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## American perspectives on COVID-19 vaccination hesitancy and refusal: Time for a new approach?

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Vaccination against SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19), has been shown to both mitigate disease transmission and durably decrease illness severity [1–3]. Even acknowledging some degree of variable efficacy between mRNA and viral vector vaccinations, available vaccines are remarkably effective on an individual basis [4]. From a broader public health perspective, the positive return on investment and overall safety of vaccination dwarfs all other healthcare interventions [5]. Despite strong cases for vaccination both at the individual and public health levels, many remain divided on the merits of vaccination, and now the battle lines between the vaccinated and unvaccinated are drawn. According to the United States Center for Disease Control (US CDC), 353.9 million vaccine doses have been administered since the US COVID-19 vaccination program began on December 14, 2020. Overall, about 196.5 million people, or 59.2% of the total U.S. population, have received at least one dose of vaccine. About 167.4 million people, or 50.4% of the total U.S. population, have been fully vaccinated at the time of writing [6]. With the pace of vaccination having tapered off before a recent surge of infections owing to the delta variant, even this renewed focus on COVID-19 does not seem to have meaningfully impacted enthusiasm for vaccination and is unlikely to have an immediate impact given the time required to develop immunological protection [7]. If the goal is to truly increase the overall rate of vaccination, we must therefore radically change what has been done up to now.

Vaccination hesitancy and refusal are underpinned by different reasons for different people. Many current arguments against vaccination have historical origins. Those engaged in this problem over 100 years ago would recognize all the political, legal, social, scientific, and ethical dilemmas present in the current moment. In the doctor-patient relationship, a patient may accept or refuse treatment according to an expression of autonomy [8]. Vaccine refusal may be an expression of autonomy on the part of a patient. In the setting of an informed choice, it would be contrary to ethical practice to compel any treatment. When the first vaccine against COVID was introduced, it was under FDA emergency use authorization and not full approval. In this circumstance, vaccine refusal might even be seen as reasonable and circumspect. Long

term effects of the vaccine cannot be known until the passage of time. What we do know, however, is the concept of an mRNA vaccine against a spike protein on the surface of a coronavirus has been considered since the outbreak of MERS and SARS [9]. Adverse reactions to COVID-19 vaccines, and to vaccines in general, do occur but have been rare. Autonomy means to rule oneself. In vaccine refusal however, the consequence is to potentially rule others by the result of the burden of disease on society, leading to a crisis of distributive justice or rationing. Vaccine acceptance and refusal can be considered under a utilitarian approach, and here the greatest good favors vaccination. In order to ultimately increase vaccination, two methods are utilized. These are by statute or legal mandates, so called “coercion,” or the use of favorable messaging through the media and public commentary, so called “persuasion.”

In 1905, the US Supreme Court upheld the constitutionality of mandatory vaccination laws in *Jacobson v. Massachusetts* [10]. At issue was whether the 14th amendment of the US constitution – “...nor shall any state deprive any person of life, liberty, or property, without due process of law...” – could be used to object to a mandatory vaccination order during a smallpox outbreak. It was observed that jurisdictions with mandatory vaccination laws had consistently fewer outbreaks than those that did not. The court was persuaded and rejected the 14th amendment claim. *Jacobson* did not empower the state to force vaccination, but it did allow the remedy to fine those who refused. Coercive laws continue to rankle those who claim a too excessive intrusion by the state over issues of individual liberty, including the raising of children. Indeed, COVID-19 vaccination mandates have already been met with legal challenges in many US jurisdictions [11]. In the 19th century, vaccination laws had no provision for opting-out, in contrast to almost all contemporary laws allowing medical, philosophical, or religious exemption.

In the 1920's the rising power of the media was used to implement persuasion to further vaccination compliance. Persuasion techniques have a broader appeal by sidestepping the thorny conflicts arising from mandates. The development of the polio vaccine in the 1950's brought more scientific vigor to persuasion techniques and created the corollary benefit to understand more fundamentally the variety of reasons behind vaccination hesitancy and refusal. What has become increasingly clear is how emotion-based appeals intended to reverse vaccine hesitancy may in fact have the opposite effect [12]. Such claims are further supported by polling, which suggests that individual-level appeals, rather than mass media, and time may be more effective at overcoming vaccine hesitancy [13]. Our cognitive biases confound our

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abilities to make sense of risk, and once a belief is entrenched, it resists new information to the contrary.

If coercion and persuasion are therefore fraught, it becomes evident that new approaches are necessary. Similarly, the factors underlying vaccine hesitancy or refusal must be elucidated and remedied on an individual level. One such potential approach would levy peer support, creating a “vaccination doula” program in which volunteers help facilitate vaccination for those that need the human support. “Doula,” from the Greek “*doulos*” for servant, models of nonmedical peer support have been successful on a number of fronts in childbirth. Such models have been associated with improvements in domains negatively impacted by the social determinants of health, such as agency, personal safety, respect, access to knowledge, and connectedness [14]. Doulas have also been associated with a reduction in non-indicated caesarian births [15]. Similarly, the vaccination doula would provide emotional and informational support around vaccination, including physical accompaniment, mindfulness, and reflection during and after vaccination. After vaccination is complete, the newly vaccinated may themselves become vaccination doulas through volunteerism. Although such a model initially targets barriers to vaccination at an individual level, it has the potential to scale through peer groups up to a community level.

According to a recent release by the American Medical Association on June 11, 2021, more than 96% of surveyed US physicians have been fully vaccinated [16]. Physicians, nurses, and other professionals working in intensive care units have been continuously engaged in the treatment of patients with COVID-19, the great majority of which are now unvaccinated [17]. The emotional toll on critical care physicians has been significant, and many express concerns about burnout and thoughts of suicide [18]. Many hoped the third wave would be the last, and although frustration among the vaccinated is understandable, criticism towards the unvaccinated based on shame, guilt, or—worst of all—*schadenfreude* (pleasure in the pain of others), will not improve the rate of vaccination. In fact, it will likely have the opposite effect. Moreover, patient blaming is an affront to the ethics of the practice of medicine. The virtue signaling of the vaccinated towards the unvaccinated can be classist, racist, and unhelpful. Instead of asking why people hesitate or refuse vaccination, we must instead reframe the question: why there is so much healthcare inequity? Why are more resources not available to manage the crisis for those most victimized? Why is the legal remedy, long established, not being applied?

What has become clear is that the current application of a coercion/persuasion model has fallen short. Currently, mandatory vaccination has not been universally applied in locations and circumstances where the most benefit may be realized. Further, little political will or public support exists to removing exemptions from vaccine mandates. Using mass media as a means of persuasion has been complicated by political polarization and erosion of the public trust. What is needed is a more effective method of persuasion that comports with the law, serves the public good, and incrementally move us towards higher vaccination rates. Instead of targeting the unwillingness of some to receive vaccination, consider the method of vaccination itself. For many, the prospect of the actual vaccination is terrifying. Simply telling someone that flying is safe does not allay the significant anxiety associated with flying.

What has been lacking in the roll-out of mass vaccination is an acknowledgement that it is actually the story of individuals. In the intensive care unit, each individual unvaccinated patient is a missed opportunity. If that particular individual had been vaccinated, they very likely would not have required critical care. The medical profession has acknowledged both by words and individual actions that vaccination is the way through this pandemic. However, we must not let compassion give way to anger and blaming. Instead, we must acknowledge

the role that social determinants of health and other causes of healthcare disparities have played in individual choices about vaccination. Beyond coercion and persuasion, compassion and peer support may be impactful at an individual, and eventually communal, level. This has always been the job of medicine after all.

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## References

- [1] Thompson MG, Burgess JL, Naleway AL, Tyner H, Yoon SK, Meece J, et al. Prevention and attenuation of Covid-19 with the BNT162b2 and mRNA-1273 vaccines. *N Engl J Med*. 2021;385(4):320–9. <https://doi.org/10.1056/NEJMoa2107058>.
- [2] Sadoff J, Gray G, Vandebosch A, Cárdenas V, Shukarev G, Grinsztejn B, et al. For the ENSEMBLE study group. Safety and efficacy of single-dose Ad26.COV2.S vaccine against Covid-19. *N Engl J Med*. 2021;384(23):2187–201. <https://doi.org/10.1056/NEJMoa2101544>.
- [3] Thomas SJ, Moreira Jr ED, Kitchin N, Absalon J, Gurtman A, Lockhart S, et al. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine through 6 months. *N Engl J Med*. 2021. <https://doi.org/10.1056/NEJMoa2110345> ePub ahead of print.
- [4] Moline HL, Whitaker M, Deng L, Rhodes JC, Milucky J, Pham H, et al. Effectiveness of COVID-19 Vaccines in Preventing Hospitalization Among Adults Aged ≥65 Years – COVID-NET, 13 States, February–April 2021. *MMWR Morb Mortal Wkly Rep*. 2021; 70(32):1088–93. <https://doi.org/10.15585/mmwr.mm7032e3>.
- [5] Rémy V, Zöllner Y, Heckmann U. Vaccination: the cornerstone of an efficient health-care system. *J Mark Access Health Policy*. 2015;3(1):27041. <https://doi.org/10.3402/jmahp.v3.27041>.
- [6] United States Centers for Disease Control and Prevention. COVID Data Tracker Weekly Review. <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview>. [accessed August 1, 2021].
- [7] Del Rio C, Malani PN, Omer SB. Confronting the Delta Variant of SARS-CoV-2, Summer 2021. *JAMA*. 2021. <https://doi.org/10.1001/jama.2021.14811> ePub ahead of print.
- [8] Beauchamp Tom L, Childress James F. Principles of biomedical ethics. New York: Oxford University Press; 1979.
- [9] Li YD, Chi WY, Su JH, Ferrall L, Hung CF, Wu TC. Coronavirus vaccine development: from SARS and MERS to COVID-19. *J Biomed Sci*. 2020;27(1):104. <https://doi.org/10.1186/s12929-020-00695-2>.
- [10] Jacobson V. Massachusetts, 197 U.S. 11, 25 S. Ct. 358, 49 L. Ed. 643; 1905.
- [11] Stephenson J. As employers and colleges introduce COVID-19 vaccine mandates, wider use “remains an open question”. *JAMA Health Forum*. 2021;2(4):e210874. <https://doi.org/10.1001/jamahealthforum.2021.0874>.
- [12] Colgrove J. Vaccine refusal revisited – the limits of public health persuasion and coercion. *N Engl J Med*. 2016;375(14):1316–7. <https://doi.org/10.1056/NEJMp1608967>.
- [13] Kirzinger A, Sparks G, Brodie M. KFF COVID-19 vaccine monitor: In their own words, Six Months Later. KFF. <https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-in-their-own-words-six-months-later/>; 2021.
- [14] Kozhimannil KB, Vogelsang CA, Hardeman RR, Prasad S. Disrupting the pathways of social determinants of health: doula support during pregnancy and childbirth. *J Am Board Fam Med*. 2016;29(3):308–17. <https://doi.org/10.3122/jabfm.2016.03.150300>.
- [15] Kozhimannil KB, Attanasio LB, Jou J, Joarnt LK, Johnson PJ, Gjerdingen DK. Potential benefits of increased access to doula support during childbirth. *Am J Manag Care*. 2014;20(8):e340–52.
- [16] American Medical Association. Physician COVID-19 Vaccination Study (Final Report). <https://www.ama-assn.org/system/files/2021-06/physician-vaccination-study-topline-report.pdf>; 2021. [accessed Aug 1, 2021].
- [17] Kates J, Dawson L, Anderson E, Rouw A, Michaud J, Singer N. COVID-19 Vaccine Breakthrough Cases: Data from the States. KFF. <https://www.kff.org/policy-watch/covid-19-vaccine-breakthrough-cases-data-from-the-states/>; 2021.
- [18] Barber C. Critical care doctors are in crisis. *Sci Am*. 2021; <https://www.scientificamerican.com/article/critical-care-doctors-are-in-crisis/>. [accessed Aug 20, 2021].