

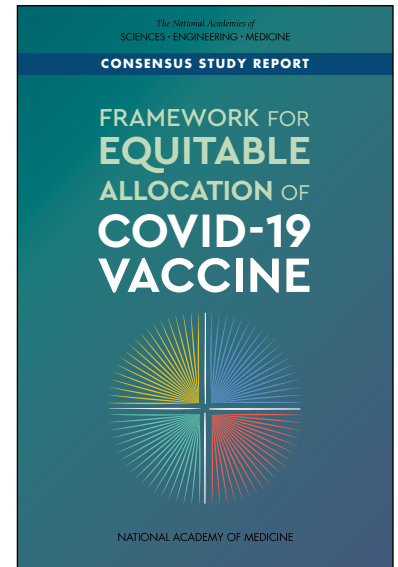


Framework for Equitable Allocation of COVID-19 Vaccine

In response to the coronavirus disease 2019 (COVID-19) pandemic and the societal disruption it has brought to people around the world, national governments and the international community have invested billions of dollars into the development of safe and effective vaccines to protect against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19. Mass vaccination against SARS-CoV-2, along with other public health strategies, offers the best opportunity to protect the public from COVID-19 by significantly reducing transmission, illness, and deaths.

Still, even if one or more COVID-19 vaccines under development are approved for use, it is unlikely that enough doses will be immediately available to vaccinate large portions of the population. Government officials who will oversee COVID-19 vaccination plans urgently need guidance on how to allocate and distribute limited vaccine supplies equitably until the global supply is sufficient to develop widespread protection against COVID-19.

To address this need, the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health asked the National Academies of Sciences, Engineering, and Medicine, in partnership with the National Academy of Medicine, to convene an ad hoc committee that would develop an overarching framework for vaccine allocation that could assist policy makers in the domestic and global health communities. The resulting report, *Framework for Equitable Allocation of COVID-19 Vaccine*, presents such a framework and discusses important implementation considerations related to coordination, cost, risk communication, community engagement, vaccine acceptance, and global allocation.



EQUITABLE ALLOCATION OF COVID-19 VACCINE

The goal of the committee's framework is to **reduce severe morbidity and mortality and negative societal impact due to the transmission of SARS-CoV-2**. The framework is intended to assist and guide the federal government and decision-making bodies, including the Advisory Committee on Immunization Practices, as well as state, tribal, local, and territorial (STLT) authorities in their COVID-19 vaccine allocation planning.

The committee also developed foundational principles that form the basis of its framework:

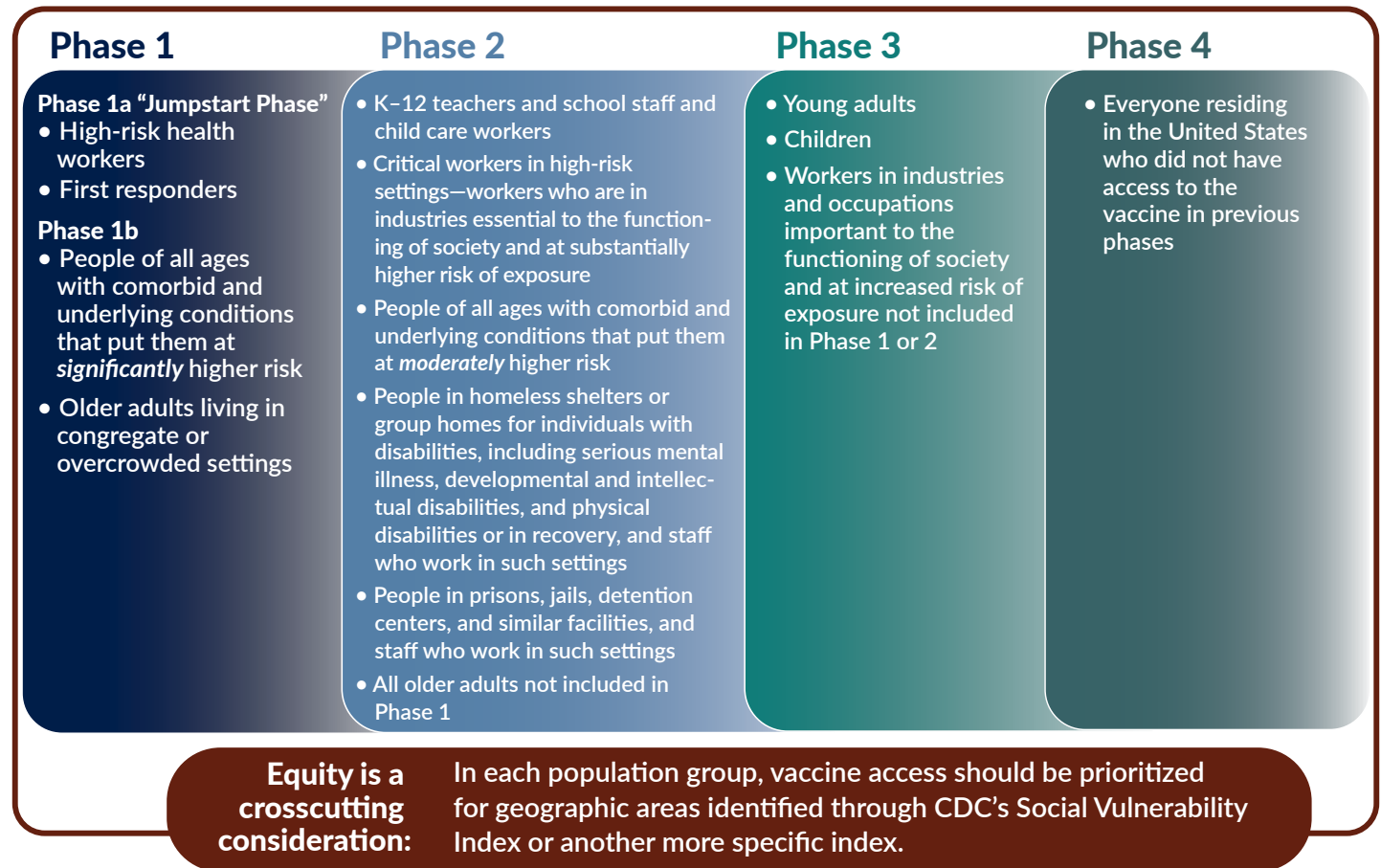
Ethical Principles: Maximum Benefit, Equal Concern, and Mitigation of Health Inequities

Procedural Principles: Fairness, Transparency, and Evidence-Based

To put these principles into practice, the committee used four risk-based criteria to set general priorities among various population groups: (1) risk of acquiring infection, (2) risk of severe morbidity and mortality, (3) risk of negative societal impact, and (4) risk of transmitting infection to others.

Current evidence shows that COVID-19 disproportionately affects particular racial and ethnic minority groups, including Black, Hispanic or Latinx, American Indian and Alaska Native, and Native Hawaiian and Pacific Islander communities. Many of these groups experience increased social risks and are impacted by structural inequalities that contribute to health inequities, along with pre-existing conditions that put them at higher risk of severe illness and death from COVID-19. Mitigating these inequities by explicitly addressing the higher burden of COVID-19 experienced by these populations is a moral imperative of any equitable vaccine allocation framework.

COVID-19 VACCINE ALLOCATION PHASES WITHIN THE FRAMEWORK



Phase 1a (approximately 5 percent of U.S. population)

Includes high-risk health workers who are involved in direct patient care, including those providing care in nursing homes and through home health care, as well as those in health care facility services, including transportation and environmental services. First responders are also included.

Phase 1b (approximately 10 percent of U.S. population)

Includes people of all ages with two or more comorbid or underlying health conditions that put them at significant risk of severe illness or death from COVID-19, defined as having two or more of the conditions listed by CDC as being associated with increased risk of severe COVID-19. Phase 1b also includes all older adults living in congregate settings, including nursing homes, long-term care facilities, prisons and group homes, and multi-generational households.

Phase 2 (approximately 30–35 percent of U.S. population)

Phase 2 includes K–12 teachers, school staff, and child care workers, a group that includes administrators, environmental services staff, maintenance workers, and school bus drivers. Also included in Phase 2 are critical workers in high-risk settings who cannot avoid a high risk of exposure to COVID-19, such as workers in the food supply system and public transit. In addition, Phase 2 covers people of all ages with comorbid and underlying conditions that put them at moderately higher risk, defined as having one of the conditions listed by CDC as being associated with increased risk of severe COVID-19. This phase also includes people in homeless shelters or group homes for individuals with physical or mental disabilities and all other individuals and staff in prisons, jails, detention centers, and similar facilities who were not included in Phase 1. All older adults not included in Phase 1 are included in this phase.

Phase 3 (approximately 40–45 percent of U.S. population)

Includes all children and young adults in the United States 30 years of age or younger. However, children are not currently included in any major vaccine trials for COVID-19 and would need to be included in these trials before mass vaccination of children could take place. Phase 3 also includes workers in industries and occupations important to the function of society and at increased risk of exposure who are not covered in Phases 1 and 2.

Phase 4

Includes all other people living in the United States. The United States should ensure that all U.S.-based individuals who did not have access to the vaccine in previous phases (and for whom the vaccine is not medically contraindicated) have access to the vaccine.

The framework includes four allocation phases of COVID-19 vaccine to the public, outlined above. Detailed discussions of each population group included in the phases, and the rationale behind their inclusion, can be found in Chapter 3 of the full report. The population groups included in each allocation phase overlap to a certain extent, and there are individuals who will fit into multiple categorizations. Given the current state of the pandemic, the early phases of the committee's proposed framework emphasize prevention of severe illness and death and maintenance of essential health and emergency services to support this goal, with a shift toward reducing transmission in later phases. **Within each phase, all groups have equal priority.**

Rather than applying discrete racial and ethnic categories to allocation phases, the allocation framework focuses on the underlying causes of health inequities that are linked to systemic racism and the social determinants of health. The committee recommends the application of a vulnerability index, such as CDC's geographic-based Social Vulnerability Index, to further prioritize population groups within each phase.

IMPLEMENTATION CONSIDERATIONS

In addition to developing a framework for COVID-19 vaccine allocation, the committee also considered key implementation issues.

Program Administration

Federal agencies, with CDC in a leading role, should provide guidance and resources to STLT authorities who will manage local allocation and distribution. To promote equity in vaccine allocation, STLT authorities will need to work with community-based partners to identify members of priority populations and ensure there are no out-of-pocket costs to the public. Effective, authentic, and meaningful engagement with community-based organizations is crucial in order to build effective vaccine delivery systems that are convenient for priority populations.

Risk Communication and Community Engagement

Coordinated, evidence-based risk communication and community engagement are essential to COVID-19 vaccination strategies. These efforts should begin immediately in order to foster community trust in any vaccine allocation plan. STLT authorities must demonstrate respect for diverse audiences, forming partnerships with community organizations that can provide the two-way communication channels needed to hear public concerns and deliver messages from trusted sources in an accessible way. Overall, public communication from the federal to the local level must pay particular attention to continuous community engagement, engagement across multiple channels, timeliness, and trustworthiness.

Addressing Vaccine Acceptance

Vaccine hesitancy is common in the United States and is on the rise. Particularly for minority communities, histories of medical research exploitation fuel understandable skepticism of vaccination. Within the U.S. population at-large, prominent messaging from anti-vaccination groups and concerns about the speed of the vaccine development process have led to wider skepticism of COVID-19 vaccines. There is no "one-size-fits-all" solution to vaccine hesitancy. Addressing this issue will require a combination of interventions, including the engagement of community leaders, mass media campaigns, and health care professional training. Federal agencies should fund research and innovation to advance the behavioral and social science of COVID-19 vaccine acceptance and develop campaigns promoting vaccine acceptance.

Global Equity in Vaccine Allocation

A failure to achieve equity in the global distribution of vaccines would ultimately fail to eliminate the risk of new outbreaks in the future. Parallel to efforts by the U.S. government, international entities are working to ensure a COVID-19 vaccine is accessible and allocated equitably worldwide. U.S. participation in these efforts would not only provide insurance in the case that currently federally funded vaccine projects are not successful but would also help prevent future global outbreaks.

OVERVIEW OF RECOMMENDATIONS

The committee issued seven recommendations for achieving equitable allocation of COVID-19 vaccine, summarized here. For the full text of the committee's recommendations, see the Recommendations insert.

- **Adopt the committee's framework for equitable allocation of COVID-19 vaccine.**
- **Leverage and expand the use of existing systems, structures, and partnerships across all levels of government and provide the necessary resources to ensure equitable allocation, distribution, and administration of COVID-19 vaccine.**
- **Provide and administer COVID-19 vaccine with no out-of-pocket costs for those being vaccinated.**
- **Create and appropriately fund a COVID-19 vaccine risk communication and community engagement program.**
- **Develop and launch a COVID-19 vaccine promotion campaign.**
- **Build an evidence base for effective strategies for COVID-19 vaccine promotion and acceptance.**
- **Support equitable allocation of COVID-19 vaccine globally.**

CONCLUDING REMARKS

This framework is intended to serve as a guide for equitable COVID-19 vaccine allocation. As evidence on the impact of COVID-19 on particular populations and best vaccination practices is likely to change over time, making adjustments to the equitable allocation framework will be the rule—not the exception—and will be dependent on real-time surveillance of all aspects of the program. Overall, the committee's framework is designed to be adaptable to a variety of circumstances, including the state of the pandemic when a vaccine becomes available. The committee's aim is that the evidence-based deliberations and policy recommendations set forth in this report contribute to society's ability to respond to and recover from the COVID-19 pandemic.

Study Sponsors

Centers for Disease Control and Prevention
National Institutes of Health

Committee on Equitable Allocation of Vaccine for the Novel Coronavirus

William Foege (*Co-Chair*)
Rollins School of Public Health, Emory University

Helene Gayle (*Co-Chair*)
The Chicago Community Trust

Margaret Brandeau
Stanford University

Alison Buttenheim
University of Pennsylvania School of Nursing

R. Alta Charo
University of Wisconsin Law School

James Childress
University of Virginia

Ana Diez Roux
Drexel Dornsife School of Public Health

Abigail Echo-Hawk
Citizen of the Pawnee Nation
Seattle Indian Health Board
Urban Indian Health Institute

Christopher Elias
Bill & Melinda Gates Foundation

Baruch Fischhoff
Carnegie Mellon University

David Michaels
Milken Institute School of Public Health,
The George Washington University

Jewel Mullen
The University of Texas at Austin Dell
Medical School

Saad Omer
Yale Institute for Global Health

Daniel Polsky
Johns Hopkins Bloomberg School of Public Health

Sonja Rasmussen
University of Florida College of Medicine

Arthur Reingold
University of California, Berkeley, School of Public Health

Reed Tuckson
Tuckson Health Connections, LLC

Michael Wasserman
California Association of Long Term Care Medicine

Study Staff

Lisa Brown
Study Director

Benjamin Kahn
Associate Program Officer

Elizabeth Finkelman
Senior Program Officer

Aurelia Attal-Juncqua
Associate Program Officer

Emma Fine
Associate Program Officer

Rebecca Chevat
Senior Program Assistant

Rose Marie Martinez
Senior Director, Board on Population Health and Public Health Practice

Andrew Pope
Senior Director, Board on Health Sciences Policy

To read the full report, please visit
nationalacademies.org/covidvaccineframework

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people's lives worldwide.

www.nationalacademies.org