VIEWPOINT

Fairly Prioritizing Groups for Access to COVID-19 Vaccines

Govind Persad, JD, PhD
Sturm College of Law, University of Denver, Denver, Colorado.

Monica E. Peek, MD, MPH, MS
University of Chicago, Chicago, Illinois.

Ezekiel J. Emanuel, MD, PhD
Perelman School of Medicine, Department of Medical Ethics and Health Policy, University of Pennsylvania, Philadelphia.

Supplemental content

The supply of any successful vaccine for coronavirus disease 2019 (COVID-19) will initially be limited. Who should have access first? The US National Academy of Medicine (NAM) has proposed a framework for COVID-19 vaccine allocation.[1] Others have discussed distributing vaccine among countries.[2] This Viewpoint delineates how ethical values should guide prioritization of a COVID-19 vaccine among populations within the US. The discussion may be relevant to other countries as well.

In vaccine prioritization, ethics interacts with important scientific and practical questions. These include whether a vaccine will prevent SARS-CoV-2 transmission and what medical factors affect vaccine effectiveness, dosing, and durability, as well as COVID-19 infection rates and outcomes among those not vaccinated. To the extent that a vaccine does not prevent transmission, but just reduces the severity of illness, its effect and distribution should resemble therapeutics that only protect direct recipients.[3]

Three Ethical Values

Three ethical values are relevant to COVID-19 vaccine allocation (eTable in the Supplement).[2] First, benefiting people and limiting harm is a universal value. A proven safe and effective COVID-19 vaccine would directly prevent health harms including death and long-term illness. It may also indirectly alleviate socioeconomic harms like unemployment, poverty and educational deprivation.

Second, prioritizing disadvantaged populations is likewise fundamental. Disadvantage has multiple interrelated dimensions including socioeconomic deprivation and oppression, higher risk of death earlier in life, and medical vulnerability.

And third, equal concern precludes consideration of differences, such as gender, race, or religion, when doing so would not help prevent harm or prioritize disadvantaged groups. Equal concern does not support treating differently situated individuals identically or ignoring relevant differences.

NAM's proposal suggests another value: reciprocity.[1] Reciprocity recognizes past worthy conduct such as assuming risk to benefit others. In organ transplantation, reciprocity to prioritize past donors seems justified.[4] But in a public health emergency, reciprocity should be subordinate to preventing harm and prioritizing disadvantaged groups. In a pandemic context, both defining and assessing worthy conduct would be difficult and controversial.[4] Furthermore, benefits other than access to vaccines, such as reimbursement, can appropriately recognize worthy conduct.

Prioritizing Access to COVID-19 Vaccines

Vaccine distribution should focus on current and future benefits, including direct benefits to vaccinated individuals, indirect benefits to individuals protected from spread of infection, and indirect health and socioeconomic benefits to those protected from harm as health system and societal functioning improve. The 3 ethical values favor prioritizing 3 groups: health care workers; other essential workers and people in high-transmission settings; and people with medical vulnerabilities associated with poorer COVID-19 outcomes, such as diabetes, pulmonary disease, cardiac disease, and obesity.

First, prioritizing in-person health care workers and staff, as NAM and others suggest,[1,5] prevents direct harm to workers and indirect harm due to spread of SARS-CoV-2 in health care facilities. It also indirectly prioritizes disadvantaged groups because reducing disease spread facilitates the provision of treatments such as hemodialysis and chemotherapy, which disadvantaged individuals need more often.

Second, prioritizing people engaged in essential high-risk activities, such as in-person education, childcare, and food supply work, would also prevent direct harm and reduce disease spread. Additionally, in-person workers are more likely to be socioeconomically disadvantaged than those able to work remotely. Prioritization among these workers should consider indirect benefit: if vaccination of those involved in education can contribute to reopening schools, this should precede vaccination of those involved in reopening other less beneficial venues, such as bars. Similar factors also support prioritizing people in congregate housing situations, such as assisted living, where community spread is more likely.

Third, the World Health Organization (WHO) and NAM suggest prioritizing individuals whose medical conditions increase their risk of poor COVID-19 outcomes if they become infected.[1,5] This prioritizes disadvantaged groups because these conditions constitute medical vulnerabilities and correlate with socioeconomic disadvantage, and prevents harm. However, nearly 200 million individuals in the US have a high-risk condition.[1] Limited vaccine supplies will require prioritizing among these individuals, with attention to evolving data about how conditions affect COVID-19 risk and vaccine efficacy.

Prioritizing people older than 65 years without high-risk medical, work, or housing vulnerabilities, as WHO and NAM suggest (for phase 2), is ethically and legally more complex. Because early death correlates with disadvantage, prioritizing all patients 65 years and older is likely to exacerbate disadvantage.[6] For instance, 30% of all non-White COVID-19 decedents are younger than 65 vs only 13% of White decedents.[7] Although the risk of death from COVID-19 increases 7-fold between age 50 and 80, these estimates do not control for health conditions or exposure in residential settings. Prioritization should recognize that a healthy older person who can shelter in place is at different risk from a medically vulnerable older person in crowded housing.

Corresponding Author: Ezekiel J. Emanuel, MD, PhD, Perelman School of Medicine, University of Pennsylvania, Medical Ethics and Health Policy, 423 Guardian Dr, Blockley Hall, Ste 1412, Philadelphia, PA 19104 (MEHPchair@upenn.edu).

© 2020 American Medical Association. All rights reserved.

Downloaded From: https://jamanetwork.com/ Partners Healthcare System by Michael Sinha on 09/11/2020

Prioritizing all individuals 65 and older also conflicts with preventing long-term complications and preserving future life. The average life expectancy of an 80-year-old man in the US is 8 years, whereas that of a 50-year-old man is 30 years.[8] Such a prioritization is also less likely to prevent indirect harms, because advanced age reduces likelihood of working in high-transmission settings or being an essential caregiver. Differences in vaccine efficacy could also be relevant to harm prevention: for example, if vaccine efficacy declines sharply among individuals older than 80, "shielding" them by vaccinating their contacts may be preferable. Legally, the use of age 65 as a threshold for vaccine access seems inconsistent with prior Department of Health and Human Services guidance against strict age cutoffs for ventilator prioritization and organ transplantation.

NAM's proposed priority for COVID-19 research participants in vaccine trials presents more challenging issues.[1,4] Research participants are not at distinctive risk of illness or spreading infection. Thus, prioritizing participants fails to prevent harm. Prioritizing research participants also risks exacerbating disadvantage. COVID-19 vaccine studies have enrolled disproportionately few racial/ethnic minority participants, pregnant women, and people with underlying medical conditions.[9] Even if reciprocity were assigned substantial weight, it is doubtful that research participants merit more reciprocity than essential workers or those who incurred burdens by closing businesses and cancelling large gatherings to prevent superspreading events.

If prioritization for research participants is implemented despite these ethical problems, such prioritization should take a transferable form, akin to directed organ donation. With this approach, low-risk participants would nominate a higher-risk individual (such as a family member) for priority. This could prevent harm and reduce the exacerbation of disadvantage caused by prioritizing research participants.

Another misperception is that equal concern requires a lottery that gives all recipients identical chances, or chances more similar than preventing harm and prioritizing the disadvantaged would require. Lotteries are preferable to first-come, first-served or ability-to-pay allocation, which unacceptably exacerbate disadvantage.[4] But lotteries are only acceptable when other considerations are approximately equal, which is vanishingly unlikely with a COVID-19 vaccine.

Some have suggested addressing stark COVID-19 disparities by allocating vaccines according to recipients' race/ethnicity. Legally, this would likely be ruled unconstitutional. Ethically, racial identity is not an inherent risk factor. Rather, COVID-19 disparities reflect the health, environmental, and occupational effects of structural racism. A preferable approach would reduce disparities by considering vulnerabilities that, while possible for people of all races, are commonly produced by racism: working in occupations at higher COVID-19 risk or living in crowded, often segregated, residential settings that preclude social distancing. Disparities could be further reduced by avoiding prioritization strategies, such as age-based preference, that risk widening racial and socioeconomic disparities.

Conclusions

A COVID-19 vaccine should be allocated to prevent harm, prioritize people who are disadvantaged, and achieve equal treatment. This approach would support prioritizing health care workers, people in high-risk occupations and housing, and people with high-risk conditions. Since these priority populations are likely to exceed initial vaccine quantities, prioritizing within these groups will be necessary. Dividing the initial vaccine allotment into priority access categories and using medical criteria to prioritize within each category is a promising approach.[10] For instance, half of the initial allotment might be prioritized for frontline health workers, a quarter for people working or living in high-risk settings, and the remainder for others. Within each category, preference could be given to people with high-risk medical conditions. Such a categorized approach would be preferable to the tiered ordering previously used for influenza vaccines, because it ensures that multiple priority groups will have initial access to vaccines. Alongside thorough, evidence-based vaccine evaluation and approval, vaccine allocation that recognizes important ethical values and avoids arbitrariness, waste, and corruption can ensure that the rollout of an eventual COVID-19 vaccine is both fair and perceived as fair.

ARTICLE INFORMATION

Published Online: September 10, 2020. doi:10.1001/jama.2020.18513

Conflict of Interest Disclosures: Dr Persad and Dr Peek report receiving grants from the Greenwall Foundation. Dr Persad reports pay from the *ASCO Post* and previous consulting work for WHO regarding pandemic influenza guidance. Dr Peek reports receiving grants from the Merck Foundation. Dr Emanuel reported receiving personal fees, nonfinancial support, or both from companies, organizations, and professional health care meetings, and being an investment partner in Oak HC/FT.

Funding/Support: This article was partially financially supported by the Colton Foundation.

Role of the Funder/Sponsor: The Colton Foundation had no role in the preparation, review, or approval of the manuscript and decision to submit the manuscript for publication.

REFERENCES

1. National Academy of Sciences. *A Framework for Equitable Allocation of Vaccine for the Novel Coronavirus*. August 2020. Accessed September 3, 2020. https://www.nationalacademies.org/our-work/a-framework-for-equitable-allocation-of-vaccine-for-the-novel-coronavirus

2. Emanuel EJ, Persad G, Kern A, et al. An ethical framework for global vaccine allocation. *Science*. 2020;eabe2803. doi:10.1126/science.abe2803

3. Abu-Raya B, Gantt S, Sadarangani M. Challenges in evaluating SARS-CoV-2 vaccines during the COVID-19 pandemic. *CMAJ*. 2020;192(34):E982-E985. doi:10.1503/cmaj.201237

4. Persad G, Wertheimer A, Emanuel EJ. Principles for allocation of scarce medical interventions. *Lancet*. 2009;373(9661):423-431. doi:10.1016/S0140-6736(09)60137-9

5. World Health Organization. A Global Framework to Ensure Equitable and Fair Allocation of COVID-19 Products and Potential implications for COVID-19 Vaccines. June 18, 2020. https://bit.ly/32rhHPb

6. Chetty R, Stepner M, Abraham S, et al. The association between income and life expectancy in the United States, 2001-2014. *JAMA*. 2016;315(16):1750-1766. doi:10.1001/jama.2016.4226

7. Wortham JM, Lee JT, Althomsons S, et al. Characteristics of persons who died with COVID-19—United States, February 12-May 18, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(28):923-929. doi:10.15585/mmwr.mm6928e1

8. Office of the Chief Actuary, Social Security Administration. Accessed September 3, 2020. https://www.ssa.gov/oact/HistEst/CohLifeTables/2020/CohLifeTables2020.html

9. Feuerstein A, Garde D, Robbins R. Covid-19 clinical trials are failing to enroll diverse populations, despite awareness efforts. STATNEWS. August 14, 2020. Accessed September 3, 2020. https://www.statnews.com/2020/08/14/covid-19-clinical-trials-are-are-failing-to-enroll-diverse-populations-despite-awareness-efforts/

10. Pathak PA, Sönmez T, Unver MU, Yenmez MB. Leaving no ethical value behind: triage protocol design for pandemic rationing. NBER Working Paper No. 26951. April 2020. Accessed September 3, 2020. https://www.nber.org/papers/w26951

© 2020 American Medical Association. All rights reserved.

Downloaded From: https://jamanetwork.com/ Partners Healthcare System by Michael Sinha on 09/11/2020