandates for HCWs are merely the policy-enforcement mechanism of HCWs' professional obligation is weaker than it might appear—because we have grounds to doubt the relevant obligation exists.

3.1 Duties of Beneficence

Healthcare systems, and HCWs, have special obligations to *promote* patient interests[49], a duty often thought to have its source in requirements of beneficence[50]. Mandatory vaccination policies for HCWs have been justified, in part, by the claim that HCWs have the professional duty to "prioritize patients' interests above all else[51]. Infecting patients surely does not promote patient interests. And some vaccines, like the hepatitis B vaccine, prevent disease transmission very effectively—and thus this rationale applies straightforwardly[52]. Vaccine mandates, both in the medical context and more generally, are often justified by the protection they afford others[53]. If HCWs themselves get sick due to a failure to take precautions, they become unable to promote patient interests. So, an obligation to get vaccinated, and employer-enforced mandates would seem to be favored by the HCWs' duty of beneficence.

However, in practice, HCWs are not literally bound to 'prioritize patients' interests above all else'. Such a duty would be very demanding, and the duty of beneficence on the part of HCWs is not usually thought to be demanding in this way[54]. There are limits to duties of beneficence because the interests and wellbeing of HCWs matter, too[55]. We have previously argued that vaccine mandates, particularly COVID-19 vaccine mandates, can set back the interests, values, or wellbeing of HCWs by potentially depriving HCWs of employment on the basis of their choice about their own body or consent to undergoing a

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[49] Turnbull, J. E., & Morath, J. M. (2005). *To Do No Harm: Ensuring Patient Safety in Health Care Organizations*: Jossey-Bass AHA Press.
[50] Beauchamp, T., & Childress, J. (2013). *Principles of Biomedical Ethics* (7th Edition ed.): Oxford University Press.
[51] Gur-Arie, R., Jamrozik, E., & Kingori, P. (2021). No Jab, No Job? Ethical Issues in Mandatory COVID-19 Vaccination of Healthcare Personnel. *BMJ Glob Health, 6*(2). doi:10.1136/bmjgh-2020-004877
[52] Lavanchy, D. (2005). Worldwide epidemiology of HBV infection, disease burden, and vaccine prevention *Journal of Clinical Virology, 34*. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S1386653205003847
[53] Navin, M. C., & Attwell, K. (2019). Vaccine mandates, value pluralism, and policy diversity. *Bioethics, 33*(9), 1042-1049. doi:10.1111/bioe.12645
[54] Beauchamp, T., & Childress, J. (2013). *Principles of Biomedical Ethics* (7th Edition ed.): Oxford University Press.
[55] Gur-Arie, R., Jamrozik, E., & Kingori, P. (2021). No Jab, No Job? Ethical Issues in Mandatory COVID-19 Vaccination of Healthcare Personnel. *BMJ Glob Health, 6*(2). doi:10.1136/bmjgh-2020-004877

medical intervention, or exacerbating injustices. Accordingly, a beneficence-based defense of mandates needs to show that getting vaccinated advances patient interests so much that considerations of beneficence outweigh the considerations that count against a mandate.

If vaccination was the only intervention available to protect patients against the COVID-19 illness or ensure that HCWs remained healthy enough to promote patient interests, then it would be much more plausible that the interests of HCWs would be outweighed by their professional obligations of beneficence. However, this is not the case (as of writing), particularly given, as discussed above, that COVID-19 vaccines do not currently provide sterilizing protection to third parties against SARS-CoV-2 infection, and subsequent COVID-19 illness[56]. Since we have seen that HCWs can adopt alternative interventions to protect themselves and patients, then the argument that HCWs have a beneficence-based obligation to get vaccinated against COVID-19 becomes less plausible. This is because while beneficence requires promoting patient interests, it does not typically require one particular action that does so when there are many actions that could have similar effects[57]. Accordingly, if one can promote one's patient's interests through alternatives to getting vaccinated, then it becomes less plausible that beneficence alone generates an obligation to get vaccinated.

An argument in favor of COVID-19 vaccine mandates that appeals to HCWs' duties of beneficence, then, must show that taking other precautions, such as using PPE, do not sufficiently reduce disease transmission in the healthcare setting. While we do not claim that such an argument cannot be made, it seems that there are reasons to doubt that properly using PPE without getting vaccinated violates duties of beneficence to patients. After all, as mentioned above, the proper use of PPE *does* provide significant

[56] CDC. (2022, March 29, 2022). Omicron Variant: What You Need To Know. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/variants/omicron-variant.html
[57] Beauchamp, T., & Childress, J. (2013). *Principles of Biomedical Ethics* (7th Edition ed.): Oxford University Press.

protection from SARS-CoV-2 to patients[58]. So, while considerations of beneficence may count in favor of COVID-19 vaccine mandates, we argue that beneficence does not support mandates as strongly as others claim[59]. HCWs who refuse COVID-19 vaccination do not straightforwardly violate an obligation of beneficence, nor is it clear that considerations of beneficence outweigh the considerations that count against a mandate.

A different rationale that often gets mentioned that naturally aligns with beneficence is that HCWs have an obligation to 'set a good example' for their patients—and for society at large. By getting vaccinated, HCWs set a good example, and by refusing to get vaccinated, they set a bad example for the rest of the population[60].

Yet we find this rationale unconvincing as grounds for a mandate for HCWs for two reasons.

First, even if HCWs should set a good example for their patients or for others in the community by getting vaccinated, it is not at all clear that mandating COVID-19 vaccination for HCWs would be consistent with their ability to set a good example in this way. After all, if the COVID-19 vaccine mandate is public knowledge (as was the vaccine mandate issued by the U.S. federal government), then others will have reason to believe that many HCWs got vaccinated because they were required to do so.

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[58] Suzuki, T., Hayakawa, K., Ainai, A., Iwata-Yoshikawa, N., Sano, K., Nagata, N., . . . Ohmagari, N. (2021). Effectiveness of personal protective equipment in preventing severe acute respiratory syndrome coronavirus 2 infection among healthcare workers. *J Infect Chemother, 27*(1), 120-122. doi:10.1016/j.jiac.2020.09.006; Karlsson, U., & Fraenkel, C. J. (2020). Complete protection from covid-19 is possible for health workers. *BMJ, 370*, m2641. doi:10.1136/bmj.m2641; Binder, L., & Favret, B. (2017). Closing the Gap Between Health Care Worker and Patient Safety. *American Journal of Medical Quality, 32*(6), 679-681.

[59] Kates, O. S., Stock, P. G., Ison, M. G., Allen, R. D. M., Burra, P., Jeong, J. C., . . . Wall, A. (2022). Ethical review of COVID-19 vaccination requirements for transplant center staff and patients. *Am J Transplant, 22*(2), 371-380. doi:10.1111/ajt.16878; Emanuel, E. J., & Skorton, D. J. (2021). Mandating COVID-19 Vaccination for Health Care Workers. *Annals of Internal Medicine, 174*(9), 1308-1310. doi:https://doi.org/10.7326/M21-3150

[60] Ibid

HCWs' decision to get vaccinated was not a matter of personal choice. And the belief that HCWs got vaccinated due to the vaccine mandate may be attributed (wrongly) even to those HCWs who would have freely chosen to do so. As such, a vaccine mandate may actually *undercut* the HCWs ability to set a good example by getting vaccinated.

Second, we think that HCWs have already set an extraordinary example during the COVID-10 pandemic. Accordingly, it is implausible to claim that an unvaccinated HCW violates an obligation to set a good example—despite sacrificing time, money, and emotional well-being to care for patients. We do not deny that by getting vaccinated against COVID-19, this HCW might set a *better* example. But we doubt that a HCW violates a coercively enforceable obligation to set a good example if they do not, when it comes to every choice about their bodies, choose in the way that sets the best example for their patients.

3.2 Duties of Nonmaleficence

A similar but distinct argument aimed at establishing an enforceable obligation of HCWs to get vaccinated focuses on the principle of nonmaleficence, i.e., that medical professionals "ought not to inflict evil or harm"[61]. The obligation to do no harm involves a strict prohibition on conduct that would harm patients. Infecting a patient with a deadly disease certainly seems to amount to harming them. The appeal to nonmaleficence, then, could justify mandates by claiming that going unvaccinated violates an enforceable obligation to not impose (risk) of harm on patients. As a result, in this view, mandates are justifiable.

[61] Beauchamp, T., & Childress, J. (2013). *Principles of Biomedical Ethics* (7th Edition ed.): Oxford University Press.; Bradfield, O. M., & Giubilini, A. (2021). Spoonful of honey or a gallon of vinegar? A conditional COVID-19 vaccination policy for front-line healthcare workers. *J Med Ethics*. doi:10.1136/medethics-2020-107175

This argument from nonmaleficence might seem more promising than the argument from beneficence because it avoids two complications that arose for the latter. Recall one concern with the argument from beneficence arose because the duty of beneficence has limits, limits established by the interests and wishes of HCWs. HCWs do not have to do everything they can to promote patient interests. But if we understand vaccine-refusal as actively harming patients rather than failing to promote patient interests, the ethical case for a mandate seems stronger. That is, if one's action harms others, then defending that action by appealing to the promotion of one's own interests seems less compelling. Indeed, ethicists and political philosophers often claim that harm-prevention constitutes a more compelling ground for the existence of an enforceable obligation than, say, ensuring people fulfill their duties to promote the interests of others[62]. Accordingly, the duty of non-maleficence appears more promising than the argument from beneficence at grounding an (enforceable) obligation to get vaccinated on the part of HCWs.

Second, recall that duties of beneficence can be fulfilled in multiple ways. This counted against thinking that beneficence obligates HCWs to get vaccinated specifically, since HCWs can perform many actions that promote patient interests. Non-maleficence, on the other hand, seems like the right kind of principle to justify an obligation to get vaccinated because the principle of nonmaleficence is well-suited to strictly prohibiting specific types of actions that cause harm[63]. So, if one wishes to prohibit the action of going unvaccinated because going unvaccinated imposes risk of harm, then appealing to the duty of nonmaleficence seems more promising than duties of beneficence.

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[62] Gur-Arie, R., Jamrozik, E., & Kingori, P. (2021). No Jab, No Job? Ethical Issues in Mandatory COVID-19 Vaccination of Healthcare Personnel. *BMJ Glob Health, 6*(2). doi:10.1136/bmjgh-2020-004877; Mill, J. S. (1859). *On Liberty*.

[63] Beauchamp, T., & Childress, J. (2013). *Principles of Biomedical Ethics* (7th Edition ed.): Oxford University Press.; Willyard, C. (2022, February 2, 2022). What the Omicron wave is revealing about human immunity. Retrieved from https://www.nature.com/articles/d41586-022-00214-3

Two initial complications arise for this nonmaleficence-based defense of COVID-19 vaccine mandates for HCWs. First, as we have noted, COVID-19 vaccines do not effectively prevent viral transmission, particularly in the face of the Omicron variant[64]. As a result, both vaccinated and unvaccinated HCWs impose COVID-19 transmission risk onto their patients[65]. Second, the sorts of paradigmatic cases prohibited by the principle of nonmaleficence involve intentionally causing actual harm to a patient. Vaccine-refusal by HCWs typically does not resemble this sort of paradigm case. Instead, it appears that HCWs impose *risk* of harm on a patient and do so *unintentionally*. If vaccine-refusal violates the principle of nonmaleficence, it does so in virtue of being negligent.

According to one prominent view, negligence in this context involves "conduct that falls below a standard of due care that law or morality establishes to protect others from careless imposition of risks"[66]. Being unvaccinated but using PPE and taking other precautions does not appear to violate a standard of due care -- as a result, the appeal to nonmaleficence involves arguing that going unvaccinated violates a *moral* standard of due care.

As noted, HCWs that use PPE appropriately can provide significant protection to patients[67]. Like the argument from beneficence, the argument from nonmaleficence seems to rest on the claim that by using PPE but going unvaccinated, this imposes unacceptable risk on patients. In general, it's difficult to

[64] Willyard, C. (2022, February 2, 2022). What the Omicron wave is revealing about human immunity. Retrieved from https://www.nature.com/articles/d41586-022-00214-3

[65] Bergwerk, M., Gonen, T., Lustig, Y., Amit, S., Lipsitch, M., Cohen, C., . . . Regev-Yochay, G. (2021). Covid-19 Breakthrough Infections in Vaccinated Health Care Workers. *N Engl J Med*. doi:10.1056/NEJMoa2109072; Franco-Paredes, C. (2022). Transmissibility of SARS-CoV-2 among fully vaccinated individuals. *The Lancet Infectious Diseases, 22*(1). doi:10.1016/s1473-3099(21)00768-4

[66] Beauchamp, T., & Childress, J. (2013). *Principles of Biomedical Ethics* (7th Edition ed.): Oxford University Press.

[67] Suzuki, T., Hayakawa, K., Ainai, A., Iwata-Yoshikawa, N., Sano, K., Nagata, N., . . . Ohmagari, N. (2021). Effectiveness of personal protective equipment in preventing severe acute respiratory syndrome coronavirus 2 infection among healthcare workers. *J Infect Chemother, 27*(1), 120-122. doi:10.1016/j.jiac.2020.09.006

decisively show that a certain kind of failure to prevent all risks rises to the level of moral negligence—as Beauchamp and Childress argue, "A substantial question...remains about the lengths to which physicians, employers, and others must go to avoid or to lower risks—a problem in determining the scope of obligations of nonmaleficence"[68]. Just as an appeal to promoting patient interests does not clearly outweigh a HCW's autonomy to get vaccinated or not, an appeal to nonmaleficence does not straightforwardly condemn vaccine-refusal as negligent, especially since HCWs can take—and are typically required to take—other protective precautions.

Just as with duties of beneficence, duties of nonmaleficence count in favor of vaccine mandates since widespread vaccination would provide meaningful additional protection to patients. Nonetheless, it is less clear that the considerations of nonmaleficence outweigh the considerations against a mandate, given other precautions HCWs already take and are required to take.

3.3 Fairness-Based Arguments

Perhaps it could be argued that HCWs have professional obligations of fairness to do their part in the broader effort to combat the COVID-19 pandemic by getting vaccinated. Rather than focusing on obligations to particular patients, that is, we might think that HCWs have an obligation to the public at large. On this line of argument, then, a COVID-19 vaccine mandate would simply be a way of requiring HCWs to do what they are already obligated to do, by considerations of fairness.

Various public health ethicists have advanced a general version of this "fair share" consideration, arguing in particular that getting oneself vaccinated or one's children vaccinated involves doing one's fair share in

[68] Beauchamp, T., & Childress, J. (2013). *Principles of Biomedical Ethics* (7th Edition ed.): Oxford University Press.

producing the public good of community protection[69]. Just as individuals have obligations to do their fair share in paying for other public goods (such as clean air, clean water, or national defense), individuals also have an obligation to do their fair share in producing the public good of community protection against an infectious disease. While we have seen reasons to doubt that a COVID-19 vaccine mandate for HCWs would suffice for SARS-CoV-2 herd immunity, one might assume that getting vaccinated contributes various other collective benefits relevant to combating the pandemic.

However, as alluded to in 2.2, if the obligation to do one's fair share simply appeals to an obligation owed to the rest of one's community, then this argument has little to do with the *professional* obligations of HCWs. The argument that defends a mandate for HCWs by appealing to professional obligations, by contrast, appeals to a particular obligation of HCWs. This distinction matters because it would be problematic to justify a mandate for HCWs specifically by appealing to a general obligation of fairness. By analogy, citizens might have an enforceable obligation of fairness to pay their taxes[70]. Appealing to general obligations of fairness to justify a COVID-19 vaccine mandate for HCWs alone would be akin to insisting that hospitals should take steps to ensure that HCWs pay their taxes instead of the relevant governmental body. If successful, the argument from doing one's fair share in producing the collective benefit of community protection immunity justifies a universal mandate implemented by the government, but such an argument does not justify a COVID-19 mandate for HCWs. in particular.

A distinct 'fair shares' argument avoids this problem by directly appealing to the professional obligations of HCWs. In the wake of the HIV/AIDS epidemic, some bioethicists argued that various HCWs owe it to

[69] Giubilini, A., Douglas, T., & Savulescu, J. (2017). Liberty, Fairness and the 'Contribution Model' for Non-medical Vaccine Exemption Policies: A Reply to Navin and Largent. *Public Health Ethics, 10*(3), 235-240. doi:10.1093/phe/phx014; Bernstein, J. (2021). Anti-Vaxxers, Anti-Anti-Vaxxers, Fairness, and Anger. *Kennedy Inst Ethics J, 31*(1), 17-52. doi:10.1353/ken.2021.0003

[70] Giubilini, A. (2019). *The Ethics of Vaccination*: Palgrave Macmillan.

society to take on certain risks or burdens during public health crises[71]. The basic idea is that because HCWs, particularly doctors, benefit from their position in numerous ways—as well-paid, high-status, or as highly educated recipients of society's collective knowledge—they have obligations to take on significant burdens during public health crises. Such burdens include taking on risk and working longer hours, for example. In the context of the COVID-19 pandemic, then, one might think that it's only fair that HCWs get vaccinated, as part of their professional obligation to do their part in combatting the pandemic.

Two replies warrant discussion. First, this argument—like the argument from beneficence or the argument from non-maleficence—works better for some HCWs than others. Not all HCWs who encounter patients enjoy high social status and salaries—especially technicians, nurses, custodial staff, vendors, and other non-clinical essential workers[72]. This complication does not show that *no* HCWs have the relevant obligation to do one's fair share in response to a pandemic, but it complicates who, exactly, has the relevant obligation—if the fair shares argument succeeds.

Second, and more fundamentally, we should question whether HCWs who refuse COVID-19 vaccination violate an obligation of fairness. HCWs have worked hours under conditions of exceptional risk throughout the COVID-19 pandemic[73]. HCWs are burned out[74]. In many cases, institutions have failed to

[71] Arras, J. D. (1988). The Fragile Web of Responsibility: AIDS and the Duty to Treat. *The Hastings Center Report, 18*(2), 10-20. Retrieved from https://www.jstor.org/stable/3562421
[72] Gur-Arie, R., Berger, Z., & Rubinstein Reiss, D. (2021). COVID-19 Vaccine Uptake Through the Lived Experiences of Health Care Personnel: Policy and Legal Considerations. *Health Equity, 5*(1), 688-696. doi:10.1089/heq.2021.0027
[73] Gur-Arie, R., Berger, Z., & Rubinstein Reiss, D. (2021). COVID-19 Vaccine Uptake Through the Lived Experiences of Health Care Personnel: Policy and Legal Considerations. *Health Equity, 5*(1), 688-696. doi:10.1089/heq.2021.0027; Papoutsi, E., Giannakoulis, V. G., Ntella, V., Pappa, S., & Katsaounou, P. (2020). Global burden of COVID-19 pandemic on healthcare workers. *ERJ Open Research, 6*(2). doi:10.1183/23120541.00195-2020
[74] Shreffler, J., Huecker, M., & Petrey, J. (2020). The Impact of COVID-19 on Healthcare Worker Wellness: A Scoping Review. *Western Journal of Emergency Medicine, 21*(5). doi:10.5811/westjem.2020.7.48684

provide proportionate and necessary support[75]. One could argue that such lack of support has resulted in significantly increased burdens for HCW, burdens to which they would not have been exposed to, had they been both institutionally and systematically protected (84). As a result, it seems implausible to claim that HCWs who refuse vaccination violate an obligation to 'do their part' during a public health emergency.

We have considered a variety of defenses of mandates for HCWs, and these defenses vary along two dimensions. First, some arguments primarily appeal to the permission of governments. Other arguments, by contrast, ground vaccine mandates in the professional ethical obligations of HCWs. Second, some arguments focus on how vaccine mandates will promote public health. Other arguments focus more on how vaccine mandates will protect particular patients under the care of HCWs. Viewed through this twofold division, there are four kinds of arguments in defense of vaccine mandates, which we surveyed in the sections listed below:

	Permission of government to issue mandates	**Obligation of Healthcare Workers**
To promote or protect patient health	n/a	Section 3.1, 3.2
To promote or protect public health	Section 2	Section 3.3

[75] Mehta, S., Machado, F., Kwizera, A., Papazian, L., Moss, M., Azoulay, É., & Herridge, M. (2021). COVID-19: a heavy toll on health-care workers. *The Lancet Respiratory Medicine, 9*(3), 226-228. doi:10.1016/s2213-2600(21)00068-0

It's worth highlighting that one could certainly develop additional arguments that fit within this schema. Nonetheless, we have articulated obstacles for several prominent arguments that have been made or that could easily be made in defense of mandates that draw on permissions of governments or obligations of HCWs, and that appeal to the interests of patients or populations.

4. PPE and Institutional Responsibilities

One of our central objections to the current ethical justification of COVID-19 vaccine mandates among HCWs appeals to the availability and adoption of less-restrictive interventions, such as PPE. PPE provides considerable protection to HCWs and patients[76]. Yet, there have been PPE shortages throughout the COVID-19 pandemic for HCWs[77]. Accordingly, one might have misgivings about earlier arguments which assume HCWs have access to PPE.

COVID-19 vaccines in the United States are currently widely available for all adults, including HCW[78]. Simultaneously, existing COVID vaccines are an effective pharmaceutical intervention in reducing the severity of COVID-19 infection[79]. As a result, one might claim that, in PPE-scarce contexts, mandates could be justifiable, as the sole "best available" disease prevention intervention.

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[76] Torjesen, I. (2020). Covid-19: Appropriate PPE prevents infections in doctors in frontline roles, study shows. *BMJ, 369*, m2330. doi:10.1136/bmj.m2330

[77] Jacobs, A. (2020, December 20, 2020). Health Care Workers Still Face Daunting Shortages of Masks and Other P.P.E. *The New York Times*. Retrieved from https://www.nytimes.com/2020/12/20/health/covid-ppe-shortages.html

[78] CDC. (2021). COVID-19 Vaccinations in the United States COVID-19 Data Tracker: Centers for Disease Control and Prevention. Retrieved from https://covid.cdc.gov/covid-data-tracker/#vaccinations

[79] Lin, D. Y., Gu, Y., Wheeler, B., Young, H., Holloway, S., Sunny, S. K., . . . Zeng, D. (2022). Effectiveness of Covid-19 Vaccines over a 9-Month Period in North Carolina. *N Engl J Med,*

We find this rationale troubling. We assume that when feasible, employers and healthcare systems should ensure that HCWs have adequate access to PPE[80]. Moreover, we assume that requiring HCWs to use PPE is less restrictive than requiring them to use PPE *and* get vaccinated. If these assumptions are correct, the defense of mandates that appeals to inadequate PPE for HCWs would effectively amount to the following argument: because healthcare institutions have failed to secure the entitlements of HCWs to safer working conditions (in the form of PPE), the government may implement a liberty-restricting policy measure (vaccine mandate). Yet this argument strikes us as worrisome. We should not justify a more intrusive requirement—a COVID-19 vaccine mandate for HCWs—simply on the grounds that healthcare institutions have failed to provide HCWs with protection to which they're professionally entitled.

This issue highlights concerns about institutional responsibility[81]. A COVID-19 vaccine mandate for HCWs would, presumably, ensure that many more employees get vaccinated. Mandatory vaccination campaigns targeted at HCWs, like for seasonal influenza vaccines, can raise vaccine uptake to above 94%[82]. However, a mandate involves leading with the stick, not the carrot. It is important to consider that by defaulting to the most intrusive intervention (i.e., COVID-19 vaccine mandate), governments effectively make healthcare institutions adopt an adversarial stance towards their HCWs, instead of striving to empower them.

386(10), 933-941. doi:10.1056/NEJMoa2117128; Liu, J., Chandrashekar, A., Sellers, D., Barrett, J., Jacob-Dolan, C., Lifton, M., . . . Barouch, D. H. (2022). Vaccines elicit highly conserved cellular immunity to SARS-CoV-2 Omicron. *Nature, 603*(7901), 493-496. doi:10.1038/s41586-022-04465-y

[80] Schuklenk, U. (2020). What healthcare professionals owe us: why their duty to treat during a pandemic is contingent on personal protective equipment (PPE). *J Med Ethics, 46*(7), 432-435. doi:10.1136/medethics-2020-106278

[81] Oliver, D. (2021). David Oliver: Lack of PPE betrays NHS clinical staff. *BMJ, 372*, n438. doi:10.1136/bmj.n438

[82] Pitts, S. I., Maruthur, N. M., Millar, K. R., Perl, T. M., & Segal, J. (2014). A systematic review of mandatory influenza vaccination in healthcare personnel. *Am J Prev Med, 47*(3), 330-340. doi:10.1016/j.amepre.2014.05.035

Nonetheless, we acknowledge that this line of argument could be outweighed if institutions truly could not provide sufficient PPE, or if doing so were prohibitively expensive. In other words, while we think there are good reasons to think employers should provide employees with PPE, mandates could be justified in contexts where PPE is truly unavailable due to a shortage. Nonetheless, we should recognize that we typically do not think that institutional failures to secure entitlements is a compelling reason for policies that require as much justification as mandates. Accordingly, more would need to be said to defend mandates on the grounds that employees lack adequate PPE.

5. Recommendations for the Ethical Implementation of COVID-19 Vaccine Mandates for HCWs

As noted earlier, policies can enjoy greater or less ethical justification; the more compelling a rationale, or the more considerations that count in favor of a policy, the greater the justification for that policy. While we do not claim that COVID-19 vaccine mandates for HCWs are, all-things-considered, ethically unjustifiable, our arguments have highlighted misgivings about many of the leading rationales for such policies. In light of these misgivings, we want to discuss two sorts of responses. First, hospitals might adopt less intrusive or liberty-restricting measures before resorting to mandates. Second, our misgivings also help to suggest some candidate conditions under which COVID-19 vaccine mandates for HCWs would enjoy greater justification than they currently do.

5.1 Less Restrictive Alternatives

Increasing COVID-19 vaccine uptake among HCW is certainly a worthwhile public health goal, but as noted, public health ethicists commonly claim that one ought to employ measures that are less intrusive or liberty-restricting before resorting to more intrusive ones. What sorts of less restrictive or intrusive

alternatives might be fruitful for accomplishing this goal? These alternatives include but are not limited to making COVID-19 vaccination free and accessible within the workplace (ideally, close to 24/7 availability, given the shiftwork nature of HCW work), implementing relevant education campaigns, and offering paid time within the shift of a HCW to both participate in education campaigns and get vaccinated. If institutions are unable to provide paid time within the framework of a HCW's already-existing work schedule, they could offer additional paid time off including childcare, so that the burden on HCW personal life and responsibilities are minimized as much as possible. Moreover, given the salient injustices discussed in §1, employers of HCW should strive to invest heightened resources and communication particularly among vulnerable and minority communities.

5.2 Conditions that Would Better Justify Mandates

We noted that arguments from professional obligations are more compelling for some HCWs than others. Accordingly, mandates are more justifiable to the extent that they target HCWs who plausibly have the relevant role obligations—prioritizing patient interests or doing one's fair share during a pandemic—rather than, say, vendors or other workers who should not be thought to have the relevant obligations.

Next, we have pointed out that the case for mandates importantly depends on the extent to which vaccines protect not just the recipient of the vaccine but also third parties. The better protection the vaccine affords to third parties, the more powerful the case that going unvaccinated violates obligations of beneficence or non-maleficence. If COVID-19 vaccines that better protect third parties against infection become available, then mandates will be more justified if they require those vaccines, in particular.

If less restrictive alternatives are implemented and HCW COVID-19 vaccine uptake remains low, the case for a mandate is strengthened. Still, as noted, mandates could disproportionately burden members of

systematically disadvantaged groups, and they could exacerbate background injustices[83]. If interventions to reduce the relevant injustices were carried out, then a COVID-19 vaccine mandate would be more ethically justifiable. Such interventions could include offering paid time off or childcare, so that taking the time to get vaccinated in accordance with the vaccine mandate is less burdensome, in at least some respects[84].

We also objected to defenses of COVID-19 vaccine mandates for HCW on the basis of PPE shortages throughout the beginning of the COVID-19 pandemic. Institutional failure to occupationally protect HCWs should not justify requiring HCWs to undergo medical intervention. Nonetheless, we can imagine circumstances in which, due to the institutional failure or incapacity to provide HCWs with PPE, patients will be exposed to higher levels of risk. Under such conditions, we realize justifications for mandate may be strengthened, despite being deeply morally unattractive in our view. In other words, while insufficient PPE or other resources given the pandemic nature of COVID-19 could justify a COVID-19 vaccine mandate for HCWs, it would be the best of several morally bad options.

Conclusions

We have canvassed several arguments that get invoked in defense of COVID-19 vaccine mandates. Vaccine mandates are among the most intrusive public health policies, and while they are quite often effective at increasing uptake, they come with trade-offs. Costs include adding additional occupational burdens to HCWs, which have already been exacerbated during the COVID-19 pandemic, diminishing

[83] Gur, R. E., White, L. K., Waller, R., Barzilay, R., Moore, T. M., Kornfield, S., . . . Elovitz, M. A. (2020). The Disproportionate Burden of the COVID-19 Pandemic Among Pregnant Black Women. *Psychiatry Res, 293*, 113475. doi:10.1016/j.psychres.2020.113475

[84] Gur-Arie, R., Berger, Z., & Rubinstein Reiss, D. (2021). COVID-19 Vaccine Uptake Through the Lived Experiences of Health Care Personnel: Policy and Legal Considerations. *Health Equity, 5*(1), 688-696. doi:10.1089/heq.2021.0027

their trust in healthcare systems and institutions, and causing a "mass-exodus" of HCWs[85]. HCW noncompliance with COVID-19 vaccine mandates leading to their termination has been documented in at least 55 hospitals across the United States[86]. While the promotion of public health, as well as clinical ethical considerations, count in favor of vaccine mandates for HCWs, we identify shortcomings with arguments that rest on these considerations to defend COVID-19 vaccine mandates, as have other scholars[87].

Should governments implement a COVID-19 vaccine mandate for HCW, as many have already, they should use their power to best support and protect all HCWs within the vaccine mandate policy. Establishing an ethical COVID-19 vaccine mandate for HCWs includes following-up with them until contact is established and their concerns are aired on an individual basis. The implementation of the vaccine mandate should establish a supportive, encouraging atmosphere for HCWs to voice their opinions, positive or negative, of any aspect of the vaccine mandate. Depending on the occupational nature of a HCW's position, institutions could tailor support on an individual level, providing both more paid time off and childcare, for example, for HCWs that need it.

HCWs have overwhelmingly shown their professional dedication throughout the COVID-19 pandemic. From an ethics perspective, governments, healthcare systems, and associated institutions should properly engage with and recognize the collective experience of HCWs before implementing a COVID-19 vaccine mandate.

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[85] Mass Exodus of US Health Care Workers Due to COVID. (2022). *Biomedical Safety & Standards, 52*(2), 15. doi:10.1097/01.BMSAS.0000817028.94785.50

[86] Gooch, K. (2022, February 17, 2022). Vaccination-related employee departures at 55 hospitals, health systems. Retrieved from https://www.beckershospitalreview.com/workforce/vaccination-requirements-spur-employee-terminations-resignations-numbers-from-6-health-systems.html

[87] Giubilini, A., Savulescu, J., Pugh, J., & Wilkinson, D. (2022). Vaccine mandates for healthcare workers beyond COVID-19. *J Med Ethics*.