

Evidence Search Report

Review Question:	What are the vaccination strategies for vulnerable populations?		
Context:	Vulnerable due to socioeconomic factors (i.e. not elderly/LTC); how to facilitate COVID-19 vaccination programs for those who are vulnerable		
Review ID:	PH030401-01 ESR	Complete Date:	March 4, 2021
Subject(s):	Vulnerable Populations; Vaccination		
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Librarian Notes & Comments

Please let us know if any questions or concerns arise!

Sincerely,

Lukas & Brianna

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Search Results: Guidance, Summaries & Other Grey Literature

Reports

Alliance for Healthier Communities

- Partnering with primary care for local COVID-19 vaccine rollout in Ontario. February 17, 2021. <https://www.allianceon.org/files/Partnering-primary-care-local-COVID-19-vaccine-rollout-Ontario>

Canadian Observatory on Homelessness

- Prepared for Flu Season: An H1N1 Emergency Response Model. 2009. <https://www.homelesshub.ca/resource/prepared-flu-season-h1n1-emergency-response-model>

Coalition for the Homeless

- Testimony of Coalition of the Homeless on COVID-19 Vaccine Distribution & Accessibility in NYC. January 12, 2021. https://www.coalitionforthehomeless.org/wp-content/uploads/2021/01/Testimony_COVID-19Vaccine_FINAL.pdf

FEANTSA (European Federation of National Organisations Working with the Homeless)

- Vaccine Strategy: Recommendations for Protection & Prioritisation of People Experiencing Homelessness. February 4, 2021. <https://www.feantsa.org/en/feantsa-position/2021/02/04/vaccine-strategy-recommendations-for-the-protection-prioritisation-of-people-experiencing-homelessness?bcParent=27>

Government Documents

British Columbia Centre for Disease Control (BCCDC)

- Vaccine Eligibility. March 1, 2021. <http://www.bccdc.ca/health-info/diseases-conditions/covid-19/covid-19-vaccine/eligibility>
 - Phase 2 includes the vaccination of vulnerable populations

CDC

- COVID-19 Vaccination for People Experiencing Homelessness: Frequently Asked Questions. February 17, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/community/homeless-shelters/vaccine-faqs.html>
- Interim Guidance for Health Departments: COVID-19 Vaccination Implementation for People Experiencing Homelessness. February 2, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/community/homeless-shelters/vaccination-guidance.html>
- COVID-19 Vaccination for People Experiencing Homelessness. January 19, 2021. https://endhomelessness.org/wp-content/uploads/2021/01/40862-covid19_vaccination-for-PEH-update_1-19-21-Combined.pdf

Books/Chapters

Canadian Observatory on Homelessness

- Understanding Pandemic Preparedness by Homelessness Services in the Context of an Influenza Outbreak. October 31, 2018. https://www.homelesshub.ca/sites/default/files/attachments/LessonsfromH1N1-Chapter_4.pdf

- Pandemic Preparedness and Homelessness. 2016.
<https://www.homelesshub.ca/sites/default/files/attachments/LessonsfromH1N1-FullBook.pdf>

Toolkits

Public Health Agency of Canada

- Toolkit – Pandemic Influenza Exercise for the Health and Emergency Social Services. July, 2008.
<https://www.homelesshub.ca/sites/default/files/attachments/cch53d5k.pdf>

Homeless Link

- COVID19_vaccination_and_inequalities.docx. January 29, 2021.
https://www.homeless.org.uk/sites/default/files/site-attachments/COVID19_vaccination_and_inequalities.docx

U.S. Department of Housing and Urban Development (HUD) Exchange

- COVID-19 Homeless System Response: Vaccine Planning and Distribution. January, 2021.
<https://www.hudexchange.info/resource/6229/covid19-homeless-system-response-vaccine-planning-and-distribution/>

Search Results: News, Blogs, Social Media

Expert Opinion

Canadian Network for the Health and Housing of People Experiencing Homelessness

- STATEMENT: Prioritize vaccinations for people experiencing homelessness. February 2, 2021.
<http://cnh3.ca/prioritize-vaccinations/>

News

CBC

- WECHU says people experiencing homelessness to receive COVID-19 vaccines. March 1, 2021.
<https://www.cbc.ca/news/canada/windsor/windsor-essex-homelessness-vaccines-1.5932033>
- COVID-19 vaccines roll out for workers, residents in Hamilton’s homeless shelter system. March 1, 2021. <https://www.cbc.ca/news/canada/hamilton/shelter-system-vaccines-covid-19-1.5932031>
- City to begin vaccinating people in Toronto’s shelter system this week. February 28, 2021.
<https://www.cbc.ca/news/canada/toronto/city-to-begin-vaccinating-people-experiencing-homelessness-1.5931103>

Global News

- Downtown Eastside residents offered \$5 after getting COVID-19 vaccine. March 1, 2021.
<https://globalnews.ca/news/7671193/vancouver-dtes-covid-19-5-dollar-incentive/>

Scottish Housing News

- Charity calls for homeless people to be given vaccine priority amid health crisis concerns. January 26, 2021. <https://www.scottishhousingnews.com/article/charity-calls-for-homeless-people-to-be-given-vaccine-priority-amid-health-crisis-concerns>

Keele University (UK) Blog

Emmerich, F and Adams, F (2020) Coronavirus and the homeless: Why increasing police powers is not the answer. Keele. <https://core.ac.uk/download/pdf/327072006.pdf>, <https://eprints.keele.ac.uk/id/eprint/8376>

Search Results: Articles from Databases

1. Ahc M. Research World Can Help Build Trust Among Minorities: Context helps in understanding. IRB Advisor. 2021;21(2):1-2.

ABSTRACT: The COVID-19 vaccine rollout has raised issues about trust among many Americans who are hesitant or unwilling to take the vaccine. The issue of trust is especially problematic among minority communities that have been harmed in historic medical and research incidences. People also are skeptical of a vaccine that was developed in record time, considering most vaccines take 10-15 years to make it to market.

2. Al Rifai M, Khalid U, Misra A, et al. Racial and geographic disparities in influenza vaccination in the U.S. among individuals with atherosclerotic cardiovascular disease: Renewed importance in the setting of COVID-19. Am J Prev Cardiol. 2021;5:100150. DOI: 10.1016/j.ajpc.2021.100150

ABSTRACT: Introduction: The importance of receiving an annual influenza vaccine among patients with atherosclerotic cardiovascular disease (ASCVD) is well established. With the rapid community spread and the possibility of another wave of COVID-19 infections in the fall, receiving an influenza vaccine is of particular importance to mitigate the risk associated with overlapping influenza and COVID-19 infections. Methods: We utilized cross-sectional data from the 2016 to 2019 Behavioral Risk Factor Surveillance System (BRFSS), a nationally representative U.S. telephone-based survey of adults 18 years or older. Race/ethnicity was our exposure of interest. We assessed the relative difference in influenza vaccination by race/ethnicity for each U.S. state in the overall U.S. population and among those with ASCVD as prevalence of receipt of influenza vaccination among Blacks or Hispanics minus prevalence among Whites divided by prevalence among Whites. We used multivariable-adjusted logistic regression models to evaluate the association between socioeconomic risk factors and receipt of influenza vaccination. Results: The study population consisted of 1,747,397 participants of whom 21% were older than 65 years, 51% women, 63% White, 12% Black, 17% Hispanic, and 9% with history of ASCVD. The receipt of influenza vaccine was 38% in the overall population and 51% among those with self-reported ASCVD, which translates to approximately 97 million and 12 million US adults, respectively. The receipt of influenza vaccine among individuals with ASCVD was 54% for Whites, 45% for Blacks, and 42% for Hispanics ($p < 0.001$). In the overall U.S. population, the median (interquartile range) relative difference for influenza vaccination between Blacks and Whites was 17% (-27%, -9%) and -22% (-29%, -9%) between Hispanics and Whites across all U.S. states. Among individuals with and without ASCVD, age older than 65 years, greater than college education, higher income, and having a primary care physician were significantly associated with higher odds of receipt of influenza vaccination, while being employed, lack of healthcare coverage, Black race, and delay in healthcare access were significantly inversely associated with having received an influenza vaccine. Conclusions: Only 50% patients with ASCVD receive influenza vaccines. The receipt of influenza vaccination among individuals with ASCVD is lower among Blacks and Hispanics compared to Whites with significant state-level variation. There are important socioeconomic determinants that are associated with receipt of the influenza vaccine.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33521756>

DOI: 10.1016/j.ajpc.2021.100150

3. Alabdulla M, Reagu SM, Al-Khal A, et al. COVID-19 vaccine hesitancy and attitudes in Qatar: A national cross-sectional survey of a migrant-majority population. Influenza Other Respir Viruses. 2021;19:19. DOI: 10.1111/irv.12847

ABSTRACT: BACKGROUND: Vaccine hesitancy is a global threat undermining control of preventable infections. Emerging evidence suggests that hesitancy to COVID-19 vaccination varies globally. Qatar has a unique population

with around 90% of the population being economic migrants, and the degree and determinants of hesitancy are not known. **METHODS:** This study was carried out to evaluate the degree of vaccine hesitancy and its socio-demographic and attitudinal determinants across a representative sample. A national cross-sectional study using validated hesitancy measurement tool was carried out from October 15, 2020, to November 15, 2020. A total of 7821 adults completed the survey. Relevant socio-demographic data along with attitudes and beliefs around COVID-19 vaccination were collected from the respondents. **RESULTS:** 20.2% of the respondents stated they would not take the vaccine and 19.8% reported being unsure about taking the prospective COVID-19 vaccine. Citizens and females were more likely to be vaccine hesitators than immigrants and males, respectively. Concerns around the safety of COVID-19 vaccine and its longer-term side effects were the main concerns cited. Personal research around COVID-19 and vaccine were by far the most preferred methods that would increase confidence in accepting the vaccine across all demographic groups. **CONCLUSIONS:** This study reports an overall vaccine hesitancy of 20% toward the COVID-19 vaccine and the influence of social media on attitudes toward vaccination which is in keeping with emerging evidence. This finding comes at a time that is close to the start of mass immunization and reports from a migrant-majority population highlighting important socio-demographic determinants around vaccine hesitancy.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33605010>

DOI: 10.1111/irv.12847

4. Alaran AJ, Adebisi YA, Badmos A, et al. Uneven power dynamics must be levelled in COVID-19 vaccines access and distribution. Public Health Pract (Oxf). 2021;2:100096. DOI: 10.1016/j.puhip.2021.100096

ABSTRACT: COVID-19 is one of the major global health threats of the 21st century, causing unprecedented humanitarian crises worldwide. Despite concerted efforts to curb the spread of the disease, the pandemic continues to strain healthcare systems globally and a safe, highly effective, and globally acceptable and equitable vaccination program, together with pre-existing precautionary measures, is essential to effectively contain the outbreak. We commented on the need to level any uneven power dynamics in COVID-19 vaccines access and distribution. The COVID-19 vaccines distribution must not allow for sovereignty which is tightly linked to historical imbalances in power and resources to result into discrimination between rich and poor countries. Poor countries must be supported in ensuring access to COVID-19 vaccines by levelling the power dynamics that perpetuate inequality and fuel inequity. We must ensure equity, fairness and transparency in COVID-19 vaccines distribution and gain public trust in COVID-19 vaccines through participatory community engagement. COVID-19 vaccines distribution and access must be equitable and not politicized.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33615282>

DOI: 10.1016/j.puhip.2021.100096

5. Al-Oraibi A, Martin CA, Hassan O, et al. Migrant health is public health: a call for equitable access to COVID-19 vaccines. Lancet Public Health. 2021;6(3):e144. DOI: 10.1016/S2468-2667(21)00031-1

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33640075>

DOI: 10.1016/S2468-2667(21)00031-1

6. Anonymous. Why a pioneering plan to distribute COVID vaccines equitably must succeed. Nature. 2021;589(7841):170. DOI: 10.1038/d41586-021-00044-9

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33442047>

DOI: 10.1038/d41586-021-00044-9

7. Bajaj SS, Stanford FC. Beyond Tuskegee - Vaccine Distrust and Everyday Racism. N Engl J Med. 2021;384(5):e12. DOI: 10.1056/NEJMp2035827

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33471971>

DOI: 10.1056/NEJMp2035827

8. Ballantyne A, Ganguli-Mitra A. To What Extent Are Calls for Greater Minority Representation in COVID Vaccine Research Ethically Justified? Am J Bioeth. 2021;21(2):99-101. DOI: 10.1080/15265161.2020.1861385

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33534688>

DOI: 10.1080/15265161.2020.1861385

9. Barocas JA. Business Not as Usual - Covid-19 Vaccination in Persons with Substance Use Disorders. N Engl J Med. 2021;384(2):e6. DOI: 10.1056/NEJMp2035709

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33378604>

DOI: 10.1056/NEJMp2035709

10. Bartovic J, Datta SS, Severoni S, et al. Ensuring equitable access to vaccines for refugees and migrants during the COVID-19 pandemic. Bull World Health Organ. 2021;99(1):3-A. DOI: 10.2471/blt.20.267690

URL: <https://www.who.int/bulletin/volumes/99/1/20-267690.pdf>

DOI: 10.2471/blt.20.267690

11. Bogart LM, Ojikutu BO, Tyagi K, et al. COVID-19 Related Medical Mistrust, Health Impacts, and Potential Vaccine Hesitancy Among Black Americans Living With HIV. J Acquir Immune Defic Syndr. 2021;86(2):200-7. DOI: 10.1097/QAI.0000000000002570

ABSTRACT: BACKGROUND: Medical mistrust, a result of systemic racism, is prevalent among Black Americans and may play a role in COVID-19 inequities. In a convenience sample of HIV-positive Black Americans, we examined associations of COVID-19-related medical mistrust with COVID-19 vaccine and COVID-19 treatment hesitancy and negative impacts of COVID-19 on antiretroviral therapy (ART) adherence. METHODS: Participants were 101 HIV-positive Black Americans (age: M = 50.3 years; SD = 11.5; 86% cisgender men; 77% sexual minority) enrolled in a randomized controlled trial of a community-based ART adherence intervention in Los Angeles County, CA. From May to July 2020, participants completed telephone interviews on negative COVID-19 impacts, general COVID-19 mistrust (eg, about the government withholding information), COVID-19 vaccine and treatment hesitancy, and trust in COVID-19 information sources. Adherence was monitored electronically with the Medication Event Monitoring System. RESULTS: Nearly all participants (97%) endorsed at least one general COVID-19 mistrust belief, and more than half endorsed at least one COVID-19 vaccine or treatment hesitancy belief. Social service and health care providers were the most trusted sources. Greater COVID-19 mistrust was related to greater vaccine and treatment hesitancy [b (SE) = 0.85 (0.14), $P < 0.0001$ and b (SE) = 0.88 (0.14), $P < 0.0001$, respectively]. Participants experiencing more negative COVID-19 impacts showed lower ART adherence, assessed among a subset of 49 participants [b (SE) = -5.19 (2.08), $P = 0.02$]. DISCUSSION: To prevent widening health inequities, health care providers should engage with communities to tailor strategies to overcome mistrust and deliver evidence-based information, to encourage COVID-19 vaccine and treatment uptake.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33196555>

DOI: 10.1097/QAI.0000000000002570

12. Brown RB. Outcome Reporting Bias in COVID-19 mRNA Vaccine Clinical Trials. Medicina (Kaunas). 2021;57(3):26. DOI: 10.3390/medicina57030199

ABSTRACT: Relative risk reduction and absolute risk reduction measures in the evaluation of clinical trial data are poorly understood by health professionals and the public. The absence of reported absolute risk reduction in COVID-19 vaccine clinical trials can lead to outcome reporting bias that affects the interpretation of vaccine efficacy. The present article uses clinical epidemiologic tools to critically appraise reports of efficacy in Pfizer/BioNTech and Moderna COVID-19 mRNA vaccine clinical trials. Based on data reported by the manufacturer for Pfizer/BioNTech vaccine BNT162b2, this critical appraisal shows: relative risk reduction, 95.1%; 95% CI, 90.0% to 97.6%; $p = 0.016$; absolute risk reduction, 0.7%; 95% CI, 0.59% to 0.83%; $p < 0.000$. For the Moderna vaccine mRNA-1273, the appraisal shows: relative risk reduction, 94.1%; 95% CI, 89.1% to 96.8%; $p = 0.004$; absolute risk reduction, 1.1%; 95% CI, 0.97% to 1.32%; $p < 0.000$. Unreported absolute risk reduction measures of 0.7% and 1.1% for the Pfizer/BioNTech and Moderna vaccines, respectively, are very much lower than the reported relative risk reduction measures. Reporting absolute risk reduction measures is essential to prevent outcome reporting bias in evaluation of COVID-19 vaccine efficacy.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33652582>

DOI: 10.3390/medicina57030199

13. Brown SH, Fisher EL, Taylor AQ, et al. Influenza vaccine community outreach: Leveraging an interprofessional healthcare student workforce to immunize marginalized populations. *Prev Med.* 2021;147(106460):106460. DOI: 10.1016/j.ypmed.2021.106460

ABSTRACT: Vulnerable populations such as the uninsured, unemployed, and unhoused face significant morbidity and mortality from influenza but are less likely to receive the annual vaccine and have limited access to medical care. We describe an interprofessional, student-run vaccine outreach program (VOP) in Davidson County, Tennessee that lowers barriers to vaccination through free vaccination events in nontraditional community locations. We provide this framework as a model to expand novel, seasonal, or outbreak-oriented vaccine outreach to resource-poor populations. Demographic data were collected from the patients who received an influenza vaccine between 2015 and 2019 through an optional survey to determine whether these events were reaching unhoused, uninsured, and/or unemployed individuals. Of 1,803 patients, 1,733 (96.1%) completed at least one field of the demographic form. Overall, 481 (27.8%) were individuals without homes or living in temporary housing and 673 (38.8%) were unemployed. Most patients, 1,109 (64.0%), did not have health insurance at any point during the prior two years. With the addition of a nurse practitioner student to VOP leadership, the 2018-2019 VOP reached the most unhoused or temporarily-housed (228, 32.3%), unemployed (313, 18.5%), and disabled (60, 8.5%) patients. The VOP can be adapted to meet community needs, funding, and volunteer interest. The VOP model may be applicable to a SARS-CoV-2 vaccine, especially since the economic impact of COVID-19 has increased unemployment rates and housing instability. Healthcare students serve as an eager, underutilized resource who can be leveraged to disseminate vaccines to individuals with limited access to care.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33609616>

DOI: 10.1016/j.ypmed.2021.106460

14. Bunch L. A Tale of Two Crises: Addressing Covid-19 Vaccine Hesitancy as Promoting Racial Justice. *HEC Forum.* 2021;19:19. DOI: 10.1007/s10730-021-09440-0

ABSTRACT: The year 2020 has yielded twin crises in the United States: a global pandemic and a public reckoning with racism brought about by a series of publicized instances of police violence toward Black men and women. Current data indicate that nationally, Black Americans are three times more likely than White Americans to contract Covid-19 (with further variance by state), a pattern that underscores the more general phenomenon of health disparity among Black and White Americans (Opiel et al. in *The New York Times* 2020; APM Research Lab Staff in APM Research Lab 2020). Once exposed, Black Americans are twice as likely to die of the virus. Unsurprisingly, Black Americans report higher levels of fear of Covid-19 than their White peers, but they also report higher levels of hesitancy toward a Covid-19 vaccine. This paper explores why this apparent discrepancy exists. It also provides practical recommendations for how government and public health leaders might address vaccine hesitancy in the context of the twin crises of 2020.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33464452>

DOI: 10.1007/s10730-021-09440-0

15. Burger AE, Reither EN, Mamelund SE, et al. Black-white disparities in 2009 H1N1 vaccination among adults in the United States: A cautionary tale for the COVID-19 pandemic. *Vaccine.* 2021;39(6):943-51. DOI: 10.1016/j.vaccine.2020.12.069

ABSTRACT: **BACKGROUND:** Prior research has highlighted racial and ethnic disparities in H1N1 vaccination in the United States. Our study adds to this literature by utilizing an intersectionality framework to examine the joint influence of race and sex on H1N1 vaccination beliefs and behaviors among non-Hispanic blacks and non-Hispanic whites (hereafter blacks and whites). **METHODS:** Using data from the National H1N1 Flu Survey of U.S. adults, we measured differences in beliefs about the safety and efficacy of the H1N1 vaccine among black women, black men, white women, and white men. We then estimated a series of nested logistic regression models to examine how race/sex vaccination disparities were influenced by health beliefs, socioeconomic status (SES), pre-existing conditions, and healthcare. **RESULTS:** Black respondents were more likely than white respondents to express reservations about the safety and efficacy of the H1N1 vaccine. Consistent with those beliefs, white females reported the highest rate of H1N1 vaccination (28.4%), followed by white males (26.3%), black males (21.6%), and black females (17.5%). Differences in health beliefs, SES, pre-existing conditions, and healthcare explained lower odds of H1N1 vaccination among white men and black men, relative to white women. However, black women

experienced 35–45% lower odds of vaccination than white women across all models, highlighting the intersectional nature of these associations. **DISCUSSION:** The 2009 H1N1 influenza pandemic provides a cautionary tale about the distribution of new vaccines across large populations with diverse racial, sex, and socioeconomic characteristics. Despite differences between the H1N1 and COVID-19 pandemics, our study warns that many black Americans will forego COVID-19 vaccines unless swift action is taken to address black-white disparities in access to vital resources. Public health stakeholders can also encourage widespread adoption of COVID-19 vaccines by tailoring health promotion messages for different groups of racial minorities, especially groups like black women who face intersecting disadvantages.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33454136>

DOI: 10.1016/j.vaccine.2020.12.069

16. Callaghan T, Moghtaderi A, Lueck JA, et al. Correlates and disparities of intention to vaccinate against COVID-19. Soc Sci Med. 2021;272:113638. DOI: 10.1016/j.socscimed.2020.113638

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33414032>

DOI: 10.1016/j.socscimed.2020.113638

17. Carethers JM. Rectifying COVID-19 disparities with treatment and vaccination. JCI Insight. 2021;6(4):22. DOI: 10.1172/jci.insight.147800

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33476304>

DOI: 10.1172/jci.insight.147800

18. Caspi G, Dayan A, Eshal Y, et al. Socioeconomic Disparities and COVID-19 Vaccination Acceptance: Experience from Israel. medRxiv. 2021:2021.01.28.21250716. DOI: 10.1101/2021.01.28.21250716

ABSTRACT: COVID-19 vaccination acceptance has a key role in mitigating the pandemic. Concern has been raised that vaccination rates will be limited in demographically defined areas of lower income. Israel's rapid vaccination campaign may allow to assess these assumptions in real-world and to devise tools for effectively focusing the vaccination efforts. We analyzed the correlation between COVID-19 vaccination rates, socioeconomic status (SES) and active COVID-19 disease burden. We carried out a nationwide study, based on data provided by Ministry of Health of COVID-19 vaccination rates in all municipalities in Israel up to January 12th, 2021. Municipal Vaccination rates of population older than 60 significantly correlated with the socioeconomic status ($r=0.83$, 95% confidence interval [0.79 to 0.87]). Finally, we established a novel metric for focusing the vaccination efforts based on % vaccinations and active disease burden. In Israel, a case-model country for COVID-19 vaccinations, vaccination rates were strongly correlated with SES. The study findings demonstrate the need to directly target vaccination acceptance to socio-economically disadvantaged populations and suggest potential tools for policymakers to focus their efforts. **Competing Interest Statement** The authors have declared no competing interest. **Funding Statement** Funded by the Israel Ministry of Health and Mafat (Ministry of Defense). **Author Declarations** I confirm all relevant ethical guidelines have been followed, and any necessary IRB and/or ethics committee approvals have been obtained. **Yes** The details of the IRB/oversight body that provided a approval or exemption for the research described are given below: **No** IRB required by MOH. All necessary patient/participant consent has been obtained and the appropriate institutional forms have been archived. **Yes** I understand that all clinical trials and any other prospective interventional studies must be registered with an ICMJE-approved registry, such as ClinicalTrials.gov. I confirm that any such study reported in the manuscript has been registered and the trial registration ID is provided (note: if posting a prospective study registered retrospectively, please provide a statement in the trial ID field explaining why the study was not registered in advance). **Yes** I have followed all appropriate research reporting guidelines and uploaded the relevant EQUATOR Network research reporting checklist(s) and other pertinent material as supplementary files, if applicable. **Yes** Data will be available upon request.

<https://www.covid19maps.org>

URL: <https://www.medrxiv.org/content/medrxiv/early/2021/02/01/2021.01.28.21250716.full.pdf>

DOI: 10.1101/2021.01.28.21250716

19. Cerda AA, Garcia LY. Willingness to Pay for a COVID-19 Vaccine. Appl Health Econ Health Policy. 2021. DOI: 10.1007/s40258-021-00644-6

ABSTRACT: BACKGROUND: The coronavirus disease (COVID-19) pandemic has considerably affected the lives of people worldwide, impacting their health and economic welfare, and changing the behavior of our society significantly. This situation may lead to a strong incentive for people to buy a vaccine. Therefore, a relevant study to assess individuals' choices and the value of change in welfare from a COVID-19 vaccine is essential. OBJECTIVE: This study aimed to estimate the willingness-to-pay (WTP) value for a vaccine for COVID-19. We also identify the variables that influence individual vaccination decisions, which could be used in the design of vaccination promotion strategies. METHODS: We use the contingent valuation method in its double-bounded dichotomous choice format. The estimation coefficients are calculated according to the maximum likelihood method under the assumption of a probit distribution. The sample consisted of 531 individuals, mainly from middle- and high-income socioeconomic groups from Chile between enrolled between 10 July and 10 August 2020. RESULTS: The results show a high WTP for the COVID-19 vaccine, with a value up to US\$232. Income and education levels and having family members with COVID-19 increased the likelihood of persons paying for a vaccine. There is also a greater fear as the pandemic progresses that people will get sick from COVID-19. CONCLUSIONS: The high WTP value creates an opportunity for formulating public health policy. The results of this study suggest that governments can provide the vaccine free to low-income groups and allow those with higher incomes to acquire the vaccine through the private sector by paying. This will be useful especially for countries with economic difficulties.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33619688>

DOI: 10.1007/s40258-021-00644-6

20. Craft JF, Travassos MA, Foppiano Palacios C, et al. Inadequate Minority Representation within SARS-CoV-2 Vaccine Trials. Am J Trop Med Hyg. 2021;104(1):32-4. DOI: 10.4269/ajtmh.20-1294

ABSTRACT: Minority communities have borne the brunt of COVID-19 disease in the United States. Nonwhites have contracted most of the SARS-CoV-2 infections; COVID-19 mortality rates for Black Americans are more than twice those for whites. Given this, studying the most effective ways to prevent and treat SARS-CoV-2 in these populations should be a research priority, particularly with respect to vaccine trials. Federal guidelines from the National Institutes of Health and Food and Drug Administration emphasize the need for inclusion of minority groups in these trials, but none of the publicly available SARS-CoV-2 vaccine trial protocols requires representative sampling of minorities. This piece emphasizes the importance of a adequate inclusion of minority communities in SARS-CoV-2 vaccine trials, and the implications of this inclusion for SARS-CoV-2 vaccine distribution.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/33200726>

DOI: 10.4269/ajtmh.20-1294

21. Doherty IA, Pilkington W, Brown L, et al. COVID-19 Vaccine Hesitancy in Underserved Communities of North Carolina. medRxiv. 2021;23:23. DOI: 10.1101/2021.02.21.21252163

ABSTRACT: Background: In the United States, underserved communities including Blacks and Latinx are disproportionately affected by COVID-19, and widespread vaccination is critical for curbing this pandemic. This study sought to estimate the prevalence of COVID-19 vaccine hesitancy, describe attitudes related to vaccination, and identify correlates among racial minority and marginalized populations across 9 counties in North Carolina. Methods: We conducted a cross-sectional survey with a self-administered questionnaire distributed at free COVID-19 testing events in underserved rural and urban communities from August 27 - December 15, 2020. Vaccine hesitancy was defined as the response of "no" or "don't know/not sure" to whether the participant would get the COVID-19 vaccine as soon as it became available. Results: The sample comprised 948 participants including 27.7% Whites, 59.6% Blacks, 12.7% Latinx, and 63% female. Thirty-two percent earned <\$20K annually, 60% owned a computer and approximately 80% had internet access at home. The prevalence of vaccine hesitancy was 68.9% including 62.7%, 74%, and 59.5% among Whites, Blacks, and Latinx, respectively. Between September and December, the largest decline in vaccine hesitancy occurred among Whites (27.5 percentage points), followed by Latinx (17.6) and the smallest decline was among Black respondents (12.0). 51.2% of the respondents reported vaccine safety concerns, 23.7% wanted others to get of the respondents reported they would trust health care providers with information about the COVID-19 vaccine. Factors associated with hesitancy in multivariable logistic regression included being female (OR=1.90 95%CI[1.36, 2.64]), being Black (OR=1.68 [1.106 2.45]), calendar month (OR=0.76 [0.63, 0.92]), safety concerns (OR=4.28 [3.06, 5.97]), and government distrust (OR=3.57 [2.26, 5.63]). Conclusions: This study reached underserved minority populations in a number of different locations to investigate COVID-19 vaccine hesitancy. We built on existing relationships and further engaged the community, stake holders

and health department to provide free COVID-19 testing. This direct approach permitted assessment of vaccine hesitancy (which was much higher than national estimates), distrust, and safety concerns. Highlights: This study surveyed 948 adults at COVID-19 testing sites in 9 counties of North Carolina between August 27 and December 15, 2020 where vaccine hesitancy was widespread including 74% in Blacks, 62.7% in Whites and 59.5% in Latinx. Vaccine hesitancy declined over time but remained high for Blacks. On-site surveys conducted in underserved areas that were paper-based and self-administered permitted reaching adults with no internet (17%), no cell phone (20%), no computer (40%) and yearly incomes less than 20K (31%). Widespread vaccine hesitancy in predominately minority communities of NC must be addressed to successfully implement mass COVID-19 vaccination programs.

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ABSTRACT: Importance: Medical research has not equitably included members of racial/ethnic minority groups or female and older individuals. There are limited data on participant demographic characteristics in vaccine trials despite the importance of these data to current trials aimed at preventing coronavirus disease 2019. Objective: To investigate whether racial/ethnic minority groups and female and older adults are underrepresented among participants in vaccine clinical trials. Design, Setting, and Participants: This cross-sectional study examined data from completed US-based vaccine trials registered on ClinicalTrials.gov from July 1, 2011, through June 30, 2020. The terms vaccine, vaccination, immunization, and inoculation were used to identify trials. Only those addressing vaccine immunogenicity or efficacy of preventative vaccines were included. Main Outcomes and Measures: The numbers and percentages of racial/ethnic minority, female, and older individuals compared with US census data from 2011 and 2018. Secondary outcome measures were inclusion by trial phase and year of completion. Results: A total of 230 US-based trials with 219555 participants were included in the study. Most trials were randomized (180 [78.3%]), included viral vaccinations (159 [69.1%]), and represented all trial phases. Every trial reported age and sex; 134 (58.3%) reported race and 79 (34.3%) reported ethnicity. Overall, among adult study participants, White individuals were overrepresented (77.9%; 95% CI, 77.4%-78.4%), and Black or African American individuals (10.6%; 95% CI, 10.2%-11.0%) and American Indian or Alaska Native individuals (0.4%; 95% CI, 0.3%-0.5%) were underrepresented compared with US census data; enrollment of Asian individuals was similar (5.7%; 95% CI, 5.5%-6.0%). Enrollment of Hispanic or Latino individuals (11.6%; 95% CI, 11.1%-12.0%) was also low even among the

limited number of adult trials reporting ethnicity. Adult trials were composed of more female participants (75325 [56.0%]), but among those reporting age as a percentage, enrollment of participants who were aged 65 years or older was low (12.1%; 95% CI, 12.0%-12.3%). Black or African American participants (10.1%; 95% CI, 9.7%-10.6%) and Hispanic or Latino participants (22.5%; 95% CI, 21.6%-23.4%) were also underrepresented in pediatric trials. Among trials reporting race/ethnicity, 65 (48.5%) did not include American Indian or Alaska Native participants and 81 (60.4%) did not include Hawaiian or Pacific Islander participants. Conclusions and Relevance: This cross-sectional study found that among US-based vaccine clinical trials, members of racial/ethnic minority groups and older adults were underrepresented, whereas female adults were overrepresented. These findings suggest that diversity enrollment targets should be included for all vaccine trials targeting epidemiologically important infections.

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ABSTRACT: The rapid development of vaccines against COVID-19 represents a huge achievement, and offers hope of ending the global pandemic. At least three COVID-19 vaccines have been approved or are about to be approved for distribution in many countries. However, with very limited initial availability, only a minority of the population will be able to receive vaccines this winter. Urgent decisions will have to be made about who should receive priority for access. Current policy in the UK appears to take the view that those who are most vulnerable to COVID-19 should get the vaccine first. While this is intuitively attractive, we argue that there are other possible values and criteria that need to be considered. These include both intrinsic and instrumental values. The former are numbers of lives saved, years of life saved, quality of the lives saved, quality-adjusted life-years (QALYs), and possibly others including age. Instrumental values include protecting healthcare systems and other broader societal interests, which might require prioritizing key worker status and having dependants. The challenge from an ethical point of view is to strike the right balance among these values. It also depends on effectiveness of different vaccines on different population groups and on modelling around cost-effectiveness of different strategies. It is a mistake to simply assume that prioritizing the most vulnerable is the best strategy. Although that could end up being the best approach, whether it is or not requires careful ethical and empirical analysis.

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ABSTRACT: COVID-19 vaccination efforts are underway offering hope for saving lives and eliminating the pandemic. The most promising vaccines require two injections separated 3-4 weeks apart. To achieve herd immunity, 70-90% of the population or perhaps more must be inoculated. Anticipation of adherence challenges

has generated commentaries on strategies to enhance adherence including financial incentives. A notable gap in these commentaries is any discussion of the scientific evidence regarding the efficacy of financial incentives for increasing vaccine adherence. This commentary addresses that gap. There is a body of controlled trials on incentivizing vaccine adherence, mostly to the hepatitis B virus (HBV) vaccine among injection drug users (IDUs). Prevalence of HBV infection is increasing as part of the opioid addiction crisis. The HBV vaccine entails a three-dose regimen (typically 0, 1, and 6 months) which has created adherence challenges among IDUs. Systematic literature reviews document significant benefit of financial incentives. For example, a 2019 meta-analysis (Tressler & Bhandari, 2019) examined 11 controlled trials examining HBV-vaccine adherence strategies, including financial incentives, accelerated dosing schedules, and case-management/enhanced services. Financial incentives were most effective resulting in a 7-fold increase in adherence to the vaccination regimen relative to no financial incentives (OR, 7.01; 95% CI, 2.88-17.06). Additional reviews provide further support for the efficacy of financial incentives for promoting adherence with vaccination (HBV & influenza). Overall, this literature suggests that financial incentives could be helpful in promoting the high levels of adherence to COVID-19 vaccines that experts project will be necessary for herd immunity.

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ABSTRACT: The COVID-19 pandemic has exposed social inequities that rival biological inequities in disease exposure and severity. Merely identifying some inequities without understanding all of them can lead to harmful misrepresentations and deepening disparities. Applying an 'equity lens' to bring inequities into focus without a vision to extinguish them is short-sighted. Interventions to address inequities should be as diverse as the pluralistic populations experiencing them. We present the first validated equity framework applied to COVID-19 that sheds light on the full spectrum of health inequities, navigates their sources and intersections, and directs ethically just interventions. The Equity Matrix also provides a comprehensive map to guide surveillance and research in order to unveil epidemiological uncertainties of novel diseases like COVID-19, recognising that inequities may exist where evidence is currently insufficient. Successfully applied to vaccines in recent years, this tool has resulted in the development of clear, timely and transparent guidance with positive stakeholder feedback on its comprehensiveness, relevance and appropriateness. Informed by evidence and experience from other vaccine-preventable diseases, this Equity Matrix could be valuable to countries across the social gradient to slow the spread of SARS-CoV-2 by abating the spread of inequities. In the race to SARS-CoV-2 vaccines, this urgently needed roadmap can effectively and efficiently steer global leadership towards equitable allocation with diverse strategies for diverse inequities. Such a roadmap has been absent from discussions on managing the COVID-19 pandemic, and is critical for our passage out of it.

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ABSTRACT: BACKGROUND To date, there has been limited data available to understand the associations between race/ethnicity and socioeconomic and related characteristics with COVID-19 vaccine initiation and planned

vaccination in the United States. To better characterize COVID-19 vaccinations nationally, the present study leveraged nationally-representative data with relatively complete race/ethnicity and socioeconomic data to estimate levels of vaccine initiation and the adjusted relative odds of vaccine initiation and planned vaccination among adults by race/ethnicity and socioeconomic and other characteristics. **METHODS** Using pooled cross-sectional data from 66,994 adults aged 18-85 years in nationally-representative surveys by the U.S. Census Bureau administered between January 6, 2021 and January 18, 2021 and multivariable logistic regression, this study estimated the associations between race/ethnicity, education, and pre-pandemic (2019) household income with the self-reported: 1) receipt of ≥ 1 dose of a COVID-19 vaccine; and 2) either receipt of ≥ 1 dose of a COVID-19 vaccine or the plan to definitely receive a vaccine once available to the respondent. **RESULTS** In Hispanics and Black non-Hispanics, the estimated prevalences of vaccine initiation were 6.1% and 6.2%, respectively, compared to 8.7% in White non-Hispanics and 15.1% in Asian non-Hispanics. Controlling for demographic and socioeconomic factors, Hispanics and Black non-Hispanics were no more or less likely than White non-Hispanics to have received ≥ 1 vaccine dose. However, for the combined outcome of either vaccine initiation or planned vaccination, Black non-Hispanics were 52% less likely than White non-Hispanics to have reported either outcome ($P < .001$). Meanwhile, both education and pre-pandemic income levels exhibited evidence of positive dose-response relationships with vaccine initiation (P for linear trend = .01 and $< .001$, respectively). Substantial (vs. no) financial hardship was linked to 44% lower odds of vaccination ($P < .001$). The most common reasons for vaccine hesitancy were concerns about side effects and safety. **CONCLUSIONS** In this large, nationally-representative study with relatively complete race/ethnicity and socioeconomic data, we find that being Black non-Hispanic and having the least education and income were each independently associated with a markedly lower likelihood of definitely planning to get vaccinated or having been vaccinated. In the ensuing months of the pandemic, addressing racial/ethnic and socioeconomic inequities in vaccination due to differential access and vaccine hesitancy will be critical to mitigate the pandemic's disproportionately higher risks of infection and adverse outcomes in Black non-Hispanics and socioeconomically disadvantaged groups and to help maximize vaccination coverage nationwide. **Competing Interest Statement** The authors have declared no competing interest. **Funding Statement** No external funding was received for this work. **Author Declarations** I confirm all relevant ethical guidelines have been followed, and any necessary IRB and/or ethics committee approvals have been obtained. **Yes** The details of the IRB/oversight body that provided approval or exemption for the research described are given below. **Because all data lacked identifying information and were publicly available through the U.S. Census Bureau, this study was deemed exempt by the Human Subject Research Protection Committee at Northeastern University. All necessary patient/participant consent has been obtained and the appropriate institutional forms have been archived. Yes** I understand that all clinical trials and any other prospective interventional studies must be registered with an ICMJE-approved registry, such as ClinicalTrials.gov. I confirm that any such study reported in the manuscript has been registered and the trial registration ID is provided (note: if posting a prospective study registered retrospectively, please provide a statement in the trial ID field explaining why the study was not registered in advance). **Yes** I have followed all appropriate research reporting guidelines and uploaded the relevant EQUATOR Network research reporting checklist(s) and other pertinent material as supplementary files, if applicable. **Yes** All data are publicly available.

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ABSTRACT: Minority groups continue to suffer disproportionately from COVID-19's impact, with Blacks and Hispanics three times more likely to die from the disease than their White counterparts. The COVID-19 vaccine roll out has the potential to provide relief to these most adversely impacted communities. However, historic mistrust within racial minority communities threatens to derail the effective implementation of a vaccination program. The origin of this mistrust is multifactorial. Current day experience with structural racism and research abuses like Tuskegee Study collectively influence our perception of biased healthcare system. We outline issues and propose solutions that must be addressed to achieve a successful vaccination agenda. Mishandling of public expectations at any point may lead to an avalanche of vaccine opposition which might be unrecoverable.

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ABSTRACT: Development of safe and effective COVID-19 vaccines is a global priority and the best hope for ending the COVID-19 pandemic. Remarkably, in less than 1 year, vaccines have been developed and shown to be efficacious and are already being deployed worldwide. Yet, many challenges remain. Immune senescence and comorbidities in aging populations and immune dysregulation in populations living in low-resource settings may impede vaccine effectiveness. Distribution of vaccines among these populations where vaccine access is historically low remains challenging. In this Review, we address these challenges and provide strategies for ensuring that vaccines are developed and deployed for those most vulnerable.

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ABSTRACT: Vaccine hesitancy could become a significant impediment to addressing the COVID-19 pandemic. The current study examined the prevalence of COVID-19 vaccine hesitancy and factors associated with vaccine intentions. A national panel survey by the National Opinion Research Center (NORC) was designed to be representative of the US household population. Sampled respondents were invited to complete the survey between May 14 and 18, 2020 in English or Spanish. 1,056 respondents completed the survey-942 via the web and 114 via telephone. The dependent variable was assessed by the item "If a vaccine against the coronavirus becomes available, do you plan to get vaccinated, or not?" Approximately half (53.6%) reported intending to be vaccinated, 16.7% did not intend, and 29.7% were unsure. In the adjusted stepwise multinomial logistic regression, Black and Hispanic respondents were significantly less likely to report intending to be vaccinated as were respondents who were females, younger, and those who were more politically conservative. Compared to those who reported positive vaccine intentions, respondents with negative vaccine intentions were significantly less likely to report that they engaged in the COVID-19 prevention behaviors of wearing masks (aOR = 0.53, CI = 0.37-0.76) and social distancing (aOR = 0.22, CI = 0.12-0.42). In a sub-analysis of reasons not to be vaccinated, significant race/ethnic differences were observed. This national survey indicated a modest level of COVID-19 vaccine intention. These data suggest that public health campaigns for vaccine uptake should assess in greater detail the vaccine concerns of Blacks, Hispanics, and women to tailor programs.

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ABSTRACT: • Low COVID-19 vaccine trust associated with vaccines distributed too soon. • Social norms were strongly associated with COVID-19 vaccine trust. • High trustworthiness in CDC as for information was linked to vaccine trust. • Females expressed lower vaccine trust than males.

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ABSTRACT: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccine candidates are being evaluated, with the goal of conferring immunity on the highest percentage of people who receive the vaccine as possible. It is noteworthy that vaccine efficacy depends not only on the vaccine but also on characteristics of the vaccinated. Over the past 30 years, a series of studies has documented the impact of psychological factors on the immune system's vaccine response. Robust evidence has demonstrated that stress, depression, loneliness, and poor health behaviors can impair the immune system's response to vaccines, and this effect may be greatest in vulnerable groups such as the elderly. Psychological factors are also implicated in the prevalence and severity of vaccine-related side effects. These findings have generalized across many vaccine types and therefore may be relevant to the SARS-CoV-2 vaccine. In this review, we discuss these psychological and behavioral risk factors for poor vaccine responses, their relevance to the COVID-19 pandemic, as well as targeted psychological and behavioral interventions to boost vaccine efficacy and reduce side effects. Recent data suggest these psychological and behavioral risk factors are highly prevalent during the COVID-19 pandemic, but intervention research suggests that psychological and behavioral interventions can increase vaccine efficacy.

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ABSTRACT: The article focuses on vaccine allocation strategies, a National Academies of Sciences Engineering and Medicine (NASEM) publication has explicitly incorporated race as an important allocation criteria. Topics include race and ethnicity and health equity have intertwined with the impact of COVID-19 and have certain populations have at increased risk of severe illness or death from COVID-19; and NASEM recommendations have progressive in acknowledgment to health disparities and inequalities.

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ABSTRACT: Summary Psychiatric disorders, and especially severe mental illness, are associated with an increased risk of severe acute respiratory syndrome coronavirus 2 infection and COVID-19-related morbidity and mortality. People with severe mental illness should therefore be prioritised in vaccine allocation strategies. Here, we discuss the risk for worse COVID-19 outcomes in this vulnerable group, the effect of severe mental illness and psychotropic medications on vaccination response, the attitudes of people with severe mental illness towards vaccination, and, the potential barriers to, and possible solutions for, an efficient vaccination programme in this population.

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ABSTRACT: The article offers information on the importance of a key priority in stemming the tide of Covid-19 pandemic. It discusses the efforts for prioritizing health professionals and older adults in the distribution of a future Covid-19 vaccine. It mentions the prioritize the health workforce, broadly defined to cover workers across care settings, including those in long-term care, assisted living and other congregate living facilities.

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46. Mellis AM, Kelly BC, Potenza MN, et al. Trust in a COVID-19 vaccine among people with substance use disorders. Drug Alcohol Depend. 2021;220(108519):108519. DOI: 10.1016/j.drugalcdep.2021.108519

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ABSTRACT: INTRODUCTION: Coronavirus Disease 2019 (COVID-19) has disproportionately affected communities of color, with blacks experiencing the highest rates of disease severity and mortality. A vaccine against SARS-CoV-2 has the potential to reduce the race mortality gap from COVID-19; however, hesitancy of the vaccine in the black community threatens vaccine uptake. METHODS: We conducted focus groups with black barbershop and salon owners living in zip codes of elevated COVID-19 prevalence to assess their attitudes, beliefs, and norms around a COVID-19 vaccine. We used a modified grounded theory approach to analyze the transcripts. RESULTS: We completed four focus groups (n=24 participants) in July and August 2020. Participants were an average age of 46, 89% were black non-Hispanic. Hesitancy against the COVID-19 vaccine was high due to mistrust in the medical establishment, concerns with the accelerated timeline for vaccine development, limited data on short and long-term side effects, and the political environment promoting racial injustice. Some participants were willing to consider the vaccine once the safety profile is robust and reassuring. Receiving a recommendation to take the vaccine from a trusted health care provider served as a facilitator. Health beliefs identified were similar to concerns around other vaccines, and included the fear of getting the infection with vaccination, and preferring to improve one's baseline physical health through alternative therapies. CONCLUSION: We found that hesitancy of the COVID-19 vaccine was high; however, provider recommendation and transparency around the safety profile might help reduce hesitancy of the COVID-19 vaccine.

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ABSTRACT: An editorial on the impact of COVID-19 on dental care is presented. It mentions the confusion caused by recommendations from government agencies at all levels, the need to maintain public health measures such as masking and social distancing, and the development of COVID-19 vaccines.

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ABSTRACT: Background: Racial and ethnic minorities have been disproportionately impacted by COVID-19. In the initial phase of population-based vaccination in the United States (U.S.) and United Kingdom (U.K.), vaccine hesitancy and limited access may result in disparities in uptake. Methods: We performed a cohort study among U.S. and U.K. participants in the smartphone-based COVID Symptom Study (March 24, 2020-February 16, 2021). We used logistic regression to estimate odds ratios (ORs) of COVID-19 vaccine hesitancy (unsure/not willing) and

receipt. Results: In the U.S. (n =87,388), compared to White non-Hispanic participants, the multivariable ORs of vaccine hesitancy were 3.15 (95% CI: 2.86 to 3.47) for Black participants, 1.42 (1.28 to 1.58) for Hispanic participants, 1.34 (1.18 to 1.52) for Asian participants, and 2.02 (1.70 to 2.39) for participants reporting more than one race/other. In the U.K. (n =1,254,294), racial and ethnic minorities had similarly elevated hesitancy: compared to White participants, their corresponding ORs were 2.84 (95% CI: 2.69 to 2.99) for Black participants, 1.66 (1.57 to 1.76) for South Asian participants, 1.84 (1.70 to 1.98) for Middle East/East Asian participants, and 1.48 (1.39 to 1.57) for participants reporting more than one race/other. Among U.S. participants, the OR of vaccine receipt was 0.71 (0.64 to 0.79) for Black participants, a disparity that persisted among individuals who specifically endorsed a willingness to obtain a vaccine. In contrast, disparities in uptake were not observed in the U.K. Conclusions: COVID-19 vaccine hesitancy was greater among racial and ethnic minorities, and Black participants living in the U.S. were less likely to receive a vaccine than White participants. Lower uptake among Black participants in the U.S. during the initial vaccine rollout is attributable to both hesitancy and disparities in access.

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ABSTRACT: The 2030 Agenda for Sustainable Development (AfSD) has the vision to leave no one behind, particularly low-income countries. Yet COVID-19 seems to have brought up new rules and approaches. Through document and critical discourse analysis, it emerges that there has been a surge in COVID-19 vaccines and treatments nationalism. Global solidarity is threatened, with the USA, United Kingdom, European Union and Japan having secured 1.3 billion doses of potential vaccines as of August 2020. Vaccines ran out even before their approval with three candidates from Pfizer-BioNTech, Moderna and AstraZeneca having shown good Phase III results in November 2020. Rich countries have gone years ahead in advance vaccines and treatments purchases. This is a testimony that the 2030 AfSD, especially SDG 3 focusing on health will be difficult to achieve. Low-income countries are left gasping for survival as the COVID-19 pandemic relegates them further into extreme poverty and deeper inequality. The paper recommends the continued mobilisation by the World Health Organisation and other key stakeholders in supporting the GAVI vaccine alliance and the Coalition for Epidemic Preparedness Innovations (COVAX) global vaccines initiative that seeks to make two billion vaccine doses available to 92 low and middle-income countries by December 2021.

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52. Painter EM, Ussery EN, Patel A, et al. Demographic Characteristics of Persons Vaccinated During the First Month of the COVID-19 Vaccination Program - United States, December 14, 2020-January 14, 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70(5):174-7. DOI: 10.15585/mmwr.mm7005e1

ABSTRACT: In December 2020, two COVID-19 vaccines (Pfizer-BioNTech and Moderna) were authorized for emergency use in the United States for the prevention of coronavirus disease 2019 (COVID-19).* Because of limited initial vaccine supply, the Advisory Committee on Immunization Practices (ACIP) prioritized vaccination of health care personnel (dagger) and residents and staff members of long-term care facilities (LTCF) during the first phase of the U.S. COVID-19 vaccination program (1). Both vaccines require 2 doses to complete the series. Data on vaccines administered during December 14, 2020-January 14, 2021, and reported to CDC by January 26, 2021, were analyzed to describe demographic characteristics, including sex, age, and race/ethnicity, of persons who received ≥ 1 dose of COVID-19 vaccine (i.e., initiated vaccination). During this period, 12,928,749 persons in the United States in 64 jurisdictions and five federal entities (section sign) initiated COVID-19 vaccination. Data on sex were reported for 97.0%, age for 99.9%, and race/ethnicity for 51.9% of vaccine recipients. Among persons who received the first vaccine dose and had reported demographic data, 63.0% were women, 55.0% were aged ≥ 50 years, and 60.4% were non-Hispanic White (White). More complete reporting of race and ethnicity data at the provider and jurisdictional levels is critical to ensure rapid detection of and response to potential disparities in COVID-19 vaccination. As the U.S. COVID-19 vaccination program expands, public health officials should ensure that vaccine is administered efficiently and equitably within each successive vaccination priority category,

especially among those at highest risk for infection and severe adverse health outcomes, many of whom are non-Hispanic Black (Black), non-Hispanic American Indian/Alaska Native (AI/AN), and Hispanic persons (2,3).

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ABSTRACT: People with learning disabilities were up to six times more likely to die from COVID-19 than the general population during the first wave of the pandemic, according to a Public Health England study.

DOI: 10.7748/ldp.24.1.6.s2

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ABSTRACT: Coronavirus disease 2019 (COVID-19) mortality and morbidity have been shown to increase with deprivation and impact non-White ethnicities more severely. Despite the extra risk Black, Asian and Minority Ethnicity (BAME) groups face in the pandemic, our current medical research system seems to prioritise innovation aimed at people of European descent. We found significant difficulties in assessing baseline demographics in clinical trials for COVID-19 vaccines, displaying a lack of transparency in reporting. Further, we found that most of these trials take place in high-income countries, with only 25 of 219 trials (11.4%) taking place in lower middle- or low-income countries. Trials for the current best vaccine candidates (BNT162b2, ChadOx1, mRNA-173) recruited 80.0% White participants. Underrepresentation of BAME groups in medical research will perpetuate historical distrust in healthcare processes, and poses a risk of unknown differences in efficacy and safety of these vaccines by phenotype. Limiting trial demographics and settings will mean a lack of global applicability of the results of COVID-19 vaccine trials, which will slow progress towards ending the pandemic.

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ABSTRACT: Background: Latino people in the US are experiencing higher excess deaths during the COVID-19 pandemic than any other racial/ethnic group, but it is unclear which subgroups within this diverse population are most affected. Such information is necessary to target policies that prevent further excess mortality and reduce inequities. Methods: Using death certificate data for January 1, 2016 through February 29, 2020 and time-series models, we estimated the expected weekly deaths among Latino people in California from March 1 through October 3, 2020. We quantified excess mortality as observed minus expected deaths and risk ratios (RR) as the ratio of observed to expected deaths. We considered subgroups defined by age, sex, place of birth, education, occupation, and combinations of these factors. Findings: During the first seven months of the pandemic, Latino deaths in California exceeded expected deaths by 10,316, a 31% increase. Excess death rates were greatest for individuals born in Mexico (RR 1.44; 95% PI, 1.41, 1.48) or Central America (RR 1.49; 95% PI, 1.37, 1.64), with less than a high school degree (RR 1.41; 95% PI, 1.35, 1.46), or in food-and-agriculture (RR 1.60; 95% PI, 1.48, 1.74) or manufacturing occupations (RR 1.59; 95% PI, 1.50, 1.69). Immigrant disadvantages in excess death were magnified among working-age Latinos in essential occupations. Interpretation: The pandemic has disproportionately impacted mortality among Latino immigrants and Latinos in unprotected essential jobs; Interventions to reduce these disparities should include early vaccination, workplace safety enforcement, and expanded access to medical care. Funding: National Institute on Aging; UCSF. RESEARCH IN CONTEXT: Evidence before this study: Several articles have suggested all-cause excess mortality estimates are superior to official COVID-19 counts for assessing the impact of the pandemic on marginalized populations that lack access to testing and healthcare. We searched

PubMed, Google scholar, and the medRxiv preprint database through December 22, 2020 for studies of ("excess mortality" or "excess death") AND ("COVID-19" or "coronavirus") set in the United States and we identified two empirical studies with estimates of excess mortality among Latinos during the pandemic. The study set in California (from our research team) found per capita excess mortality was highest among Black and Latino people. The national study found percent excess mortality was significantly higher among Latino people than any other racial/ethnic group. Neither study further disaggregated the diverse Latino population or provided subgroup estimates to clarify why excess pandemic mortality is so high in this population. In the U.S., official COVID-19 statistics are rarely disaggregated by place of birth, education, or occupation which has resulted in a lack of evidence of how these factors have impacted mortality during the pandemic. No study to date of excess mortality in the U.S. has provided estimates for immigrant or occupational subgroups. Added value of this study: Our population-based observational study of all-cause mortality during the COVID-19 pandemic provides the first estimates of within-group heterogeneity among the Latino population in California - one of the populations hardest hit by COVID-19 in the U.S. We provide the first subgroup estimates by place of birth and occupational sector, in addition to combined estimates by foreign-birth and participation in an essential job and education. In doing so, we reveal that Latino immigrants in essential occupations have the highest risk of excess death during the pandemic among working-age Latinos. We highlight the heightened risk of excess mortality associated with food/agriculture and manufacturing occupational sectors, essential sectors in which workers may lack COVID-19 protections. Implications of all the available evidence: Our study revealed stark disparities in excess mortality during the COVID-19 pandemic among Latinos, pointing to the particularly high vulnerability of Latino immigrants and Latinos in essential jobs. These findings may offer insight into the disproportionate COVID-19 mortality experienced by immigrants or similarly marginalized groups in other contexts. Interventions to reduce these disparities should include policies enforcing occupational safety, especially for immigrant workers, early vaccination, and expanded access to medical care.

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ABSTRACT: In recent correspondences, authors emphasized the need to consider vulnerable groups such as migrants, refugees, prisoners, and persons with disabilities in the interventions and plans of government and health authorities in combatting coronavirus disease 2019 (COVID-19). This paper discusses the urgent call for government and health authorities to ensure that indigenous peoples, being distinct ethnic communities, are included in the rolling out of COVID-19 vaccines with considerations to their unique culture, beliefs and traditions.

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ABSTRACT: Coronavirus disease 2019 (COVID-19), a multi-organ disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), continues to challenge health and care systems around the globe. The pandemic has disrupted acute neurology services and routine patient care and has impacted the clinical course in

patients with chronic neurological disease. COVID-19 appears to have exposed inequalities of societies and healthcare systems and had a disproportionate impact on already vulnerable communities. The next challenge will be to set up initiatives to stop disparities in all aspects related to COVID-19. From the medical perspective, there is a need to consider inequalities in prevention, treatment and long-term consequences. Some of the issues of direct relevance to neurologists are summarised. With this appraisal, the European Academy of Neurology NeuroCOVID-19 Task Force intends to raise awareness of the potential impact of COVID-19 on inequalities in healthcare and calls for action to prevent disparity at individual, national and supranational levels.

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ABSTRACT: As COVID-19 vaccines are distributed across the United States, it is essential to address the pandemic's disproportionate impact on refugee, immigrant, and migrant (RIM) communities. Although the National Academies Press Framework for Equitable Allocation of COVID-19 Vaccine provides recommendations for an equitable vaccine campaign, implementation remains. Practical considerations for vaccine rollout include identifying and overcoming barriers to vaccination among RIM communities. To identify barriers, information regarding vaccine beliefs and practices must be incorporated into the pandemic response. To overcome barriers, effective communication, convenience of care, and community engagement are essential. Taking these actions now can improve health among RIM communities.

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DOI: 10.1136/bmj.n220

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ABSTRACT: The article offers the views of U.S. healthcare industry leaders on the possible role of healthcare organizations in ending systemic racism in June 2020. Dowling observes that the staff wants to know the leaders' commitment to the cause and acknowledgment of their responsibility. Harris states that numbers, inclusion, and a diverse group in decisionmaking are important. Markovich notes that prosperity for a community and its members has to be redefined.

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ABSTRACT: The author reflects on the importance of a safe, transparent, equitable and effective use of coronavirus disease 2019 (COVID-19) vaccines around the world. Other topics are the social and health discrimination faced by people of color in the U.S. particularly African Americans, and the 10 principles for COVID-19 vaccine distribution, allocation and mass distribution issued by the American Society of Health-System Pharmacists (ASHP).

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ABSTRACT: There is optimism about the coming availability of SARS-CoV-2 vaccines. However, supplies are likely to be limited, at least initially. Thus, various groups have suggested prioritization schemes to allocate limited vaccine supplies.

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ABSTRACT: The fervent global quest for the development of a vaccine against the novel coronavirus (COVID-19) begs the frightening questions: who will go first in receiving it? and will everyone get to receive it at all? This working paper seeks to highlight the risk that mercantilist market-logic approaches to hoard or overprice a future vaccine poses for human lives, and how it might reproduce global inequalities in a fatal manner. It draws upon the literature on socioeconomic disparities in vaccination to argue that the infrastructure for international dissemination of the vaccine must be built in advance and in a manner that forsakes the hostile mercantilism that has accompanied a shifting and combative international order.

DOI: 10.2139/ssrn.3608750

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ABSTRACT: BACKGROUND: Racial and ethnic disparities in vaccination rates for seasonal influenza exist. Whether such disparities extend to patients with ESKD, who simultaneously are at risk for complications of infection and have extensive contact with health care providers, has not been investigated. METHODS: To determine whether the proportion of patients vaccinated at a dialysis facility differs according to the facility's racial and ethnic composition, we examined dialysis facility data reported to the Centers for Medicare and Medicaid Services. The main outcome was the proportion of facility patients vaccinated for influenza among 6735 Medicare-certified facilities operating between 2014 and 2017. RESULTS: Among dialysis facilities, the mean percentage of patients vaccinated during the influenza season was 72.1%. Facilities with higher proportions of Black and Hispanic patients had significantly lower vaccination percentages than less diverse facilities. The average proportion of patients vaccinated at each facility decreased significantly from 2014 to 2017 (a decrease of 1.05% vaccinated per year) and decreased significantly more so among facilities with higher minority proportions. The share of vaccinated patients in facilities in the quartile with the highest proportion of Black patients decreased 1.21% per year compared with a decrease of 0.88% per year in facilities in the quartile with the lowest proportion of Black patients. We found similar trends for Hispanic patients. CONCLUSIONS: Rates of seasonal influenza vaccination are modestly but significantly lower among dialysis facilities with larger proportions of minority patients, and the gap seems to be widening over time. As wide-scale vaccination efforts grow more urgent amid the current COVID-19 pandemic, these disparities must be addressed to protect patients and communities equitably.

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DOI: 10.1001/jama.2020.11244

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ABSTRACT: The article offers information on how Covid-19 vaccines begin to roll out, will some countries and people be left behind. Topics include the equitable distribution is more pressing than ever as several vaccines have begun being administered around the globe, and the U.S. Food and Drug Administration (FDA) has cleared the same shot for emergency use on December 11, 2020.

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ABSTRACT: The article emphasizes the importance for the global public health (PH) community to guarantee equitable access to COVID-19 vaccination for every country in the world in order to end the pandemic. Topics mentioned include the vital role of immunization in PH, the World Health Organization's efforts to coordinate the COVID-19 response of countries including the COVAX facility, and the barriers to vaccine access in low-income areas including the health systems and the high cost of vaccination.

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ABSTRACT: Background: Vaccine hesitancy in the minority patient population is a potential threat to future herd immunity that is paramount in reducing the burden of the COVID pandemic. Potential limitations to the pending COVID vaccination need to be identified early to inform interventions to increase awareness and vaccine uptake once available. This review aims to (1) identify essential studies and derive individual barriers of vaccination hesitancy in the minority patient population; and (2) outline gaps in comprehending the vaccination hesitancy of minority patient populations for analysis and interventions in the development of the COVID vaccine. Method(s): This systematic review was performed according to the methodology recommended by the PRISMA guidelines during the period of January 2010 to July 2020. The research was conducted using the electronic database: PubMed. Following the PRISMA approach, 694 articles were identified, and 60 articles were selected and analyzed for significant barriers to minority patient population vaccination hesitancy. Result(s): The majority of studies included patients from North America, age 18 years or greater. This study identified racial differences in vaccine uptake, attitudes, trust/confidence, and hesitancy. Distinguishing that Black, Latinx, Asian and multiracial respondents were less likely than White respondents to receive routine vaccinations. Discussion(s): Differences in socio-economics, cultural, personal opinion, and many other factors were analyzed in this review. Potential interventions to reduce vaccination hesitation should be utilized. Such as ensuring recruitment of diverse trial population and funding to increase social justice and equity work that fuel dismantling health disparities. In addition there is a need to help promote vaccination education and awareness to potential mitigate barriers in the

minority patient population to increase the potential for herd immunity that maybe instrumental in decreasing the burden of the COVID pandemic.

DOI: <http://dx.doi.org/10.1002/jac5.1351>

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ABSTRACT: The Covid-19 pandemic needs to be considered from two perspectives simultaneously. First, there are questions about which policies are most effective and fair in the here and now, as the pandemic unfolds. These policies concern, for example, who should receive priority in being tested, how to implement contact tracing, or how to decide who should get ventilators or vaccines when not all can. Second, it is imperative to anticipate the medium- and longer-term consequences that these policies have. The case of vaccine rationing is particularly instructive. Ethical, epidemiological, and economic reasons demand that rationing approaches give priority to groups who have been structurally and historically disadvantaged, even if this means that overall life years gained may be lower.

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ABSTRACT: The most severe Covid-19 outbreaks in the United States are no longer occurring in nursing homes or meat-packing plants, but in correctional facilities. Incarcerated populations Copyright © 2020 Massachusetts Medical Society.

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URL: <https://www.ncbi.nlm.nih.gov/pubmed/32171054>

DOI: 10.1016/S2468-2667(20)30053-0

82. Wang PP, Wei XL. Flu Vaccination and Associated Factors among Chinese Immigrants in Canada. Ann Epidemiol. 2020;52:102-3. DOI: 10.1016/j.annepidem.2020.08.022

ABSTRACT: Purpose: The objective of the current study is to examine the Flu vaccination rate and associated factors in Chinese immigrants in Canada. Method(s): A non-random sample cross-sectional study was conducted in April 2020 in Canada. Individuals with Chinese origin aged 16 or older living in Canada at time of the survey were invited to participate an online survey. Outcome variable was defined as receiving Flu vaccine in the past 12-months. Chi-square tests and logistic regression analysis were used. Result(s): A total of 754 eligible respondents who answered more than 50% of the survey questions were included for the analysis. A large majority of the participants (n=494, 66.8%) were female, and 51.2% were 55 years of age or older. Overall, 31.2% of the study participants received Flu vaccine in the past twelve months and there was a significant difference between two genders with corresponding vaccination rates of 34.9% and 29.6% (P=0.209). Likewise, self-rated health, level of education, and employment status were not significantly associated with Flu vaccination. However, as expected, older people (55-year +) were more likely to report receiving Flu vaccine than younger people with OR of 1.67 (1.19~2.37). Conclusion(s): Comparing with other Canadian population, the Flu vaccination rate in Chinese immigrants was lower. Given the ongoing COVID-19 pandemic and coming Flu season in a few months, targeted efforts are needed to greatly increase the overall vaccination rate in this population. Acknowledgements: This study was supported by the New Frontiers Research Fund [NFRF-2019-00012] through the Canadian Institute of Health Research (CIHR). Copyright © 2020

DOI: 10.1016/j.annepidem.2020.08.022

83. Winter G. The ethics of COVID-19 vaccine trials. Journal of Prescribing Practice. 2020;2(12):664-5. DOI: 10.12968/jprp.2020.2.12.664

ABSTRACT: As research organisations around the world continue to develop a vaccine for COVID-19, George Winter considers the ethics of vaccination testing, examining what conditions must be met when conducting clinical trials

DOI: 10.12968/jprp.2020.2.12.664

84. Ozawa S, Yemeke TT, Evans DR, et al. Defining hard-to-reach populations for vaccination. Vaccine. 2019;37(37):5525-34. DOI: 10.1016/j.vaccine.2019.06.081

ABSTRACT: Extending the benefits of vaccination to everyone who is eligible requires an understanding of which populations current vaccination efforts have struggled to reach. A clear definition of "hard-to-reach" populations - also known as high-risk or marginalized populations, or reaching the last mile - is essential for estimating the size of target groups, sharing lessons learned based on consistent definitions, and allocating resources appropriately. A literature review was conducted to determine what formal definitions of hard-to-reach populations exist and how they are being used, and to propose definitions to consider for future use. Overall, we found that (1) there is a need to distinguish populations that are hard to reach versus hard to vaccinate, and (2) the existing literature poorly defined these populations and clear criteria or thresholds for classifying them were missing. Based on this review, we propose that hard-to-reach populations be defined as those facing supply-side barriers to vaccination due to geography by distance or terrain, transient or nomadic movement, healthcare provider discrimination, lack of healthcare provider recommendations, inadequate vaccination systems, war and conflict, home births or other home-bound mobility limitations, or legal restrictions. Although multiple mechanisms may apply to the same population, supply-side barriers should be distinguished from demand-side barriers. Hard-to-vaccinate populations are defined as those who are reachable but difficult to vaccinate due to distrust, religious beliefs, lack of awareness of vaccine benefits and recommendations, poverty or low socioeconomic status, lack of time to access available vaccination services, or gender-based discrimination. Further work is needed to better define hard-to-reach populations and delineate them from populations that may be hard to vaccinate due to complex refusal reasons, improve measurement of the size and importance of their impact, and examine interventions related to overcoming barriers for each mechanism. This will enable policy makers, governments, donors, and the vaccine community to better plan interventions and allocate necessary resources to remove existing barriers to vaccination.

URL: <https://www.ncbi.nlm.nih.gov/pubmed/31400910>

DOI: 10.1016/j.vaccine.2019.06.081

85. Buccieri K, Gaetz S. Ethical Vaccine Distribution Planning for Pandemic Influenza: Prioritizing Homeless and Hard-to-Reach Populations. Public Health Ethics. 2013;6(2):185-96. DOI: 10.1093/phe/pht005

ABSTRACT: The manner in which limited vaccines are distributed during a pandemic is an ethical issue. The utility principle has been used to argue priority be given to certain individuals based on factors such as the epidemiology of the spread of disease and maintaining the functioning of society. The equity principle has been used to encourage fair practices that account for the economic and social costs of all decisions made. We argue that both principles are met through priority vaccination of homeless individuals, as this strategy protects a medically vulnerable population while reducing the chances of transmission to others as they move through populated urban spaces. We begin by reviewing debates around ethical vaccine distribution. We then argue the homeless are a medically high-risk population who may contribute to the spread of disease through their mobility. As immunization rates are generally lower among the homeless and many do not access mainstream health care, we argue that community vaccine clinics must be used to reach these individuals. We provide support by analyzing Toronto Public Health's operation of vaccine clinics in shelters and drop-in centres during pH1N1 and conclude that this strategy is effective for immunizing homeless individuals, bringing together the equity and utility principles.

DOI: 10.1093/phe/pht005

86. P. Wood S. Vaccination Programs among Urban Homeless Populations: A Literature Review. Journal of Vaccines & Vaccination. 2012;03(06). DOI: 10.4172/2157-7560.1000156

ABSTRACT: Vaccination programs are an important component of public health initiatives and preventative medicine. This is particularly true in an urban environment where such factors as density, sanitation and pollution increase exposure to a variety of communicable disease. The most vulnerable populations such as slum-dwelling poor, homeless individuals and the elderly-poor are both more prone to exposure to communicable disease and to having a more limited access to the receipt of appropriate vaccinations to prevent them. A variety of programs have been utilized to maximize delivery of important vaccines to homeless individuals. Monetary incentives, education and ease of access are components of some of the more successful vaccination programs. This paper will provide a literature review of barriers to vaccination in homeless populations, programs and initiatives as well as future directions for vaccination programs.

DOI: 10.4172/2157-7560.1000156

Appendix 1: Evidence Search Details

Filters, Limits & Exclusions:	2019-Current for Covid, increased for previous influenza and other pandemic response plans already created	
Sources Searched:	<ul style="list-style-type: none"> • Alliance for Healthier Communities • American Society of Addiction Medicine • Australian Housing and Urban Research • AVI Health and Community Services • BioRxiv • British Columbia Centre on Substance Use • Canadian Drug Policy Coalition • Canadian Network for the Health and Housing of People Experiencing Homelessness • Centre for Addiction and Mental Health • CINAHL Plus Full Text • Coalition for the Homeless • Drugs.ie • Embase • European Centre for Disease Prevention and Control • European Commission • FEANTSA (European Federation of National Organisations Working with the Homeless) • First Nations Health Authority 	<ul style="list-style-type: none"> • Google • Google Scholar • Healthy London Partnership (UK) • Homeless Hub – Canadian Observatory on Homelessness • Homeless Link • Homelessness NSW • MEDLINE (Ovid) • MedRxiv • Niagara Knowledge Exchange • NSW Users and AIDS Association (NUAA) • Pathways Youth and Family Services • Prairie Harm Reduction • Saskatoon Community Foundation • Scottish Drugs Forum • Shelter Cymru (Wales) • Shelter England • Shelter Western Australia • Substance Abuse and Mental Health Services Administration • Talking drugs.org • Urgent Public Health Need Site • Community of Practice Hub (Canada)
Librarian(s):	Lukas Miller, Clinical Librarian, Saskatchewan Health Authority Brianna Howell-Spooner, Clinical Librarian, Saskatchewan Health Authority	

Appendix 2: Search Strategies

Search Strategies

Ovid MEDLINE(R) ALL <1946 to March 03, 2021>

#	Searches	Results
1	(*coronavirus/ or *betacoronavirus/ or *coronavirus infections/) and (disease outbreaks/ or epidemics/ or pandemics/)	38541
2	(nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,kf,nm,ox,rx,px.	100372
3	((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3	12227

	(coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV)).ti,kf.	
4	((coronavirus* or corona virus* or betacoronavirus*) adj3 (pandemic* or epidemic* or outbreak* or crisis)).ti,kf. or coronavirus*.ti.	19056
5	or/1-4	113309
6	exp *Immunization/ or exp *Vaccination/ or exp *Vaccines/	224425
7	(vaccinat* or vaccine? or inoculat* or immunization? or immunize?).ti,kf.	218904
8	(vaccinat* or vaccine? or inoculat* or immunization? or immunize?).ab. /freq=2	239900
9	6 or 7 or 8	374349
10	5 and 9	4832
11	Vulnerable Populations/ or Medically Underserved Area/ or Healthcare Disparities/ or exp *Socioeconomic Factors/ or Social Determinants of Health/	204745
12	alcoholics/ or bedridden persons/ or child, abandoned/ or "child of impaired parents"/ or child, foster/ or child, orphaned/ or child, unwanted/ or exp crime victims/ or criminals/ or exp disabled persons/ or drug users/ or exp "emigrants and immigrants"/ or enslaved persons/ or homebound persons/ or exp homeless persons/ or exp prisoners/ or refugees/ or sex workers/ or exp "sexual and gender minorities"/ or minority groups/ or exp survivors/ or "transients and migrants"/ or vulnerable populations/ or working poor/ or exp poverty/ or social marginalization/ or psychosocial deprivation/	255350
13	((sensitive or vulnerable or underserved or disadvantaged or marginalized) adj1 (population? or demograph* or patient? or group? or people? or person? or adult? or youth? or teen* or adolescen* or child* or elder* or famil* or communit*)).ti,kf.	6550
14	(vulnerable or underserved or disadvantaged or marginalized or neglected or impaired or impairment? or dispossessed or destitute or impoverish* or poverty or low-income or destitute or deprived or poor or homeless* or unemploy* or unhoused or transient).ti,kf.	250537
15	((food or water or nutrition or social or financ* or wealth or housing or accommodation*) adj1 (insecur* or instabilit* or unstable)).ti,kf.	2812
16	("no fixed address" or "no fixed abode" or "without a home" or "having no home" or temporar* hous* or unhoused or underhoused or unsheltered or vagran* or itinerant or displaced or displacement or transient or rough sleep* or sleeping rough or couch surf* or couchsurf* or overcrowd*).ti,kf.	68190
17	(alcoholic or bedridden or (child* adj1 (abandon* or orphan* or unwanted)) or criminal* or prisoner? or incarcerat* or prison* or imprison* or victim? or disabled or drug user? or drug abuser? or addict* or immigrant? or emigrant? or enslav* or homebound or refugee? or sex work* or ((sex or gender) adj minorit*) or transgender or minority or minorities or survivor? or transient? or migrant? or poor or medical* indigenc* or uninsured).ti,kf.	276141
18	(unequal or inequality or inaccessibility or inaccessible or discriminat* or bias* or difference? or disparit* or stereotyp* or prejudic* or social justic* or unjust* or injust* or race or racism or racist or soc* class or stigma* or gatekeep* or oppress* or socioeconomic? or social determinant? or structural determinant?).ti,kf.	346239
19	or/11-18 [specific]	1067596
20	((sensitive or vulnerable or underserved or disadvantaged or marginalized) adj1 (population? or demograph* or patient? or group? or people? or person? or adult? or youth? or teen* or adolescen* or child* or elder* or famil* or communit*)).ab. /freq=2	5015
21	(vulnerable or underserved or disadvantaged or marginalized or neglected or impaired	401512

	or impairment? or dispossessed or destitute or impoverish* or poverty or low-income or destitute or deprived or poor or homeless* or unemploy* or unhoused or transient).ab. /freq=2	
22	((food or water or nutrition or social or financ* or wealth or housing or accommodation*) adj1 (insecur* or instabilit* or unstable)).ab. /freq=2	2959
23	("no fixed address" or "no fixed abode" or "without a home" or "having no home" or temporar* hous* or unhoused or underhoused or unsheltered or vagran* or itinerant or displaced or displacement or transient or rough sleep* or sleeping rough or couch surf* or couchsurf* or overcrowd*).ab. /freq=2	77738
24	(alcoholic or bedridden or (child* adj1 (abandon* or orphan* or unwanted)) or criminal* or prisoner? or incarcerat* or prison* or imprison* or victim? or disabled or drug user? or drug abuser? or addict* or immigrant? or emigrant? or enslav* or homebound or refugee? or sex work* or ((sex or gender) adj minorit*) or transgender or minority or minorities or survivor? or transient? or migrant? or poor or medical* indigenc* or uninsured).ab. /freq=2	326441
25	(unequal or inequality or inaccessibility or inaccessible or discriminat* or bias* or difference? or disparit* or stereotyp* or prejudic* or social justic* or unjust* or injust* or race or racism or racist or soc* class or stigma* or gatekeep* or oppress* or socioeconomic? or social determinant? or structural determinant?).ab. /freq=2	998186
26	or/19-25 [sensitive]	2227879
27	10 and 19	168
28	10 and 26	259
29	limit 28 to yr="2021 -Current"	97
30	remove duplicates from 29	87
31	from 30 keep 1, 7, 9-10, 12, 15-17, 23...	41

Embase <1974 to 2021 March 03>

#	Searches	Results
1	sars-related coronavirus/	469
2	(coronavirinae/ or betacoronavirus/ or coronavirus infection/) and (epidemic/ or pandemic/)	11182
3	(nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kw,hw,ot.	104461
4	((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV)).ti,ab,kw,hw,ot.	97073
5	((coronavirus* or corona virus* or betacoronavirus*) adj3 (pandemic* or epidemic* or outbreak* or crisis)).ti,ab,kw,ot. or coronavirus*.ti.	22759
6	((Wuhan or Hubei) adj5 pneumonia).ti,ab,kw,ot.	360
7	or/1-6	119329
8	exp *immunization/ or exp *vaccine/	254966
9	(vaccinat* or vaccine? or inoculat* or immunization? or immunize?).ti,kw.	244642
10	(vaccinat* or vaccine? or inoculat* or immunization? or immunize?).ab. /freq=2	280483
11	8 or 9 or 10	412980
12	7 and 11	4604
13	vulnerable population/ or exp homeless person/ or indigent/ or survivor/ or exp childhood trauma survivor/ or injection drug user/ or poverty/ or exp *social status/	1387560

	or offender/ or exp victim/ or exp migrant/or minority group/ or exp lowest income group/ or exp social problem/ or sex worker/ or exp "sexual and gender minority"/ or exp addiction/ or health care disparity/ or medically underserved/	
14	((sensitive or vulnerable or underserved or disadvantaged or marginalized) adj1 (population? or demograph* or patient? or group? or people? or person? or adult? or youth? or teen* or adolescen* or child* or elder* or famil* or communit*)).ti,kw.	8190
15	(vulnerable or underserved or disadvantaged or marginalized or neglected or impaired or impairment? or dispossessed or destitute or impoverish* or poverty or low-income or destitute or deprived or poor or homeless* or unemploy* or unhoused or transient).ti,kw.	329787
16	((food or water or nutrition or social or financ* or wealth or housing or accommodation*) adj1 (insecur* or instabilit* or unstable)).ti,kw.	3678
17	("no fixed address" or "no fixed abode" or "without a home" or "having no home" or temporar* hous* or unhoused or underhoused or unsheltered or vagran* or itinerant or displaced or displacement or transient or rough sleep* or sleeping rough or couch surf* or couchsurf* or overcrowd*).ti,kw.	79397
18	(alcoholic or bedridden or (child* adj1 (abandon* or orphan* or unwanted)) or criminal* or prisoner? or incarcerat* or prison* or imprison* or victim? or disabled or drug user? or drug abuser? or addict* or immigrant? or emigrant? or enslav* or homebound or refugee? or sex work* or ((sex or gender) adj minorit*) or transgender or minority or minorities or survivor? or transient? or migrant? or poor or medical* indigenc* or uninsured).ti,kw.	350784
19	(unequal or inequality or inaccessibility or inaccessible or discriminat* or bias* or difference? or disparit* or stereotyp* or prejudic* or social justic* or unjust* or injust* or race or racism or racist or soc* class or stigma* or gatekeep* or oppress* or socioeconomic? or social determinant? or structural determinant?).ti,kw.	415875
20	or/13-19	2129515
21	12 and 20	249
22	limit 21 to medline	52
23	21 not 22	197
24	remove duplicates from 23	197

Search history sorted by search number ascending

CINAHL

#	Query	Limiters/Expanders	Results
S1	MH "Coronavirus+" OR MH "Coronavirus Infections+"	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	25,454
S2	TX ((corona* or corono*) N1 (virus* or viral* or virinae*))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	743

S3	TI ((nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2)) OR MW ((nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	3,677
S4	TI (((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) N3 (coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV))) OR MW (((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) N3 (coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV)))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	2,362
S5	MW (((coronavirus* or corona virus* or betacoronavirus*) N3 (pandemic* or epidemic* or outbreak* or crisis))) OR TI (((coronavirus* or corona virus* or betacoronavirus*) N3 (pandemic* or epidemic* or outbreak* or crisis)))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	915
S6	TI (((Wuhan or Hubei) N5 pneumonia)) OR MW (((Wuhan or Hubei) N5 pneumonia))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	28
S7	S1 OR S2 OR S3 OR S4 OR S5 OR S6	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	28,299
S8	(MH "Immunization+") OR (MH "Vaccines+")	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	62,273
S9	TI ((vaccinat* or vaccine? or inoculat* or immunization? or immunize?)) OR MW ((vaccinat* or vaccine? or inoculat* or immunization? or immunize?))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	59,120
S10	S8 OR S9	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	67,238
S11	S7 AND S10	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	875

S12	(MH "Special Populations") OR (MH "Bedridden Persons") OR (MH "Children of Impaired Parents+") OR (MH "Crime Victims") OR (MH "Dependent Families+") OR (MH "Disabled+") OR (MH "Ethnic Groups+") OR (MH "Heterosexuals") OR (MH "Homeless Persons") OR (MH "Immigrants+") OR (MH "Indigent Persons") OR (MH "Medically Uninsured") OR (MH "Minority Groups") OR (MH "Prisoners") OR (MH "Public Offenders+") OR (MH "Refugees+") OR (MH "Runaways") OR (MH "Sexual and Gender Minorities+") OR (MH "Substance Abusers+") OR (MH "Survivors+") OR (MH "Transients and Migrants") OR (MH "Victims+") OR (MH "Social Problems+") OR (MH "Healthcare Disparities") OR (MH "Medically Underserved Area")	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	511,394
S13	TI (((sensitive or vulnerable or underserved or disadvantaged or marginalized) N1 (population? or demograph* or patient? or group? or people? or person? or adult? or youth? or teen* or adolescen* or child* or elder* or famil* or communit*))) OR MW (((sensitive or vulnerable or underserved or disadvantaged or marginalized) N1 (population? or demograph* or patient? or group? or people? or person? or adult? or youth? or teen* or adolescen* or child* or elder* or famil* or communit*)))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	2,675
S14	TI ((vulnerable or underserved or disadvantaged or marginalized or neglected or impaired or impairment? or dispossessed or destitute or impoverish* or poverty or low-income or destitute or deprived or poor or homeless* or unemploy* or unhoused or transient)) OR MW ((vulnerable or underserved or disadvantaged or marginalized or neglected or impaired or impairment? or dispossessed or destitute or impoverish* or poverty or low-income or destitute or deprived or poor or homeless* or unemploy* or unhoused or transient))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	121,173
S15	TI (((food or water or nutrition or social or financ* or wealth or housing or accommodation*) N1 (insecur* or instabilit* or unstable))) OR MW (((food or water or nutrition or social or financ* or wealth or housing or accommodation*) N1 (insecur* or instabilit* or unstable)))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	1,823
S16	TI (("no fixed address" or "no fixed abode" or "without a home" or "having no home" or temporar* hous* or unhoused or underhoused or unsheltered or vagran* or itinerant or displaced or displacement or transient or rough sleep* or sleeping rough or couch surf* or couchsurf* or overcrowd*)) OR MW (("no fixed address" or "no fixed abode" or "without a home" or "having no home" or temporar* hous* or unhoused or underhoused or unsheltered or vagran* or itinerant or displaced or displacement or transient or rough sleep* or sleeping rough or couch surf* or couchsurf* or overcrowd*))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	18,472

S17	TI ((alcoholic or bedridden or (child* N1 (abandon* or orphan* or unwanted)) or criminal* or prisoner? or incarcerat* or prison* or imprison* or victim? or disabled or drug user? or drug abuser? or addict* or immigrant? or emigrant? or enslav* or homebound or refugee? or sex work* or ((sex or gender) N1 minorit*) or transgender or minority or minorities or survivor? or transient? or migrant? or poor or medical* indigenc* or uninsured)) OR MW ((alcoholic or bedridden or (child* N1 (abandon* or orphan* or unwanted)) or criminal* or prisoner? or incarcerat* or prison* or imprison* or victim? or disabled or drug user? or drug abuser? or addict* or immigrant? or emigrant? or enslav* or homebound or refugee? or sex work* or ((sex or gender) N1 minorit*) or transgender or minority or minorities or survivor? or transient? or migrant? or poor or medical* indigenc* or uninsured))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	180,834
S18	TI ((unequal or inequality or inaccessibility or inaccessible or discriminat* or bias* or difference? or disparit* or stereotyp* or prejudic* or social justic* or unjust* or injust* or race or racism or racist or soc* class or stigma* or gatekeep* or oppress* or socioeconomic? or social determinant? or structural determinant?)) OR MW ((unequal or inequality or inaccessibility or inaccessible or discriminat* or bias* or difference? or disparit* or stereotyp* or prejudic* or social justic* or unjust* or injust* or race or racism or racist or soc* class or stigma* or gatekeep* or oppress* or socioeconomic? or social determinant? or structural determinant?))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	246,313
S19	S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	783,736
S20	S11 AND S19	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	76
S21	S11 AND S19	Limiters - Exclude MEDLINE records Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	62

Other Search Strategies

COVID AND (vaccine|vaccination) AND (homeless|vulnerable|addicts|immigrants|rough sleeper|domestic violence|family violence|transient|shelters)
(homeless|vulnerable|addicts|immigrants|rough sleeper|domestic violence|family violence|transient) AND (vaccination strategies|plans)



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