

Vaccine Recommendations and Guidelines of the ACIP

Evidence Table for COVID-19 Vaccines Allocation in Phases 1b and 1c of the Vaccination Program

Question

What groups should be offered COVID-19 vaccine following Phase 1a of the COVID-19 vaccination program?

Background

Demand for COVID-19 vaccines is expected to exceed supply during the first months of the vaccination program. The ACIP COVID-19 Vaccines Work Group considered evidence related to SARS-CoV-2 epidemiology, vaccination program implementation, and ethical principles in developing the interim recommendation for allocation of COVID-19 vaccine following Phase 1a.

Allocation within Phase 1 of the COVID-19 vaccination program (post Phase 1a)

Essential workers* (non-health care)

Phase 1b – Frontline essential workers: first responders (e.g., firefighters and police officers), corrections officers, food and agricultural workers, U.S. Postal Service workers, manufacturing workers, grocery store workers, public transit workers, and those who work in the education sector (teachers and support staff members) as well as child care workers.

Phase 1c – All other essential workers: workers in transportation and logistics, water and wastewater, food service, shelter and housing (e.g., construction), finance (e.g., bank tellers), information technology and communications, energy, legal, media, and public safety (e.g., engineers), and public health workers.

Persons aged ≥ 65 years

Phase 1b – Persons aged ≥ 75 years

Persons with high-risk medical conditions

Phase 1c – Persons aged 16-64 years[†] with medical conditions that increase the risk for severe COVID-19[§]

Science

What is the burden (SARS-CoV-2 epidemiology, COVID-19 incidence, morbidity, mortality) and what are the potential harms and benefits of vaccination?

Essential workers* (non-health care)

Non-health care essential workers, who hold jobs critical to the continued functioning of society, fall along a continuum of potential occupational risk of exposure to SARS-CoV-2, the virus that causes COVID-19.¹ Frontline essential workers were defined by ACIP as the subset of essential workers likely at highest risk for work-related exposure to SARS-CoV-2 because their work-related duties must be performed on site and involve being in close proximity (<6 feet) to the public or to coworkers.

Large COVID-19 outbreaks have been reported in multiple essential industries including manufacturing, construction, wholesale trade, and animal slaughtering and processing.²⁻⁴ Several factors contribute to workplace transmission in these industries, including high-density workplaces, prolonged close contact with coworkers, congregate/crowded housing, reliance on public or shared transportation, the need to hold multiple jobs, and frequent community contact among workers.

Between March-June 2020, the Utah Department of Health documented an outbreak associated COVID-19 cumulative incidence of >300 cases per 100,000 workers in manufacturing and wholesale trade, more than 3 times the overall outbreak-associated incidence across the 15 industry sectors examined.² Among 23 states reporting COVID-19 outbreaks in meat and poultry processing facilities during April-May 2020, there were 16,233 cases in 239 facilities, including 86 (0.5%) COVID-19-related deaths.³ Among 14 states reporting the total number of workers in affected facilities, 9.1% of 112,616 workers received diagnoses of COVID-19. The percentage of workers with COVID-19 ranged from 3.1% to 24.5% per facility.³

In addition to increased occupational exposure risks, some industry and occupation groups have high percentages of demographic groups (e.g., racial and ethnic minorities and older workers) who experience a disproportionate burden of COVID-19-related morbidity and mortality.⁵ At least 15% of workers in the transit/postal/messenger/courier and trucking industries were >60 years.⁵ While Blacks comprise 12% of all workers, they are overrepresented in public transit (26%), child care/social services (19%), trucking/warehouse/Postal Service (18%), and grocery/convenience/drugstores (14%); Hispanics make up 17% of the workforce but are overrepresented in building cleaning

Several other characteristics of essential workers that increase the risk for severe COVID-19 have been described. In a limited subset of non-health care industries, obesity and hypertension were the most common conditions in every essential worker group; significantly higher rates of >1 underlying medical condition were found for transit (asthma and diabetes) and trucking (chronic obstructive pulmonary disease, obesity, and severe obesity).⁵ In addition, almost one quarter of essential workers live in low-income families.⁶

Modeling data suggest that initially vaccinating high-risk adults or essential workers in Phase 1b averts approximately 1%–5% more infections, compared to targeting persons aged ≥ 65 years, when only protection of vaccine recipients against infection (vs. transmission) is considered.⁷

Persons aged ≥ 65 years

As of December 20, 2020, approximately 1.8 million COVID-19 cases and 180,000 deaths have been reported among adults aged ≥ 65 years; this age group accounted for 14.4% of cases and 80.7% of deaths in the U.S.⁸ By age group, 863,813 cases and 134,337 deaths occurred among persons aged ≥ 75 years and 981,657 cases and 46,627 deaths occurred among those aged 65–74 years.

Adults aged ≥ 65 years had a 2.6 higher likelihood of having hospitalizations due to COVID-19 than those aged 18–44 years.⁹ Approximately 40% of COVID-19 hospitalizations occurred in persons aged ≥ 65 years. COVID-19 hospitalization rates increase with age and are highest among older adults.^{10–12} As of December 20, 2020, the cumulative COVID-19-associated hospitalization rate was 1,211 per 100,000 for persons aged ≥ 75 years and 642 per 100,000 for persons aged 65–74 years.¹³ Risk for COVID-19-associated hospitalization also increases with the number of underlying medical conditions.⁹

In an analysis of characteristics of persons who died with COVID-19 in the United States during February–May 2020, 74.8% of decedents were aged ≥ 65 years.¹⁴ COVID-19 mortality rates are also highest among older adults. Compared with persons aged 35–54 years, those aged 65–74 years have a 8 times higher risk, and those aged 75 years and older a >30 times higher risk for COVID-19 deaths.¹⁵

Modeling data suggest that initially vaccinating adults aged ≥ 65 years in Phase 1b averts approximately 1%–4% more deaths, compared to targeting high-risk adults or essential workers, when only protection of vaccine recipients against infection (vs. transmission) is considered.⁷

Persons with high-risk medical conditions

Adults of any age with certain underlying medical conditions are at increased risk for severe illness from COVID-19, which includes hospitalization, admission to intensive care



Nearly 90% of persons hospitalized for COVID-19 have an underlying medical condition, most commonly hypertension (59%), obesity (46%), metabolic disease (48%), and cardiovascular disease (34%).^{12,17} Risk for COVID-19-associated hospitalization increases with the number of underlying medical conditions; people with 1 and 3 or more underlying conditions have a 2.5 and 5 times higher risk for hospitalization due to COVID-19, respectively.⁹ In 2018, the prevalence of five underlying medical conditions with the strongest evidence of association with increased risk for severe COVID-19 was 47.2% among residents aged ≥ 18 years from $>3,100$ US counties; by individual condition, prevalence was 35.4% (obesity), 12.8% (diabetes), 8.9% (chronic obstructive pulmonary disease), 8.6% (heart disease), and 3.4% (chronic kidney disease).¹⁸ The prevalence of some high-risk conditions varies by race/ethnicity (e.g., the prevalence of diabetes and obesity are higher in Black and American Indian/Alaska Native persons compared to White persons). There is geographic disparity in the distribution of these conditions with higher prevalence in counties in the southeastern United States and in more rural counties.¹⁸

In an analysis of characteristics of persons who died with COVID-19 in the United States during February-May 2020, at least one underlying medical condition was reported for 83.1% of decedents aged <65 years.¹⁴

Modeling data suggest that initially vaccinating high-risk adults or essential workers in Phase 1b averts approximately 1%–5% more infections, compared to targeting persons aged ≥ 65 years, when only protection of vaccine recipients against infection (vs. transmission) is considered.⁷

Implementation

What is the feasibility of vaccinating this group and how does the group value and accept COVID-19 vaccination?

Essential workers* (non-health care)

Vaccine-specific storage, handling, and administration requirements may affect the feasibility of implementation. For example, vaccines that require ultra-low-temperature freezers or dry ice may limit early distribution efforts to centralized sites with necessary freezer equipment and high vaccine throughput. Vaccines that are stable at refrigerator temperatures will increase the availability of vaccination across a range of providers and community locations. Additionally, large minimum size for vaccine orders may preclude involvement of small clinics.

Reaching workers in rural locations, shift workers, those with multiple jobs or working in small cohorts may be challenging. Personal investments in time and travel to obtain vaccine may be a barrier for some essential worker groups.



micro-plans which include prioritization among non-health care essential workers when vaccine supply is limited. Jurisdictional approaches include on-site employer/occupational clinics, use of pharmacies, mobile clinics, and health department point of dispensing strike teams.

Identification of eligibility for some categories of essential workers may need to be based on self-report.

In surveys conducted in the general population, between 60% and 87% of respondents supported prioritization of early allocation of COVID-19 vaccine supply to essential non-health care workers, police/fire/rescue and teachers.¹⁻³

In a CDC-sponsored vaccine intent survey in September 2020, 60% of non-health care essential workers reported that they would likely get a COVID-19 vaccine (CDC unpublished data).

Persons aged ≥65 years

Vaccine-specific storage, handling, and administration requirements may affect the feasibility of implementation. For example, vaccines that require ultra-low-temperature freezers or dry ice may limit early distribution efforts to centralized sites with necessary freezer equipment and high vaccine throughput. Vaccines that are stable at refrigerator temperatures will increase the availability of vaccination across a range of providers and community locations. Additionally, large minimum size of vaccine orders may preclude involvement of small clinics.

Health care or medical homes, such as provider offices, or pharmacies could be better suited for vaccinating persons in this age group. Although providers may be able to store vaccines that require standard freezer or refrigerated temperatures, the minimum order size may require consolidation of locations for vaccine administration. Personal investments in time and travel to obtain vaccine may be a barrier for some people in this group.

In a survey of US adults conducted in August 2020, 71% of respondents supported early allocation of COVID-19 vaccine supply to seniors (defined as aged ≥55 years).¹ Similarly, priority vaccination of persons aged ≥65 years, or elderly was supported by 73% and 82%, respectively, of respondents in polls conducted in December 2020.^{2,3}

Persons with high-risk medical conditions

Vaccine-specific storage, handling, and administration requirements may affect the feasibility of implementation. For example, vaccines that require ultra-low-temperature freezers or dry ice may limit early distribution efforts to centralized sites with necessary freezer equipment and high vaccine throughput. Vaccines that are stable at refrigerator



community locations. Additionally, large minimum size of vaccine orders may preclude involvement of small clinics.

Determining eligibility may be challenging; health care or medical homes, such as provider offices including subspecialty providers, or pharmacies could be better suited for verifying underlying medical conditions. Although, providers may be able to store the vaccines that require standard freezer or refrigerated temperatures, the minimum order size may require consolidation of locations for vaccine administration. Personal investments in time and travel to obtain vaccine may be a barrier for some people in this group.

In surveys conducted in the general population, between 68% and 84% of respondents supported prioritization of early allocation of COVID-19 vaccine supply to persons who are high risk because of medical problems.¹⁻³

In a CDC-sponsored vaccine intent survey in September 2020, 65% of persons with ≥ 1 high risk condition reported that they would likely get a COVID-19 vaccine (CDC unpublished data).

Ethics

Does vaccinating this group advance the ethical principles for COVID-19 vaccine allocation¹:

- Maximize benefits and minimize harms
- Promote justice
- Mitigate health inequities

Essential workers* (non-health care)

Maximize benefits and minimize harms: Vaccination benefits both the individual essential worker and the population overall. These benefits include reduction of COVID-19-associated morbidity and mortality in essential workers which in turn preserves services critical for the COVID-19 response and maintenance of the overall functioning of society. The ability of essential workers to remain healthy helps to minimize social and economic disruption.

Promote justice: Vaccination addresses the elevated occupational risk for SARS-CoV-2 exposure for frontline and other essential workers who have varying levels of close interaction with the public or others in the workplace; may be unable to control social distancing in the workplace; and are unable to work from home. Working remotely is an option for some but not the majority of essential workers; e.g., 57% of employees in the financial industry can work remotely compared with 14% of those who work in transportation and utilities.¹



Equal access to vaccine will be aided by COVID-19 vaccines whose storage, handling, and administration requirements allow for distribution and use in most community settings. Vaccination, however, will require focused outreach to frontline and other essential workers to reduce access-related barriers to vaccination. Analyses of self-reported influenza and pneumococcal vaccine receipt indicate low coverage among several occupational groups (e.g., the 2013 Behavioral Risk Factor Surveillance System survey found that $\leq 25\%$ of workers in production, installation/maintenance/repair, transportation/material moving, food preparation and serving, construction/extraction, and farming/fishing/forestry occupations reported receiving influenza vaccine in the previous 12 months);² $< 25\%$ of workers 60 years and older in the construction, manufacturing, and transportation/warehousing/utilities sectors reported receiving pneumococcal vaccine in cross-sectional surveys conducted during 1997-2007).³

Mitigate health inequities: COVID-19 vaccination helps to address the disproportionate burden of COVID-19 among some racial and ethnic minorities who are overrepresented in subsets of essential workers. For example, from March through May 2020 among 5,721 food manufacturing and agriculture workers with COVID-19, 83% occurred in racial or ethnic minority groups;⁴ Hispanic and nonwhite workers accounted for 73% of workplace outbreak-associated COVID-19 cases in Utah despite representing only 24% of Utah workers in 15 affected industry sectors;⁵ and in U.S. meat and poultry processing facilities, among 9,919 COVID-19 cases with race/ethnicity information reported from April through May 2020, 87% occurred among racial and ethnic minority workers.⁶

Long-standing inequities in social determinants of health apart from occupation, such as healthcare access and utilization, education, and income, can impede management of medical conditions that increase the risk for severe COVID-19 among racial and ethnic minority groups.⁷

Persons aged ≥ 65 years

Maximize benefits and minimize harms: Persons aged 75 years and older are at high risk of COVID-19 associated morbidity and mortality and experience the highest burden of COVID-19 hospitalization. Persons aged 65-74 years are at increased risk for severe COVID-19 with high rates of hospitalization. Vaccination benefits persons in these groups by decreasing the risk of COVID-19 associated morbidity and mortality; reductions in COVID-19 associated hospitalizations can help ease the burden on strained health care systems.

Promote justice: Equal access to vaccine will be aided by COVID-19 vaccines whose storage, handling, and administration requirements allow for distribution and use in most community settings. Vaccination, however, will require focused outreach to persons ≥ 65 years who have no or limited access to health care or experience inequities in social



Mitigate health inequities: Although racial and ethnic minority groups are underrepresented among persons ≥ 65 years, some minority groups (non-Hispanic American Indian or Alaska Native, non-Hispanic Black, and Hispanic or Latino) have disproportionate COVID-19 related hospitalization and death rates.^{8,9} For example, during March 1, 2020–December 12, 2020, compared with non-Hispanic White persons aged ≥ 65 years, crude hospitalization rates were 2.1 times higher among Non-Hispanic American Indian or Alaska Native persons; 2.4 times higher among Hispanic or Latino persons; and 2.5 times higher among non-Hispanic Black persons.⁸

Adults ≥ 65 years of age are a heterogeneous population; a strict age-based criterion could inadvertently increase disparities due to racial and social inequities, such as occupation, income, and access to health care.^{10,11}

Persons with high-risk medical conditions

Maximize benefits and minimize harms: Persons with high-risk medical conditions have an increased risk of severe COVID-19 disease and associated hospitalization. Vaccination benefits persons in this group by decreasing the risk of COVID-19 associated morbidity and mortality; reductions in COVID-19 associated hospitalizations can help ease the burden on strained healthcare systems.

Promote justice: Equal access to vaccine will be aided by COVID-19 vaccines whose storage, handling, and administration requirements allow for distribution and use in most community settings. Vaccination, however, will require focused outreach to persons in this group who have no or limited access to health care or experience inequities in social determinants of health.

Mitigate health inequities: Vaccination of persons in this group addresses the increased prevalence of some high-risk medical conditions among racial and ethnic minority groups and among persons living in rural areas.

Vaccination of persons in this group could inadvertently increase health inequities because diagnosis of high-risk medical conditions requires access to health care. Members of racial/ethnic minority groups may be more likely to face barriers to obtaining affordable, high-quality health care (e.g., limited access to health insurance, transportation, and childcare).¹²



[critical-infrastructure-during-covid-19](#) ).






[†]As of December 18, 2020, only the Pfizer-BioNTech COVID-19 vaccine is authorized and may be used among persons aged 16-17 years. The Moderna COVID-19 vaccine is authorized and recommended for use among persons aged ≥ 18 years.

[§]Adults with high risk medical conditions: Adults of any age with certain underlying medical conditions are at increased risk for severe illness from the virus that causes COVID-19. Severe illness from COVID-19 is defined as hospitalization, admission to the ICU, intubation or mechanical ventilation, or death

(<https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/index.html>).

References

Science:



1. National Academies of Sciences, Engineering, and Medicine. Framework for equitable allocation of COVID-19 vaccine. Washington, DC: The National Academies Press; 2020. <https://www.nap.edu/catalog/25917/framework-for-equitable-allocation-of-covid-19-vaccine>  .
2. Bui DP, McCaffrey K, Friedrichs M, et al. Racial and ethnic disparities among COVID-19 Cases in workplace outbreaks by industry sector — Utah, March 6–June 5, 2020. MMWR Morb Mortal Wkly Rep 2020;69:1133–8. DOI: <http://dx.doi.org/10.15585/mmwr.mm6933e3>  .
3. Waltenburg MA, Victoroff T, Rose CE, et al. Update: COVID-19 among workers in meat and poultry processing facilities — United States, April–May 2020. MMWR Morb Mortal Wkly Rep 2020;69:887–892. DOI: <https://dx.doi.org/10.15585/mm6927e2>.
4. Waltenburg MA, Rose CE, Victoroff et al. Coronavirus disease among workers in food processing, food manufacturing, and agriculture workplaces. Emerg Infect Dis. October 2020. https://wwwnc.cdc.gov/eid/article/27/1/20-3821_article.
5. Silver SR, Li J, Boal WL, Shockey TL, Groenewold MR. Prevalence of underlying medical conditions among selected essential critical infrastructure workers — Behavioral Risk Factor Surveillance System, 31 states, 2017–2018. MMWR Morb Mortal Wkly Rep 2020;69:1244–1249. DOI: <https://dx.doi.org/10.15585/mmwr.mm6936a3>  .
6. Rho HJ, Brown H, Fremstad S. A basic demographic profile of workers in frontline industries. April 2020. Washington, DC: Center for Economic and Policy Research;2020. <https://cepr.net/a-basic-demographic-profile-of-workers-in-frontline-industries>  .
7. Biggerstaff M. Modeling strategies for the initial allocation of SARS-CoV-2 vaccines. Presentation to ACIP. October 30, 2020. <https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-10/COVID-Biggerstaff.pdf>  .
8. CDC COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC;









9. Ko JY, Danielson ML, Town M, et al. [Risk factors for COVID-19-associated hospitalization: COVID-19-Associated Hospitalization Surveillance Network and Behavioral Risk Factor Surveillance System](#). [Clin Infect Dis](#) DOI: 10.1093/cid/ciaa1419.
10. Garg S, Kim L, Whitaker M, et al. Hospitalization rates and characteristics of patients hospitalized with laboratory-confirmed coronavirus disease 2019—COVID-NET, 14 states, March 1–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020; 69:458-64. DOI: <http://dx.doi.org/10.15585/mmwr.mm6915e3> .
11. Dooling, K. Phased allocation of COVID-19 vaccines. Presentation to ACIP. November 23, 2020. <https://wwwdev.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-11/COVID-04-Dooling.pdf> .
12. COVID-NET A Weekly Summary of U.S. COVID-19 Hospitalization Data, characteristics of COVID-19-associated hospitalizations. Atlanta, GA: US Department of Health and Human Services, CDC; 2020. https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html. Accessed: December 21, 2020.
13. Laboratory-confirmed COVID-19-associated hospitalizations. Atlanta, GA: US Department of Health and Human Services, CDC; 2020. https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html. Accessed: December 21, 2020.
14. 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;69:923-929. DOI: <https://dx.doi.org/10.15585/mmwr.mm6928e1> .
15. Provisional death counts for coronavirus disease 2019 (COVID-19). Atlanta, GA: US Department of Health and Human Services, CDC; 2020. https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm#AgeAndSex. Accessed: December 21, 2020.
16. Coronavirus Disease 2019 (COVID-19). People at increased risk. Atlanta, GA: US Department of Health and Human Services, CDC; 2020. <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/index.html>. Accessed December 16, 2020.
17. Kim L, Garg S, O'Halloran A, et al. Risk factors for intensive care unit admission and in-hospital mortality among hospitalized adults identified through the U.S. Coronavirus Disease 2019 (COVID-19)-associated Hospitalization Surveillance Network (COVID-NET). *Clin Infect Dis*. 2020;ciaa1012. DOI: 1093/cid/ciaa1012.
18. Razzaghi H, Wang Y, Lu H, et al. Estimated county-level prevalence of selected underlying medical conditions associated with increased risk for severe COVID-19 illness — United States, 2018. *MMWR Morb Mortal Wkly Rep* 2020;69:945–950. DOI: <http://dx.doi.org/10.15585/mmwr.mm6929a1> .

Implementation:





2. AP-NORC Center for Public Affairs Research. Many remain doubtful about getting COVID-19 vaccine. December 2020. <https://apnorc.org/projects/many-remain-doubtful-about-getting-covid-19-vaccine>  .
3. ABC/IPSOS poll. December 14, 2020. <https://www.ipsos.com/en-us/news-polls/abc-news-coronavirus-poll>  .

Ethics:

1. Bureau of Labor Statistics. Economic news release: job flexibilities and work schedules—2017–2018 data from the American Time Use Survey. Washington, DC: US Department of Labor, Bureau of Labor Statistics; 2019. <https://www.bls.gov/news.release/flex2.htm>  .
2. O'Halloran AC, Lu P-j, Williams WW, et al. Influenza vaccination among workers—21 U.S. states, 2013. *Am J Infect Control* 2017;45:410-6. DOI::<https://doi.org/10.1016/j.ajic.2017.01.005>  .
3. Lee DJ, Davila EP, LeBlanc WG, et al. Morbidity and disability among workers 18 years and older in the Healthcare and Social Assistance sector, 1997–2007. Atlanta, GA: US Department of Health and Human Services, CDC; 2012. <https://www.cdc.gov/niosh/docs/2012-161/pdfs/2012-161.pdf?id%20=%2010.26616/NIOSH PUB2012161>  .
4. Waltenburg MA, Rose CE, Victoroff T, et al. Coronavirus disease among workers in food processing, food manufacturing, and agriculture workplaces. *Emerg Infect Dis* 2021 Jan (accessed December 17, 2020). <https://doi.org/10.3201/eid2701.203821>  .
5. Bui DP, McCaffrey K, Friedrichs M, et al. Racial and ethnic disparities among COVID-19 cases in workplace outbreaks by industry sector — Utah, March 6–June 5, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1133–8. DOI: <http://dx.doi.org/10.15585/mmwr.mm6933e3>  .
6. Waltenburg MA, Victoroff T, Rose CE, et al. Update: COVID-19 among workers in meat and poultry processing facilities — United States, April–May 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:887-92. DOI: <https://dx.doi.org/10.15585/mm6927e2> .
7. Silver SR, Li J, Boal WL, Shockey TL, Groenewold MR. Prevalence of underlying medical conditions among selected essential critical infrastructure workers — Behavioral Risk Factor Surveillance System, 31 states, 2017–2018. *MMWR Morb Mortal Wkly Rep* 2020;69:1244–9. DOI: <https://dx.doi.org/10.15585/mmwr.mm6936a3>  .
8. COVIDView. Atlanta, GA: US Department of Health and Human Services, CDC; 2020. <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html> .
9. CDC. Health disparities: race and Hispanic origin. Provisional death counts for coronavirus disease 2019 (COVID-19). Atlanta, GA: US Department of Health and Human Services, CDC; 2020. https://www.cdc.gov/nchs/nvss/vsrr/covid19/health_disparities.htm .
10. Persad G, Peek ME, Emanuel EJ. Fairly prioritizing groups for access to COVID-19 vaccines.



11. American Geriatrics Society. American Geriatrics Society (AGS) comments: National Academies of Science, Engineering, and Medicine's (NASEM's) Discussion Draft of a Preliminary Framework for the Equitable Allocation of a Vaccine for the Novel Coronavirus. New York, NY: The American Geriatrics Society;2020.
https://www.americangeriatrics.org/sites/default/files/inline-files/NASEM%20Vaccine%20Distribution%20Written%20Comments_FINAL_09%2002%2020.pdf
  .
12. Grohskopf LA, Liburd LC, Redfield RR. Addressing influenza vaccination disparities during the COVID-19 pandemic. JAMA 2020;324:1029-30. doi:10.1001/jama.2020.15845.

[Top of Page](#)

Page last reviewed: December 22, 2020

 [ACIP Recs Home](#)

Vaccine-Specific Recommendations

Anthrax

BCG

Cholera

COVID-19

Evidence Table for COVID-19 Vaccines Allocation in Phases 1b and 1c of the Vaccination Program

DTaP/Tdap/Td

Hepatitis A

Hepatitis B

Hib

HPV

Influenza

Japanese Encephalitis



MMRV

Meningococcal

Pneumococcal

Polio

Rabies

Rotavirus

Smallpox

Typhoid

Varicella

Yellow Fever

Zoster (Shingles)

Recs Listed by Date

Comprehensive Recommendations and Guidelines



Archived ACIP Recs

Vaccine Recommendations for Emergency Situations



Get Email Updates

To receive email updates about this page, enter your email address:

Email Address

[What's this?](#)

Submit



Related Links

[Vaccines & Immunizations](#)

[VFC Resolutions](#)

[ACIP Web Site](#)

[CDC's International Travelers Yellow Book](#)

[Clinical Travel Notices, Updates, and Vaccine Shortages](#)

HAVE QUESTIONS?



Visit CDC-INFO



Call 800-232-4636



Email CDC-INFO



Open 24/7

CDC INFORMATION

About CDC

Jobs

Funding

Policies

File Viewers & Players

Privacy

FOIA

No Fear Act

OIG

Nondiscrimination

Accessibility

CONNECT WITH CDC



U.S. Department of Health & Human Services



