Question

What do we know from both research and jurisdictional scans about – in a context where there are only enough vaccines for health workers and no previous outbreak (or limited outbreaks) that involve long-term care homes – whether to prioritize the vaccination of asymptomatic residents in a long-term care home with an outbreak (even though this may come at the expense of health workers in a region without an outbreak) and when (e.g., immediately during the outbreak or when health workers in the home are being vaccinated or when the outbreak is relatively controlled)?

What we found

We identified 19 evidence documents that focus on general allocation rules for the COVID-19 vaccine and priority populations. However, none of these documents provide direct evidence or guidance in relation to prioritizing vaccination of asymptomatic residents in a long-term care homes with an outbreak. An overview of the type and number of documents that were identified is provided in Table 1. In addition, we provide more details about our methods for identifying potentially relevant evidence documents in Appendix 1, and key findings from them in Appendix 2.

We also examined experiences from eight countries (Australia, China, France, Germany, Israel, New Zealand, the U.K., and the U.S.), as well as all provinces and territories in Canada. No information was identified in relation to the question from other countries, but we did identify some relevant information from Canadian provinces and territories, which we summarize briefly below.

> ### Box 1: Our approach
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> We identified evidence addressing the question by searching the COVID-END inventory of best evidence syntheses and the COVID-END guide to key COVID-19 evidence sources on 19 January 2021. We identified jurisdictional experiences by searching jurisdiction-specific sources of evidence listed in the same COVID-END guide to key COVID-19 evidence sources and by hand searching government and stakeholder websites. We selected eight countries (Australia, China, France, Germany, Israel, New Zealand, the U.K., and the U.S.) that are advanced in their thinking and experiences with the allocation of the COVID-19 vaccine.
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> We searched for guidelines that were developed using a robust process (e.g., GRADE), full systematic reviews (or review-derived products such as overviews of systematic reviews), rapid reviews, protocols for systematic reviews, and titles/questions for systematic reviews or rapid reviews that have been identified as either being conducted or prioritized to be conducted. Single studies were only included if no relevant systematic reviews were identified.
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> We appraised the methodological quality of full systematic reviews and rapid reviews using AMSTAR. Note that quality appraisal scores for rapid reviews are often lower because of the methodological shortcuts that need to be taken to accommodate compressed timeframes. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems or to broader social systems.
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> This rapid evidence response was prepared in one business day to inform next steps in evidence synthesis, guideline development and/or decision-making related to the question that was posed.

At the national level, the National Advisory Committee on Immunization (NACI) recommended to further sequence their initial subset of key populations using a stage-based approach on 18

December 2020 and residents/staff of care facilities and health care workers belong to Stage 1. However, no specific information was provided about prioritizing the vaccination of asymptomatic residents in a long-term care home.

At the provincial and territorial level, we found insights from British Columbia, Ontario, Quebec, Yukon and Northwest Territories. In British Columbia, healthcare workers are being vaccinated before long-term care home residents in some instances to avoid wasting/spoiling doses due to storage/administration difficulties being encountered. Ontario released new guidance on 18 January 2021 for COVID-19 immunization in long-term care homes and retirement homes. Key points from the guidance in relation to the question, include that:

- prioritizing long-term care and retirement homes not in outbreak is recommended;
- vaccinating during an outbreak in a facility will likely have no impact on the present outbreak but may provide protection further into the future
- considerations are provided for if, when and how to vaccinate staff and residents with acute COVID-19-like symptoms;
- the local Medical Officer of Health can approve vaccination in facilities with an outbreak if appropriate staffing, infection prevention and control, and other concerns are addressed;
- facilities with an outbreak should quickly address staffing and infection control challenges to stabilize the situation and facilitate vaccination, but the outbreak does not need to be over to begin vaccination;
- public-health units should maintain a list of all long-term care and retirement homes in their region as well as the outbreak status of these homes to facilitate vaccine deployment; and
- public-health units making vaccination plans for long-term care and retirement homes with other health system stakeholders should consider contingency plans if outbreaks emerge.

In Quebec, vaccine prioritization takes a 'direct' approach with a focus on vaccinating those most at risk of complications or death, and since beginning of the vaccination roll-out, residents of long-term care homes have been the first priority and healthcare workers have been the second priority in a 12-level priority list.

In Yukon and Northwest Territories first priority is provided to long-term care staff and residents rather than other key populations, such as other health workers. All long-term care staff and residents have been vaccinated in Yukon as of 17 January 2021 and in Northwest Territories as of 5 January 2021.

Table 1: Overview of type and number of documents that were identified about prioritizing vaccination of asymptomatic residents in a long-term care home with an outbreak

Type of document	Total	Approaches to developing and adjusting allocation rules	Allocation rules	Ensuring equity
Guidelines developed using a robust process (e.g., GRADE)	6	-	6	4
Full systematic reviews	0	-	-	-
Rapid reviews	2	-	2	1
Guidelines developed using some type of evidence synthesis and/or expert opinion	7	-	7	6
Protocols for reviews that are underway	1	1	1	1
Titles/questions for reviews that are being planned	1	1	1	1
Single studies in areas where no reviews were identified	2	-	2	2

Appendix 1: Methodological details

We use a standard protocol for preparing each rapid evidence profile (REP) to ensure that our approach to identifying research evidence as well as experiences from other countries and from Canadian provinces and territories are as systematic and transparent as possible in the time we were given to prepare the profile.

Identifying research evidence

For each REP, we search our continually updated inventory of best evidence syntheses and guide to key COVID-19 evidence sources for:
1) guidelines developed using a robust process (e.g., GRADE);
2) full systematic reviews;
3) rapid reviews;
4) guidelines developed using some type of evidence synthesis and/or expert opinion;
5) protocols for reviews or rapid reviews that are underway;
6) titles/questions for reviews that are being planned; and
7) single studies (when no guidelines, systematic reviews or rapid reviews are identified).

Each source for these documents is assigned to one team member who conducts hand searches (when a source contains a smaller number of documents) or keyword searches to identify potentially relevant documents. A final inclusion assessment is performed both by the person who did the initial screening and the lead author of the rapid evidence profile, with disagreements resolved by consensus or with the input of a third reviewer on the team. The team uses a dedicated virtual channel to discuss and iteratively refine inclusion/exclusion criteria throughout the process, which provides a running list of considerations that all members can consult during the first stages of assessment.

During this process we include published, pre-print and grey literature. We do not exclude documents based on the language of a document. However, we are not able to extract key findings from documents that are written in languages other than Chinese, English, French and Spanish. We provide any documents that do not have content available in these languages in an appendix containing documents excluded at the final stages of reviewing.

Identifying experiences from other countries and from Canadian provinces and territories

For each rapid evidence profile we collectively decide on what countries to examine based on the question posed. For other countries we search relevant sources included in our continually updated guide to key COVID-19 evidence sources. These sources include government-response trackers that document national responses to the pandemic. In addition, we conduct searches of relevant government and ministry websites. In Canada, we search websites from relevant federal and provincial governments, ministries and agencies (e.g., Public Health Agency of Canada).
While we do not exclude countries based on language, where information is not available through the government-response trackers, we are unable to extract information about countries that do not use English, Chinese, French or Spanish as an official language.

Assessing relevance and quality of evidence

We assess the relevance of each included evidence document as being of high, moderate or low relevance to the question and to COVID-19. We then use a colour gradient to reflect high (darkest blue) to low (lightest blue) relevance.

Two reviewers independently appraise the methodological quality of systematic reviews and rapid reviews that are deemed to be highly relevant. Disagreements are resolved by consensus with a third reviewer if needed. AMSTAR rates overall methodological quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. High-quality reviews are those with scores of eight or higher out of a possible 11, medium-quality reviews are those with scores between four and seven, and low-quality reviews are those with scores less than four. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to health-system arrangements or to economic and social responses to COVID-19. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered 'high scores.' A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

Preparing the profile

Each included document is hyperlinked to its original source to facilitate easy retrieval. For all included guidelines, systematic reviews, rapid reviews and single studies (when included), we prepare declarative headings that provide a brief summary of the key findings and act as the text in the hyperlink. Protocols and titles/questions have their titles hyperlinked given that findings are not yet available. We then draft a brief summary that highlights the total number of different types of highly relevant documents identified (organized by document), as well as their key findings, date of last search (or date last updated or published), and methodological quality.

Appendix 2: Key findings from evidence documents that address the question, organized by document type and sorted by relevance to the question

Type of document	Key findings	Recency or status

Guidelines developed using a robust process (e.g., GRADE)	• This report offers a framework for the equitable allocation of COVID-19 vaccine, and is built on key principles and key characteristics of COVID-19, including:
	  o rates of infection
	  o modes of transmission
	  o groups and individuals most susceptible to infection
	  o varying rates of severe illness and death among those groups
	• The framework addresses the institutional and administrative commitments needed to implement equitable allocation policies
	• It also proposes a phased approach to vaccine allocation:
	  o Phase 1a – High-risk health workers
	  o Phase 1b – People of all ages with comorbid and underlying conditions that put them at significantly higher risk, and older adults living in congregate or overcrowded settings
	  o Phase 2 – K-12 teachers, school-staff childcare workers, critical workers in high-risk settings, people of all ages with comorbid and underlying conditions that put them at moderately higher risk, people in homeless shelters or group homes, and all older adults not included in phase 1
	  o Phase 3- young adults, children, workers in key industries at increased risk not included in phases 1 and 2
	  o Phase 4 – Everyone not included in previous phases
	• Vaccine access should be prioritized for geographic areas identified through CDC's Social Vulnerability Index (or another more specific index)
	Source (National Academies of Sciences, Engineering and Medicine)
		Last update October 2020

	• This document provides guidance on developing COVID-19 national deployment and vaccination plans
	• Aspects of this plan include:
	  o regulatory preparedness
	  o planning and coordination
	  o costing and funding
	  o identification of target populations
	  o vaccine-delivery strategies
	  o preparation of supply chain and management of healthcare waste
	  o human-resource management and training
	  o vaccine acceptance and uptake (demand)
	  o vaccine-safety monitoring, management of adverse effects following immunization (AEFI) and injection safety
		Last update 16 November 2020

Type of document	Key findings	Recency or status
	o immunization monitoring systems o COVID-19 surveillance o evaluation of COVID-19 vaccine Source (World Health Organization)	
	• This document provides guidance on prioritizing limited supply of COVID-19 vaccines • It provides a roadmap for priority uses of COVID-19 vaccines including: o staging priority groups in relation to group size and supply o gender considerations o addressing pregnant women o addressing lactating women o addressing children o considering comorbidities in vaccine prioritization Source (World Health Organization)	Last update 13 November 2020
	• This guidance document provides a values framework for COVID-19 vaccine allocation and prioritization • The values framework consists of six core principles: o human well-being o equal respect o global equity o national equity o reciprocity o legitimacy Source (World Health Organization)	Last update 13 September 2020
	• This document describes the WHO Secretariat's proposal for the allocation of COVID-19 vaccines among countries, specifically in the context of the COVID-19 Vaccines Global Access (COVAX) Facility access mechanism, including: o an initial proportional allocation of doses to countries until all countries have enough doses to cover 20% of their population o a follow-up phase to expand coverage to other populations; if severe supply constraints persist, a weighted allocation approach would be adopted, taking account of a country's COVID threat and vulnerability Source (WHO technical guidance)	Last update 9 September 2020
	• The MMWR describes the Advisory Committee on Immunization Practices' ethical principles for the allocation of COVID-19 vaccine in the U.S.	Published 27 November 2020

Type of document	Key findings	Recency or status
	• The recommended approach for national, state, tribal, local and territorial levels is guided by four ethical principles: 1) maximize benefits and minimize harms; 2) promote justice; 3) mitigate health inequities; 4) promote transparency • Additional considerations include decisions based on science (e.g., safety and efficacy) and feasibility of implementation (e.g., storage and handling) Source (Advisory Committee on Immunization Practices, Centers for Disease Control and Prevention)	
Full systematic reviews		

Rapid reviews	• This 'rapid evidence check' summarizes recommendations from the World Health Organization's interim guidance on developing a national deployment and vaccination plan for COVID-19 vaccines, including recommendations about:
	  o planning and coordination
	  o regulatory
	  o prioritising, targeting and COVID-19 surveillance
	  o service delivery
	  o training and supervision
	  o monitoring and evaluation
	  o vaccine cold chain and logistics
	  o safety surveillance
	  o demand generation and communication
	  o deciding potential population groups for vaccine prioritization
	Source (AMSTAR rating 1/9)
		Date of literature search not reported (published 9 December 2020)

	• To maintain public support among non-priority groups, it is critical that key stakeholders effectively communicate all evidence-informed decisions clearly • To uphold ethical integrity, COVID-19 vaccines must be administered in accordance with the priority groups that have been established Source (AMSTAR rating 4/9)	Date of literature search not reported (published 27 August 2020)

Guidance developed using some type of evidence synthesis and/or expert opinion	• The priorities for the COVID-19 vaccination programme should be the prevention of COVID-19 mortality and the protection of health and social care staff and systems
	• Secondary priorities should include vaccination of individuals at increased risk of hospitalisation and increased risk of exposure and to maintain resilience in essential services
	• Based on the proposed guidelines, the order of priority of COVID-19 vaccinations are as follows:
	  o Residents in a care home for older adults and their carers
	  o All those 80 years of age and over and frontline health and social care workers
	  o All those 75 years of age or over
		Published 6 January 2021

Type of document	Key findings	Recency or status
	o All those 70 years of age and over and clinically extremely vulnerable individuals o All those 65 years of age and over o All individuals aged 16 years to 64 years with underlying health conditions which put them at higher risk of serious disease and mortality o All those 60 years of age and over o All those 55 years of age and over o All those 50 years of age and over • Immunisation advice and communication programs should be tailored to mitigate inequalities. Specifically, programs should be tailored to Black, Asian and minority ethnic groups who have higher rates of infection, morbidity and mortality Source (Department of Health & Social Care, Government of UK)	
	• This guidance document outlined key elements and themes from vaccine strategy and deployment plans in the United Kingdom and countries within the European Union and European Economic Area • Within the interim recommendations of European countries, the top priority group for COVID-19 vaccines included older adults, health care workers, and individuals with select comorbidities o Due to the limited supply of vaccines, certain countries may be further prioritizing from within this group Source (European Centre for Disease Prevention and Control)	Published 2 December 2020
	• This report follows the process of an expert group established by the Norwegian Institute of Public Health in determining the order in which vaccines should be allocated during the first stage of the Norwegian Coronavirus Immunization Programme • Core values were established by the group for the first stage of the programme and included, "equal respect, welfare, equity, trust, and legitimacy" • These five core values were then translated to the following key goals: "1) reduce the risk of death, 2) reduce the risk of severe illness, 3) maintain essential services and critical infrastructure, 4) protect employment and the economy, 5) re-open society" • Through defining the aforementioned key values and goals, the following categories of prioritization were established: o "Risk factors for severe illness and death o The infection situation o Occupation" • The group recommends a dynamic approach to prioritization in accordance with a model published by the Norwegian government illustrating four possible scenarios for the COVID-19 pandemic. Each scenario varies based on severity of infection and is accompanied by recommendations for possible response	Published 15 November 2020

Type of document	Key findings	Recency or status

	measures. As an example, "Scenario 1a: Control" represents mild infection rates whereas "Scenario 2b: Widespread Transmission" represents more severe infection rates and societal closures are recommended
	  o The group recommends that risk groups and health care workers be given priority in pandemic scenarios 1-2a
	  o In pandemic scenario 2b, in which there is widespread transmission, the order of priority should be amended to: "1) health care workers, 2) risk groups, and 3) critical societal functions"
	Source (Norwegian Institute of Public Health)	

	• Emphasis should be placed on the following ethical dimensions in decision-making about vaccine allocation decisions: 1) promoting the common good by promoting public health and enabling social and economic activity; 2) promoting social equity (e.g., addressing racial and ethnic disparities in COVID-19 mortality); 3) recognizing the contributions of essential workers who have been overlooked in previous allocation schemes (e.g., for influenza); and 4) promoting legitimacy, trust and a sense of community ownership over vaccine policy while continuing to respect diversity in a pluralist society
	• Ethically defensible priority groups for high-priority access to scarce SARS-CoV-2 vaccine include:
	  o tier 1: Those most essential in sustaining the ongoing COVID-19 response; those at greatest risk of severe illness and death, and their caregivers; and those most essential to maintaining core societal functions
	  o tier 2: Those involved in broader health provision; those who face greater barriers to access care if they become seriously ill; those contributing to maintenance of core societal functions; and those whose living or working conditions give them elevated risk of infection, even if they have lesser or unknown risk of severe illness and death
	Source (Centre for Health Security, John's Hopkins University, U.S.)
		Published August 2020

	• This report highlights the process of vaccine development through to distribution, summarizing several WHO guidelines with respect to the deployment of effective vaccination programs at the country level, as well as strategies to improve vaccine uptake within populations • The report also offers information on COVAX and summarizes ethical issues related to the use of the COVID-19 vaccine (i.e., autonomy, equity, prescribing vaccines before data is publicly available, etc.) • An overview of current considerations for vaccine deployment in Lebanon is also summarized by this report: o Vaccines are said to be arriving in Lebanon by mid-February 2021 and autonomy will be respected regarding one's decision to be vaccinated. A detailed vaccine roll-out plan for the country is currently in-progress Source (Knowledge to Policy Center)	Published 7 January 2021
	• This guidance document outlined 10 key components that must be considered for a successful vaccine deployment strategy within the European Union, European Economic Area, and the United Kingdom; these include:	Published 26 October 2020

Type of document	Key findings	Recency or status
	o a robust surveillance system; o conducting post-market studies; o monitoring adverse effects upon vaccine administration; o documenting vaccination coverage data o making evidence-informed decisions; o preparing legal and regulatory frameworks; o planning options for vaccine distribution and delivery o performing behavioural research to understand issues around vaccine acceptability, uptake, and hesitancy; o a communication plan; and o the allocation of vaccines using an ethical and equitable framework • Consideration should be given to: 1) a tier-based approach when identifying priority groups; and 2) the use of mathematical modeling to assess alternative strategies and outcomes Source (European Centre for Disease Prevention and Control)	
	• The equitable allocation of vaccines where there is limited supply needs to take into account who is most at risk of exposure and severe outcomes, feasibility and acceptability of the vaccine and ethical considerations, and should also ensure flexibility in vaccine-delivery methods Source (The Chief Public Health Officer of Canada, Government of Canada)	Published October 2020
Protocols for reviews that are underway	• Access to vaccination among disadvantaged, isolated and difficult-to-reach communities in the WHO-European region Source	Anticipated completion date 30 June 2021
Titles/questions for reviews that are being planned	• Equitable COVID-19 vaccination strategies Source	Registered on 18 September 2020
Single studies in areas where no reviews were identified	• This study provided estimates of global, regional and national target population sizes for COVID-19 vaccination to inform immunisation strategies on a global scale • A strategy for vaccine allocation is proposed based on three main goals: o to maintain core societal functions during the pandemic o to protect people from irreversible and devastating harm (e.g. People over 65 years old or with high risk health conditions) o to control community transmission to return to a pre-pandemic baseline of economic and social activities • The size of target populations varies significantly by region with a considerable proportion of those needed to maintain essential functions of societies and of those over 80 years of age living in Europe and North America	Published 15 December 2020

Type of document	Key findings	Recency or status
	• The strengthening of national and international supply chains to guarantee the distribution of vaccines to remote communities in developing countries will call for international institutions, national governments, and manufacturers to plan for vaccine allocation and negotiate affordable vaccine prices • When designing vaccination programmes, each country should consider local epidemiology, underlying population health, the effectiveness of different vaccine, and projections of available vaccine doses Source	

	• Although 2,068 respondents (22.7%) disagreed with the government's order of priority, 6,416 (70.3%) were against being able to expedite vaccination through payment
	   o Teachers, Black, Asian and Minority Ethnic (BAME) groups, general key workers, children, and university students were most cited by respondents for prioritization
	   o 32.6% of respondents were concerned that the priority list makes no reference to BAME groups
	 Source
		Pre-print (last edited 8 December 2020)