

Rapid Review Report

Review Title:	What are the vaccination strategies for vulnerable populations?
Abbreviated Title:	What are the vaccination strategies for vulnerable populations?
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Prepared By:	Andreea Badea, Researcher, University of Saskatchewan Lukas Miller, Clinical Librarian, Saskatchewan Health Authority Library Brianna Howell-Spooner, Clinical Librarian, Saskatchewan Health Authority Library
Peer Reviewer:	Dr. Bruce Reeder, Dr. Lori Hanson
Contact:	For questions specific to this review, contact Sheila Anderson, sheila.anderson@saskhealthauthority.ca
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Key Findings

- Vulnerable populations such as those experiencing homelessness are 20 times more likely to be hospitalised due to COVID-19, 10 times more likely to require intensive care for COVID-19 and 5 times more likely to die within 21 days of a positive test for COVID-19
- Many organizations advocate for socially vulnerable populations to be considered priority populations due to their often complex health needs and inability to fully execute best practices for infection prevention and control
- Past experiences from Hepatitis vaccination (requiring 3 injections) and H1N1 pandemic influenza vaccination indicate that partnering with community organizations to provide vaccinations in shelters, community centers and other frequently accessed places along with education and access to known, trusted healthcare providers greatly increase the uptake of vaccination among socially vulnerable populations

- Beyond sheltered populations experiencing homelessness, considerations for equitable vaccination programs for the general population should include plans for accessibility for all, including underserved geographic regions

Limitations

- Only English literature was reviewed
- Due to the novelty of the vaccine and early phase of rollout in many countries, literature regarding the successful vaccination of socially vulnerable populations is not yet available
- Extrapolation from previous vaccination campaigns must be done carefully due to the pandemic context as well as the multi-dose vaccination schedule posing unique challenges for follow-up
- This review did not consider the intersection of socially vulnerable populations and culturally safe care

Summative Statement – choose only one

<input type="checkbox"/> Mature evidence	<input checked="" type="checkbox"/> Emerging Supportive evidence
<input type="checkbox"/> Mixed evidence	<input type="checkbox"/> Weak evidence

Quality Assessment

For this review, 12 grey literature sources were reviewed, comprising of guidance documents, white papers describing past experiences as well as resource documents for framework development. 5 news articles were reviewed for local COVID-19 vaccination program descriptions. In the published literature, 15 articles were considered. These articles comprised of 6 commentary/narrative papers, 4 literature reviews and 5 primary literature sources. Overall, the literature describing past vaccination campaigns in vulnerable populations, particularly for Hepatitis B and H1N1 influenza were quite well established. Literature specific to COVID-19 vaccination is still emerging due to the novelty of the vaccine and the early stages of rollout amid a pandemic context.

Background/Context

Vulnerable populations such as people experiencing homelessness are oftentimes victims of significantly worse health outcomes than the general population. In the context of the COVID-19 pandemic, this translates to higher risks of infection, morbidity, and mortality. For these reasons, their inclusion as priority populations should be considered. In addition, many socially vulnerable populations are also classes as ‘hard-to-reach’ populations in terms of healthcare, and innovative strategies relevant to this population must be considered when developing interventions such as vaccination programs.

Purpose

To determine the evidence for classifying socially vulnerable populations as priority populations for COVID-19 vaccination and to examine vaccine strategies to best reach these populations.

Review Question(s)

- Is there evidence to deem socially vulnerable populations as priority populations for COVID-19 vaccination?
- How can vaccine programs be designed to best reach socially vulnerable populations effectively?

Method

For each Rapid Review, the initial question is posed by a decision-maker in the health care system seeking the evidence base for a specific policy decision. According to the subject of the question, the COVID Evidence Support Team (CEST) Intake Committee allocates the question to the appropriate Working Group. Each Working Group may be comprised of a librarian, researcher, 1-2 clinicians, 1-2 subject matter experts, and a group leader. A reference interview is conducted to establish the parameters of the question to ensure it is articulated in a clear, searchable manner. The librarians assigned to the team then conduct a thorough search of the indexed literature, grey literature, news sources, or other sources as agreed upon. Some reference lists for especially pertinent articles are also reviewed. An Evidence Search Report is thereby created. See Appendix for more details on the search strategy. A Rapid Review of the identified literature is then performed by the researcher using the approach of a systematic review, but without a double review, formal assessment of quality of reported study, or meta-analysis. Importantly, the review is completed in a time-sensitive manner. Relevant evidence is summarized in both tabular and narrative form, key findings and limitations articulated, and the quality of the body of evidence evaluated using a four-point grading system that assesses the methodologies, adequacy of the included studies, the direct relevance to the question and the generalizability of the findings related to the question. The draft Rapid Review Report is reviewed and edited by the Working Group clinicians, experts, and leader. Once revisions are complete, the Rapid Review is submitted to the requesting decision-maker and placed in the COVID-19 repository and database. For certain topics with rapidly changing evidence, after a period of time an updated evidence search is performed, the review process repeated, and an updated Rapid Review released.

Summary of Evidence

Socially vulnerable populations, such as people experiencing homelessness, have been well established to have poorer health than the general population. People who experience homelessness live, on average, 25 years less than those who are housed and have health profiles and vulnerability similar to those in the general population over 70 years of age¹. People experiencing homelessness often face high

rates of diabetes, heart disease, malnutrition, mental health disorders and substance use disorders². These factors alone increase their vulnerability to COVID-19, and when combined with factors such as overcrowded congregate living situations, the transient nature of many shelters leading to increased number of contacts and lack of access to fully perform infection prevention control measures leads to a significant increase in risk of infection, morbidity and mortality from COVID-19^{3,4}.

It has been demonstrated that the rate of spread of COVID-19 among those experiencing homelessness is three times that of general population¹, and when infected, people experiencing homelessness are 20 times more likely to be hospitalized, 10 times more likely to require intensive care and 5 times more likely to die in the 21 days following a COVID-19 diagnosis⁵.

The challenges of vaccinating hard-to-reach populations such as those experiencing homelessness are well documented with significantly lower rates of uptake than the general population. Vaccine hesitancy in the context of COVID-19 has been documented across the whole population⁶, with higher rates being seen in those with lower levels of education, lower incomes and belonging to racial or ethnic minorities. Several frameworks have been proposed to increase vaccination uptake in hard-to-reach populations. The most common recommendations are to include those with lived experience in decision making and framework building, as well as designating and training 'peer communicators' to advocate and educate for vaccination⁷⁻¹¹.

In terms of logistics, great success has been had for routine vaccination campaigns (Hepatitis B, seasonal influenza) as well as pandemic vaccination (H1N1) by providing vaccination in community centers, shelters, community clinics and even door-to-door, particularly when performed by trusted healthcare providers such as street nurses. These strategies have been demonstrated to be successful in past campaigns such as the H1N1 vaccination campaign in Toronto in 2009. H1N1 vaccination were made available in shelters and resulted in a 38% vaccination rate compared to a 25% vaccination rate achieved for seasonal influenza vaccination previously¹². While appearing low, a 38% vaccination rate was in line with the vaccination rate found in the general population. Similar success was observed during the H1N1 pandemic in Victoria by having street nurses administering the vaccines¹² and in Regina by providing vaccines in shelters as well as providing transportation to vaccine clinics for residents¹². Experience from Hepatitis B vaccination campaigns in the USA, which requires 3 vaccinations, found that the provision of financial incentives, in combination with intensive nurse case management services led to program completion rates above 65%¹³. One study suggests, based on their experience with financial incentives to ensure Hepatitis B vaccination schedule completion, that to ensure completion of the two-dose COVID-19 vaccine regimen, compensation of \$300 in total (\$100 after the first vaccine, \$200 after the second vaccine) would be appropriate¹⁴. In contrast, previous programs for Hepatitis B and influenza vaccine completion found success with financial incentives as low as \$5¹³. Currently, in Vancouver, a Downtown Eastside COVID-19 vaccination program is providing \$5 or coffee shop gift cards in lieu of their previous offerings of coffee/snacks and has vaccinated over 5,100 people who are homeless in Downtown Eastside as well as more than 2,100 staff members at resource centers to date¹⁵. In Ontario, Hamilton¹⁶ and Toronto¹⁷ have set up programs to provide vaccinations in shelters.

Conclusions

Vaccination of hard-to-reach populations such as people experiencing homelessness is a logistically complex issue. While people experiencing homelessness often exhibit other vulnerabilities (such as age and presence of comorbidities) that may grant them priority access to COVID-19 vaccination, experts

believe that due to the overcrowded living conditions and lack of access to fully perform infection prevention and control measures, these vulnerable populations should have priority access to COVID-19 vaccination. While granting access is a necessary hurdle, uptake of vaccination among hard-to-reach populations poses a significant challenge, and programs should be designed in consultation with those with lived experiences to ensure that programs and frameworks are relevant and accessible. Previous experience from H1N1 and Hepatitis B vaccination campaigns show that training ‘peer communicators’, having available trusted healthcare workers to provide face to face information as well as providing vaccines in places most frequently accessed by hard-to-reach populations such as shelters, community centers and community clinics leads to improved vaccination rates, as does the provision of financial incentives as low as \$5. These strategies are already being employed in other Canadian jurisdictions, such as Hamilton and Toronto, where vaccinations are being provided in shelter settings, and Vancouver, where a Downtown Eastside vaccination campaign has been able to successfully vaccinate over 5,100 people experiencing homelessness and over 2,100 staff in support services by providing a \$5 incentive in lieu of previously offered coffee and snacks.

Glossary

(Optional, but useful if there are clinical/statistical terms being referenced in the document.)

Table 1: Summary of Literature

Ref	Method	Context	Key Findings
<p>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</p>	<p>Program advertisement</p>	<p>Program to reach homeless individuals during H1N1 pandemic (Salt Lake City, US)</p>	<ul style="list-style-type: none"> - H1N1 symptomology very distinct - developed an alternative care facility to identify, diagnose, isolate and treat people who are homeless - partnered with a homeless shelter with room for up to 60 infected in their infirmary, and alternative care can accommodate 80 additional - training case managers, frontline staff, check-in staff, cooks and others who work directly with people who are homeless to identify the symptoms of H1N1 - providing training for volunteer EMTs and nurses to monitor the care of people who have been diagnoses - strong relationship with the local hospital to help provide chest X-rays, EEGs and EKGs to diagnose and care for patients - set up to provide many of the services people would receive in an (already strained) ET such as IVs for dehydration
<p>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</p>	<p>Expert opinion white paper</p>	<p>COVID-19 vaccine distribution for homeless (NY, US)</p>	<ul style="list-style-type: none"> - homeless shelter residents, unsheltered and staff who serve people who are homeless should be offered immediate access to available vaccines - priority 1b includes homeless people in congregate settings and those who serve them - eligibility and the process for accessing the vaccine must be transparent and clearly communicated - process of offering and administering vaccines must always be guided by informed consent, which hinges on the success of clear and consistent information

			<ul style="list-style-type: none"> - city, state and federal governments should mobilize every available resource in order to distribute a sufficient quantity of vaccine to reach all homeless individuals and families as well as the staff who serve them
<p>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</p>	Organization recommendation	Recommendations for vaccination of people experiencing homelessness (Europe)	<ul style="list-style-type: none"> - mortality rates 3-6 times greater than genpop - often higher risk of contracting infectious diseases and especially vulnerable to resp problems due to compromised immune systems, poor nutrition and hygiene and frequent overcrowding at shelters - high risk of premature frailty and geriatric conditions - high prevalence of multimorbidity - research calls for needs-based rather than age-based approach from homeless health and makes case for homeless people to be included in the priority group for vaccines based on their specific health needs vs their age - barriers accessing health, medical conditions are often underdiagnosed and health needs often left unmet - <u>Recommendations:</u> <ol style="list-style-type: none"> 1. develop local vaccine delivery strategies jointly with homelessness service providers who are already engaged with homeless people 2. involve people with lived experience of homelessness in the design and delivery of vaccination programmes to reach people and to encourage vaccine uptake 3. include homelessness staff in vaccination plans along with their clients 4. establish flexible vaccine delivery including outreach vaccination (mobile health units) and

			<p>multiple easily accessed vaccines sites (without appointment)</p> <p>5. remove administrative and other barriers to accessing vaccines (eg registration with GP, fixed address)</p> <p>6. provide consistent, transparent information to ensure that clients feel comfortable receiving the vaccine</p> <p>7. build vaccine confidence by engaging with homelessness staff who already have trusted relationships with their clients</p> <p>8. ensure that vaccination services are safe and non-threatening environments for people who have multiple traumas</p> <p>9. joint working to keep record of contacts and dose information to ensure follow up</p> <p>10. ensure that provision of vaccines for undocumented people is clearly detached from immigration control</p> <p>11. use the opportunity to promote engagement with primary care to improve health care access for people experiencing homelessness</p> <p>12. monitor the uptake of vaccines and collect data to assess the effectiveness of vaccination programme in reaching people experiencing homelessness</p>
<p>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</p>	Government vaccination plan	Vaccination plan (BC)	- phase 2 (February to April 2021) includes “vulnerable populations in select congregate settings” but no further details
<p>CDC. COVID-19 Vaccination for People Experiencing</p>	CDC guidance	FAQ for vaccination of people experiencing homelessness (US)	- when vaccines are limited, vaccination should be offered in a phased approach

<p>Homelessness: Frequently Asked Questions. February 17, 2021. https://www.cdc.gov/coronavirus/2019-ncov/community/homeless-shelters/vaccine-faqs.html</p>			<ul style="list-style-type: none"> - homeless shelter staff members are considered essential workers and should be offered the vaccination in phase 1C - based on local, state or territorial epidemiologic and implementation considerations, jurisdictions may choose to vaccinate people who reside at congregate living facilities at the same time as the frontline staff - people experiencing homelessness might have additional characteristics, such as older age and employment in certain jobs, that might also influence when the vaccine will be available to them - ultimately state and local health departments determine the prioritization phases - state and local vaccine distribution plans should include strategies to bring vaccines to people experiencing homelessness, including homeless service sites like shelters, day programs, or food service locations - should also include strategies to offer vaccination in areas frequented by people experiencing unsheltered homelessness – eg encampments or other known locations where people experiencing unsheltered homelessness spend time - communication strategies tailored for population such as flyers at encampments, in shelters, and on public transportation; announcements at healthcare and other service programs; messages via e-mail, text messages, social media, tv and radio; connect with trusted communicators and engage them in planning and implementation of vaccination events
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			<ul style="list-style-type: none"> - might not be possible to obtain a list of client names in advance of vaccination event at a homeless service site, plan for how to provide vaccine to individuals who do not have appointments and also have contingency plans in place for using any remaining vaccine doses - recording will be important, but ensure that providing documentation is not a barrier to vaccinating people experiencing homelessness by requiring only the minimum data fields for vaccination with open and transparent communication to explain what data are collected, how data are used, who they are shared with and how they are protected - for second dose reminders consider innovative strategies such as providing pre-paid phone cards, cell phones with programmed reminders or second-dose initiatives - provide opportunities for staff and people experiencing homelessness to share their vaccination experiences with each other to allow for a trusted exchange of information within their social support network
<p>CDC. 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</p>	Guidance document	Recommendations for vaccination of people experiencing homelessness (US)	<ul style="list-style-type: none"> - reinforce partnerships: across health departments, healthcare for the homeless clinics and homeless service providers and others such as street outreach teams; leverage partnerships that were developed in conducting community-based COVID-19 testing events to establish vaccine distribution pathways; reference previous vaccination plans for reaching people experiencing homelessness - estimate population size: using most recent point-in-time to estimate number of people

			<p>experiencing homelessness by state or region and map the distribution of the populations of the facilities or locations that are accessed by people experiencing homelessness</p> <ul style="list-style-type: none"> - identify when vaccine roll out will take place: consider vaccinating homeless service clients at the same time because they have a shared increased risk for infection; or stagger service staff who receive vaccination so that not all staff are vaccinated on the same day to help minimize potential staff shortages from vaccine side effects - review prioritization and sub-prioritization: work with case managers, healthcare agencies and community organizations to ID those who might be eligible in earlier phases d/t belonging to another group prioritized by state or local vaccination plans (eg age, employment or underlying medical conditions); consider sub-prioritization by housing status if there is limited vaccine supply, eg homeless shelters with increased risk of transmission such as those with increased crowding, shared rooms or high turnover - identify who will administer vaccines - determine how and where vaccines will be delivered - prepare logistics for vaccination events: ensure cold chain requirements for storage and use, confirm capacity to perform safe delivery of vaccine services, review checklists, ensure adequate supplies - develop a communication strategy: connect with trusted communicators, advertise events in advance
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			<ul style="list-style-type: none"> - anticipate and address vaccination questions: provide opportunities to ask questions, know elements of effective vaccine conversations - provide post-vaccination observation and care - ensure appropriate documentation, second dose follow-up and reporting: consider innovative strategies for second dose reminders such as providing prepaid phone cards/cellphones or second-dose incentives
<p>CDC. 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</p>	Presentation	Overview of vaccine basics and guidance to vaccinate people experiencing homelessness (US)	<ul style="list-style-type: none"> - states have adopted different plans with phases of who will be prioritized to receive the vaccine first - staff and residents share an increased risk of disease - may choose to vaccinate persons who reside at congregate living facilities at the same time as the frontline staff - overview of vaccination strategies from report
<p>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/Lessons from H1N1-Chapter 4.pdf</p>	Qualitative interview study	Influenza pandemic response & homelessness services (Calgary)	<ul style="list-style-type: none"> - the homeless population needs to be included in definitions of high-risk populations when planning for a pandemic disease - interviewees suggested that pandemic planning for the homeless population differs from planning for the general public because of pre-existing health conditions of those experiencing homelessness - response structure must be designed not only to attend to their needs, but also to justify to the general public the need for special treatment - planning for the homeless population is very different from planning for the general population – should be done with rather than for people experiencing homelessness as this engagement will help ensure relevant and acceptable

			<p>approaches</p> <ul style="list-style-type: none"> - d/t mobility, the inherent skepticism of “mainstream” individuals and services and their perceptions of discrimination - Lack of continuity of care – those who are discharged from hospital need and need continued medical attention or a recuperative environment often return to the shelter from which they came regardless of that facility’s ability to provide continued care - communication from government and healthcare authorities during H1N1 was inadequate – too few formal directives on basic policies or responses from public health officials; lack of timeliness, inappropriateness of information specific to front-line workers in the homelessness sector, difficulty accessing help, lack of clear guidelines for immunizations (who had priority and where clinics were established) - only 4 public health clinics in Calgary had the H1N1 vaccine available and no clinic specifically in the city core - clinics limited, doses of vaccine in short supply and line-ups, even for vulnerable populations were extensive, could wait in line for several hours often in harsh weather conditions - waiting in line not always possible for shelter residents – strict sign in, meal availability and “be in for the night” times - when clinics specifically intended for the homelessness sector were available, interviewees perceived inconsistencies with the vaccination rollout, with some agencies prioritized without a rationale being provided
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<p>Canadian Observatory on Homelessness. Pandemic Preparedness and Homelessness. 2016. https://www.homelesshub.ca/sites/default/files/attachments/Lessons fromH1N1-FullBook.pdf</p>	<p>Book</p>	<p>Various jurisdiction experiences with pandemic preparedness H1N1 (Canada)</p>	<ul style="list-style-type: none"> - H1N1 in Toronto – concerted effort to create accessible, community-based vaccination clinics for the homeless undertaken through a partnership between TPH and shelters, drop-in centres and community-based health centres - resulted in a sizeable increase in homeless people’s vaccination rates for H1N1 compared to seasonal flu, from an average of 25% for the seasonal flu vaccine to 38% for the H1N1 vaccine - in BC, pandemic plan identifies people who are homeless as hard-to-reach population that may need to be targeted for priority vaccination - Victoria: public health officials and prominent local service providers partnered in planning and response efforts – able to pass on consistent, up-to-date and accurate information to participating service providers and thus provide consistent messages to their staff and clients - survey study in Victoria – key recommendation by clients was to have more HCW available for clients to talk to, along with more face-to-face communication of information in general, organize information workshops (with stipends and food for participants), train clients to be ‘peer communicators’ and better prepare agency staff to answer clients’ questions and concerns - street nurses visited shelters and a daytime drop-in program to provide vaccination to anyone who wanted it; was much more successful than seasonal flu vaccination campaigns - according to service providers, early access to vaccination seems to have been interpreted two ways by clients; either pleased by what they saw as special priority access to care or suspicious that an
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			<p>unproven vaccine was being given to them as a test</p> <ul style="list-style-type: none"> - Regina: offering H1N1 vaccination clinic on-site and providing transportation to a vaccination clinic by agency staff or RQHR - all agencies disseminated information on locations and duration of vaccination clinics
<p>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/</p>	Guidance document	Vaccine planning and distribution for homeless populations (US)	<ul style="list-style-type: none"> - Contains several resources for logistical vaccine distribution planning - Guidance document for providing transportation of shelter clients to vaccination events - Guidance document for offering incentives with potential funding options and indication to include people with lived experience in incentive planning - Guidance document for vaccination events in congregate settings - Resources for frontline staff to build vaccine confidence and patient materials for distribution
<p>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/</p>	Expert organization statement	Advocating for prioritization of homeless populations for COVID vaccination (Canada)	<ul style="list-style-type: none"> - Some published literature suggested the rate of spread is 3x that of the housed population - Fear of COVID has pushed many individuals who use the shelter system outside into encampments, many rather sleeping on the streets exposed to the elements than face the risk of COVID - people experiencing homelessness live, on average 25y less than average - people experiencing homelessness who are >55y often have health problems and vulnerability similar to >70y genpop - People experiencing homelessness have faced 20x more hospitalizations, 10x more admissions to ICU and 5x greater mortality despite major initiatives across the country that have included

			<p>specialized testing, tracing, isolation with clinical and social supports and preventive distancing strategies</p> <ul style="list-style-type: none"> - Need to prioritize people experiencing homelessness alongside those in LTC as being at risk by virtue of their congregate living environment, physical risk and weakened support structures
<p>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</p>	News article	Vaccination plan to include homeless populations in Windsor-Essex (ON)	<ul style="list-style-type: none"> - Not initially included in the first phase of Ontario's vaccination plan - Rollout comes amid two outbreaks at two shelters with >115 cases associated, and the opening of an emergency shelter
<p>CBC. 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</p>	News article	Vaccination of homeless population in Hamilton (ON)	<ul style="list-style-type: none"> - After months of persistent outbreaks, Hamilton's mobile clinic started vaccinating people in shelters in collaboration with the Shelter Health Network and shelter staff - Staff able to register first with the ability to go to a larger vaccination site, and clients vaccinated in shelters - Leftover vaccines at the end of the day made available to staff before they leave - Ran three town halls to answer staff member questions – convinced undecided staff - Estimated ~50% clients at each shelter are getting vaccinated
<p>CBC. 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-</p>	News article	Vaccination in shelters in Toronto (ON)	<ul style="list-style-type: none"> - Updated to include those experiencing homelessness as part of Phase 1 priority - Working with healthcare partners and shelter services to identify shelters at highest risk to begin vaccination program

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/	News article	Vaccine incentives (Vancouver)	- Vaccination program in Vancouver downtown eastside residents offered \$5 cash after vaccination instead of usual incentive of coffee and a snack
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	News article	Calling for homeless population prioritization (Scotland)	- Based on a report that found 24% of charity's clients had a health condition which put them at serious risk from COVID-19, with illnesses such as diabetes, heart disease and severe respiratory conditions being common - 28% of clients in emergency hotel classed as vulnerable or extremely vulnerable to COVID-19, rose to 54% in Housing First and supported housing services - 18% in emergency COVID-19 hotels were not registered with a GP when they moved in - Recommendations beyond vaccination – expansion of “everyone in”
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. https://www.ncbi.nlm.nih.gov/pubmed/33378604	Expert opinion	COVID vaccination of those with Substance Use Disorders	- Trust-building campaigns and dissemination of accurate information are paramount - Health professionals should be accessible to the community to answer questions and improve relations – eg listening sessions at local shelters, treatment centers or detox enters, syringe programs – trusted people such as peer navigators, recovery coaches and harm-reduction service providers could be asked to serve as vaccine ambassadors - Should plan for administration at sites such as

			<p>methadone clinics, syringe service programs and AA/NA meetings</p> <ul style="list-style-type: none"> - Consider providing hotel accommodations, food or food vouchers and phones/chargers as well as services of case managers and social workers at vaccination sites - Administration done by trusted professionals - Those who serve eg outreach workers and peer navigators should be classified as essential workers and should be prioritized
<p>Brown SH, Fisher EL, Taylor AQ, et al. Influenza vaccine community outreach: Leveraging an interprofessional healthcare student workforce to immunize marginalized populations. <i>Prev Med.</i> 2021;147(106460):106460. DOI: 10.1016/j.ypmed.2021.106460. https://www.ncbi.nlm.nih.gov/pubmed/33609616</p>	<p>Program description</p>	<p>Interprofessional student run outreach program (USA)</p>	<ul style="list-style-type: none"> - Interprofessional, student-run vaccine outreach program - Free vaccination events in nontraditional community locations - Most patients reached by program in the past unoused, unemployed and/or uninsured - With the addition of a nurse practitioner student increased reach
<p>Bunch L. A Tale of Two Crises: Addressing Covid-19 Vaccine Hesitancy as Promoting Racial Justice. <i>HEC Forum.</i> 2021;19:19. DOI: 10.1007/s10730-021-09440-0. https://www.ncbi.nlm.nih.gov/pubmed/33464452</p>	<p>Expert opinion</p>	<p>How to address vaccine hesitancy as promoting racial justice (US)</p>	<ul style="list-style-type: none"> - Boosting transparency - Craft disclosures in such a way that non-expert audiences can readily understand their contents - Openness about uncertainty; glossing over uncertainty will further erode trust and increase suspicion about motives - Accessibility; must not be cost prohibitive - Establish 'critical distance' between pharm companies and public; data on efficacy, safety and importance are more convincing delivered from public health officials and medical officials, but

			adverse events, delays or setbacks in vaccine testing should come from pharmaceutical companies
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. https://www.medrxiv.org/content/medrxiv/early/2021/02/01/2021.01.28.21250716.full.pdf	Algorithm development	Correlation of municipality SES and vaccination rate >60y (Israel)	<ul style="list-style-type: none"> - vaccination rates strongly correlated with SES municipality (active burden total cases in a municipality and the vaccination rate of the population over 60) of -0.47 - established 'vaccination needs ratio' - sig negative correlation between VNR and SES further confirming need to increase vaccination uptake strategies in low SES municipalities
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. https://www.ncbi.nlm.nih.gov/pubmed/33655265	Survey study	Vaccine hesitancy among underserved communities (USA)	<ul style="list-style-type: none"> - Black Americans had high vaccine hesitancy rates that remained high once vaccine approvals were obtained
Fetter JC. COVID-19 Vaccination Strategies in Public Psychiatry. Psychiatr Serv. 2021;72(2):231. DOI: 10.1176/appi.ps.72203. https://www.ncbi.nlm.nih.gov/pubmed/33517691	Intervention study	Mass vaccination in state psychiatric hospital (USA)	<ul style="list-style-type: none"> - used influenza season to practice mass vaccination under pandemic conditions in a state psychiatric hospital - measures included simplifying paperwork, scheduling unit vaccine clinics, assigning 'flu ambassadors' and electronically sending vaccine records to primary care and mental health outpatient clinics
Higgins ST, Klempner EM, Coleman SRM. Looking to the empirical literature on the potential for financial incentives to enhance adherence with COVID-19 vaccination. Prev Med.	Expert opinion	Financial incentives to enhance vaccination adherence (USA)	<ul style="list-style-type: none"> - analysis of past experiences with increasing HBV vaccine (3 dose regimen) in IDU - systematic review found that financial incentives were most effective, resulting in a 7-fold increase in adherence to the vaccination regimen

<p>2021;145:106421. DOI: 10.1016/j.yjmed.2021.106421. https://www.ncbi.nlm.nih.gov/pubmed/33422575</p>			<ul style="list-style-type: none"> - based on the literature, anticipate that a range of \$300 across both injection delivered with minimal delay would promote high levels of adherence – perhaps \$100 for the first dose and \$200 for the second
<p>Kronfli N, Akiyama MJ. Prioritizing incarcerated populations for COVID-19 vaccination and vaccine trials. <i>EClinicalMedicine</i>. 2021;31:100659. DOI: 10.1016/j.eclinm.2020.100659. https://www.ncbi.nlm.nih.gov/pubmed/33385124</p>	<p>Commentary</p>	<p>Advocacy for prioritization of incarcerated populations</p>	<ul style="list-style-type: none"> - facilities are high risk for outbreaks due to overcrowding, poor ventilation and unsanitary conditions - jeopardize effectiveness of basic preventative measures - disproportionately affected by poor SDH leading to a higher prevalence of chronic diseases such as hypertension and diabetes = increased risk for severe COVID-19 and mortality - could be leveraged to generate real-world data both efficiently and rapidly - overrepresentation of racial and ethnic minorities in correctional settings – may improve generalizability of vaccine results - conducting vaccine trials in correctional settings is ethically, legally and logistically complex
<p>Mazereel V, Van Assche K, Detraux J, et al. COVID-19 vaccination for people with severe mental illness: why, what, and how? <i>The Lancet Psychiatry</i>. 2021. DOI: 10.1016/s2215-0366(20)30564-. https://www.sciencedirect.com/science/article/pii/S2215036620305642</p>	<p>Expert opinion</p>	<p>Vaccination of individuals with severe mental illness</p>	<ul style="list-style-type: none"> - several studies have found an association between an existing psychiatric disorder and increased risk for infection and hospitalisation, morbidity and mortality – higher risk for those with severe mental illness - patients should be provided with up-to-date information about the benefits of vaccination - collaboration with psychiatrists re: knowledge of intersection of vaccines with mental illnesses/medications - suggestion to roll out vaccination programs in

			mental health clinics and offices
<p>Ozawa S, Yemeke TT, Evans DR, et al. Defining hard-to-reach populations for vaccination. <i>Vaccine</i>. 2019;37(37):5525-34. DOI: 10.1016/j.vaccine.2019.06.081. https://www.ncbi.nlm.nih.gov/pubmed/31400910</p>	review	Definition of hard-to-reach population in vaccine context	<ul style="list-style-type: none"> - 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 - 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
<p>Buccieri K, Gaetz S. Ethical Vaccine Distribution Planning for Pandemic Influenza: Prioritizing Homeless and Hard-to-Reach Populations. <i>Public Health Ethics</i>. 2013;6(2):185-96. DOI: 10.1093/phe/pht005. https://academic.oup.com/phe/article-abstract/6/2/185/1555903</p>	Review	Evidence for prioritizing and distribution planning of vaccines among homeless and hard-to-reach populations (Canada)	<ul style="list-style-type: none"> - study analysing 4319 medical charts of homeless individuals from 3 shelters in NY from 97-04 found that less than 25% of all examined and less than 1/3 of those >65y had evidence of influenza vaccination noted in their charts - family physicians, hospitals and tertiary care settings that are widely accessed vaccination sources among the general public have shown limited success with hard-to-reach populations who experience barriers to accessing healthcare - community based approaches within the communities where people live are a viable alternative - study in East Harlem and Bronx found interest in vaccination increased when offered through street

			<p>venues, door-to-door and at community-based organizations</p> <ul style="list-style-type: none"> - Vancouver successfully initiated a Hep A/B, influenza and pneumococcal vaccine blitz in downtown Eastside in 99/00 - H1N1 Toronto vaccination clinics in homeless shelters and drop-in centers – study suggests 38% immunization rate – higher than expected average and in-line with H1N1 immunization rates for the general population - factor that accounted for the majority of the increase was that they had widespread access to community-based vaccine clinics - those who were aware of the clinics (through promotional campaign to educate) were considerably more likely to report getting vaccinated
<p>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. https://www.longdom.org/open-access/vaccination-programs-among-urban-homeless-populations-a-literature-review-2157-7560.1000156.pdf</p>	Literature review	Vaccination programs for homeless (USA)	<ul style="list-style-type: none"> - Nyamathi et al compared 3 interventions to evaluate feasibility of Hep B vaccination program among homeless in LA; 68% completion in intensive nurse case managed program, 61% monetary incentives (\$5) and tracking and 54% just education and monetary intervention - 2009 H1N1 France: shelter-based program among homeless individuals, 46% agreed to the vaccination during the program
<p>Bissell Centre. A Brief Scan of COVID-19 Impacts on People Experiencing Homelessness: Health Impacts and Responses. 2020. https://bissellcentre.org/wp-</p>	Grey literature – evidence review	Health impacts of COVID-19 on people experiencing homelessness (Canada)	<ul style="list-style-type: none"> - homeless are vulnerable to COVID d/t prevalence of underlying health conditions, lack of access to COVID-19 information and PPE and limited distancing abilities

content/uploads/2021/01/A-Brief-Scan-of-COVID-19-Impacts-on-People-Experiencing-Homelessness-Health-Impacts-and-Responses.pdf			<ul style="list-style-type: none"> - Coalition for the Homeless estimated mortality for sheltered NY experiencing homelessness was higher than overall (321/100,000 vs 200/100,000)
<p>Leifheit K, Chaisson L, Medina JA, Wahbi R, Shover C. Elevated mortality among people experiencing homelessness with COVID-19. medRxiv preprint. March 8, 2021. https://doi.org/10.1101/2021.03.05.21253019</p>	Pooled data analysis	COVID mortality in homeless populations (USA)	<ul style="list-style-type: none"> - out of 76 jurisdictions reviewed, 7 included data on people experiencing homelessness - case fatality rate for homeless ranged from 0.3% to 4.8% compared to jurisdiction wide 0.6% to 2.1% - LA county stratified by additional demographics; case fatality rate sig increased for homeless <65 compared to county population with RR of 13.7 for 18-29, 4.6 for 30-49 and 1.9 for 50-64
<p>Richard L, Booth R, Rayner J, Clemens KK, Forchuk C, Shariff SZ. Testing, infection and complication rates of COVID-19 among people with a recent history of homelessness in Ontario, Canada: a retrospective cohort study. <i>CMAJ Open</i>. 2021; 9(1):E1-9. Epub 2021 Jan 12. DOI: https://doi.org/10.9778/cmaj.o.20200287</p>	Retrospective cohort	Prevalence, morbidity and mortality of COVID-19 among homeless (Canada)	<ul style="list-style-type: none"> - people with a recent history of homelessness (29,407) were more likely to be tested for COVID-19 preshutdown, at peak and reopening and more likely to have a positive test (HR 3.66 at peak and 1.76 at reopening) - in the peak period, people with recent history of homelessness were over 20 times more likely to be admitted to hospital for COVID-19 - over 10 times more likely to require intensive care for COVID-19 - over 5 times more likely to die within 21d of positive result

References Included in Summary

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2. **Bissell Centre.** A Brief Scan of COVID-19 Impacts on People Experiencing Homelessness: Health Impacts and Responses. 2020. <https://bissellcentre.org/wp-content/uploads/2021/01/A-Brief-Scan-of-COVID-19-Impacts-on-People-Experiencing-Homelessness-Health-Impacts-and-Responses.pdf>
3. **Leifheit K, Chaisson L, Medina JA, Wahbi R, Shover C.** Elevated mortality among people experiencing homelessness with COVID-19. medRxiv preprint. March 8, 2021. <https://doi.org/10.1101/2021.03.05.21253019>
4. **Kronfli N, Akiyama MJ.** Prioritizing incarcerated populations for COVID-19 vaccination and vaccine trials. *EClinicalMedicine*. 2021;31:100659. DOI: 10.1016/j.eclinm.2020.100659. <https://www.ncbi.nlm.nih.gov/pubmed/33385124>
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6. **Badea A, Reeder, B, Groot, G, Mueller, M, Young, C.** What are the causes of vaccine hesitancy? What programs/approaches have been successful in reducing vaccine hesitancy? 2021 Feb 1; Document no.: EOC012201 RR. In: COVID-19 Rapid Evidence Reviews [Internet]. SK: SK COVID Evidence Support Team, c2020. 49p. (CEST rapid review report. <https://covid19evidencereviews.saskhealthauthority.ca/en/viewer?file=%2fmedia%2fCOVID%2fEOC012201%20RR.pdf#phrase=false&pagemode=bookmarks>
7. **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>
8. **CDC.** 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>
9. **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
10. **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/>
11. **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. <https://www.ncbi.nlm.nih.gov/pubmed/33378604>
12. **Canadian Observatory on Homelessness.** Pandemic Preparedness and Homelessness. 2016. <https://www.homelesshub.ca/sites/default/files/attachments/LessonsfromH1N1-FullBook.pdf>

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14. **Higgins ST, Klemperer EM, Coleman SRM.** Looking to the empirical literature on the potential for financial incentives to enhance adherence with COVID-19 vaccination. *Prev Med*. 2021;145:106421. DOI: 10.1016/j.ypmed.2021.106421. <https://www.ncbi.nlm.nih.gov/pubmed/33422575>
15. **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/>
16. **CBC.** 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>
17. **CBC.** 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>

Add a section regarding notes about the quality of evidence idea

Appendix: Evidence Search Details

Search Strategies

(Copy from the evidence search report, or refer to the evidence search report with the same number.)

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 (coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV)).ti,kf.	12227
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 unhouseed 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 unhouseed or underhouseed 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 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	401512
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	104461

	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.	
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/ 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/	1387560
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 -	875

		Boolean/Phrase	
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 couchesurf* 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 couchesurf* 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)

Sources

- Grey literature was searched for this report
- Refer to the evidence search report for extensive sources



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