Rapid Evidence Profile #46
(27 January 2023)

Question

How were downstream health-promotion approaches that focus on individual behaviour change conceived of and used, and with what effectiveness, as part of COVID-19 pandemic preparedness and response?

What we found

We identified synthesized research evidence, as well as experiences captured in reports from select OECD countries and their public-health agencies including Australia, France, New Zealand, Singapore, the U.K., and U.S., and all Canadian provinces and territories. We also identified relevant experiences from OECD-wide reports and from WHO reports and tools (both headquarters and AMRO/PAHO and EURO). See Box 1 for a description of our approach. We organized our findings using the framework below.

In this version of the REP, we updated our searches for evidence and experiences in each of the jurisdictions listed above to complement what was included in the first version with insights about community engagement and action to address health-related issues and promote well-being. In addition, we categorized documents that included an equity focus in one or more of the PROGRESS+ domains and included insights from highly relevant evidence documents that reported detailed findings about equity-deserving groups.

Box 1: Our approach

We identified synthesized research evidence addressing the question by searching: 1) ACCESSSS; 2) HealthEvidence; 3) Health Systems Evidence; 4) Social Systems Evidence; 5) the COVID-END inventory of best evidence syntheses; 6) COVID-END website; and 7) PubMed. Databases were searched in English and in French. In addition, we hand-searched a COVID-19 behavioural research tracker maintained by The Policy Lab at Brown University, which was identified during our searches. Initial searches for evidence syntheses were conducted between 9-10 January 2023, while additional searches for primary studies related to community action and engagement were conducted on the 23 January. The search strategies used are included in Appendix 1. We identified jurisdictional experiences by hand searching government and stakeholder websites for reports relevant to the question as well as searching Nexus Uni for news articles, legislation and reports that detailed community action and engagement efforts.

We searched for guidelines, 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.

We appraised the methodological quality of full systematic reviews and rapid reviews that were deemed to be highly relevant 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. We appraised the quality of the highly relevant guidelines using three domains in AGREE II (stakeholder involvement, rigour of development, and editorial independence) and classified guidelines as high quality if they were scored as 60% or higher on each domain.

Experiences captured in reports from select OECD countries and from WHO were identified by hand searching the OECD website and the WHO's IRIS database. Insights were pulled from any identified documents. In addition, specific searches of government websites of countries with behavioural/implementation insight units were conducted.

This rapid evidence profile was prepared in the equivalent of three days of a 'full-court press' by all involved staff.

Organizing framework

- Target of health-promotion efforts
  - Downstream efforts (i.e., targeting individual behaviour change)
    - Education/awareness raising
    - Skill development/training
    - Health literacy support
    - Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
    - Social support (e.g., outreach programs, individual counselling)
  - Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
    - Healthy public policy
    - Supportive environments
    - Community engagement and action to address health-related issues and promote well-being
- Findings related to these efforts by nature of finding
  - Conceptions of such efforts
  - Uses of such efforts (i.e., characteristics of implemented efforts)
  - Effectiveness of such efforts
- Findings related to these efforts by domain where they were used
  - Pandemic preparedness
  - Pandemic response
- Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
  - Place of residence
  - Race/ethnicity/culture/language
  - Occupation
  - Gender/sex
  - Religion
  - Education
  - Socioeconomic status
  - Social capital
  - (plus) Personal characteristics associated with discrimination and/or exclusion (such as age, disability), features of relationships (e.g., young caregivers) and time dependant relationships (e.g. recently discharged from hospital, released from prison)

We identified 28 evidence syntheses and 29 primary studies relevant to the question, of which we deemed 48 to be highly relevant. The highly relevant evidence documents include:

- 11 full systematic reviews;
- eight rapid reviews;
- 29 primary studies pertaining to community engagement and action to address health-related issues and promote well-being.

We outline in narrative form below our key findings related to the question from highly relevant evidence documents and based on experiences from the selected countries and Canadian provinces and territories. We provide additional details in Table 1 (the type and number of all documents that were identified), a detailed summary of findings from highly relevant evidence sources in Table 2, and a summary of primary studies related to community action and engagement (with insights summarized using declarative titles) in Table 3. In addition, details about experiences from OECD and WHO reports as well as from the selected countries are provided in Table 4 and in Canadian provinces and territories in Table 5. A detailed summary of our methods is provided in Appendix 1 and hyperlinks for documents excluded at the final stage of reviewing in Appendix 2.

Key findings from highly relevant evidence sources

In general, we found most of the evidence related to downstream public-health approaches for pandemic response (i.e., once the pandemic had been declared) rather than pandemic preparedness. We did not identify any evidence syntheses on downstream efforts that leverage (or are attentive to) upstream efforts for pandemic preparedness. There was a significant evidence base related to downstream public-health efforts that leverage (or is attentive to) upstream efforts, most of which focused on matching targeted communications or education programs with changes to the physical or social environments to encourage the adoptions of desired individual behaviours. With respect the nature of findings, the majority of the evidence syntheses identified focused either on the use of public-health efforts or the effectiveness of such efforts. There were, however, six syntheses that addressed conceptions of public-health efforts in relation to behavioural frameworks and models (1, 2, 3, 4, 5, 6).

With respect to **pandemic preparedness**, we identified two evidence syntheses, one of which pertained to educational strategies to increase the influenza vaccine uptake (prior to the onset of 'flu season' during the COVID-19 pandemic), while the other examined hand-hygiene programs. Willingness to receive the influenza vaccine was found to be closely tied to past participation, and the evidence synthesis suggested constructing educational strategies that leverage models of behaviour change that consider the frequency of past behaviour, such as the Triandis Theory of Interpersonal Behaviour. Hand-hygiene programs targeted at households were found to be most effective during inter-epidemic periods, as the implementation of these programs was found to be too late once there was community circulation of viruses.

Concerning **pandemic responses**, six evidence syntheses addressed downstream public-health efforts (four related to psychological supports, one related to hand hygiene, and one related to vaccine-uptake). Four syntheses (1, 2, 3, 4) found that psychological-support programs (such as targeted information, dedicated education and training, and counselling) that increase resilience factors and coping strategies are beneficial for both members of the general population as well as healthcare workers to mitigate the short and longer-term psychological consequences of the pandemic. One evidence synthesis found that videos, educational materials, and weekly text reminders all increased handwashing compared to no interventions, and was equivalent to multi-interventional approaches. In light of this finding, the synthesis suggested that during a pandemic it may be best to conserve resources and use single intervention approaches. Finally, one synthesis found that providing financial incentives, either through a lottery or providing cash, encouraged vaccine uptake but may be counter-productive among some racialized populations.

Ten evidence syntheses addressed downstream public-health efforts that leveraged (or are attentive to) upstream efforts. The majority of these addressed informational or educational programs that drew on supportive environments (i.e., adjusting the physical environment to support individually targeted health-promotion activities) or community action (i.e., engaging members of the community to deliver the intervention so as to increase public trust in the message). These approaches were particularly effective for racialized populations. One medium-quality evidence synthesis highlighted the need to maintain risk communications for individuals to develop accurate risk perceptions that are aligned with current levels of severity and susceptibility to inform their own protective behaviours. The synthesis further identified the importance of coupling risk communications with demonstrations from trusted sources that what others are doing to maintain protective actions are effective and warranted. In addition, two evidence syntheses (one medium-quality and one low-quality) used the capability, opportunity and motivation model of behaviour change to highlight suggested ways to make positive behavioural choices (including getting vaccinated) during the pandemic, including:

- running multi-channel and multi-institutional information and education campaigns tailored to different groups
- helping to rebuild trust through transparent communication about COVID-19 and community engagement that acknowledges past hard against racialized groups and validates feelings of mistrust
- providing practical, regulatory and financial support for the creation of work, leisure and transportation environments that enable physical distancing
- ensuring that participating in protective behaviours is as simple as possible with respect to time, convenience and cost
- providing support and resources to help sustain mutual-aid groups that provide care to communities
- ensuring that individuals have sufficient and sustained financial resources including employment protection to enable them to behave in ways that mitigate risk (i.e., remain at home when ill)
- increase motivation by targeting information to strengthening social-identities, values and emotional responses around infection prevention and mitigation.

In addition, we identified 26 studies which provide examples of community engagement and action efforts coupled with downstream public-health interventions (summarized in Table 3). Most of the interventions focused on partnering with community members and community organizations to deliver education, health literacy or social supports throughout the pandemic. These varied from educational campaigns to support health protective behaviours such as maintaining physical distance and getting vaccinated to working with community organizations to deliver outreach supports and mental health supports. In addition, we identified three primary studies that provided insights related to the benefits of community engagement ([1], [2]) and to some principles that should be embedded in community engagement efforts, which included:
- considering mutual aid as a key part of the response
- using hyper-local approaches and the principles of asset-based community development to draw on local knowledge and consider the different roles that local associations and businesses can play in providing a public-health response
- using community-based organizations and their local infrastructure to act as hubs for coordinating volunteers, supplies and other necessities
- considering new roles that volunteers can take on, drawing on trends of solidarity and neighbourliness that have been observed
- making use of digital media to connect people and to organize activities through digital neighbourhood platforms/meeting points.

With respect to equity-deserving groups, all of the literature except one systematic review relating to community engagement and action focused on one or more equity-deserving populations. The two most frequently mentioned dimensions of the PROGRESS-PLUS framework were race/ethnicity/culture/language and socioeconomic status. Populations covered by the single studies are included in Table 3, while details about the populations included in evidence syntheses are summarized as part of Appendix 2.

Key findings from the jurisdictional scan

We searched for experiences of countries implementing health-promotion approaches that explicitly include behavioural or implementation insights. Experiences from select OECD countries were identified by hand-searching the OECD website as well as WHO's IRIS database. Insights were pulled from any identified documents. In addition, specific searches of government websites of countries with behavioural/implementation insight units including Australia, France, New Zealand, Singapore, the U.K., and U.S., and all Canadian provinces and territories. While governments and

international organizations generally voiced support for behavioural insights and stated that these insights were being used to advance response efforts, details about how and the extent to which they were relied upon to develop responses were often limited. Overall, policy targets of downstream efforts aimed to strengthen pandemic responses including social distancing measures, vaccination, COVID-19 testing, working from home, consumer protection and improving health equity.

In terms of the uses for downstream health-promotion efforts, implementation efforts were most often characterized by the creation of or adjustments to messaging about COVID-19 responses, including for vaccination, testing, quarantine protocol, and physical distancing measures (including work-from-home policies). Commonly cited approaches to improve messaging included simplifying messaging, ensuring consistency and clarity about benefits and intended behaviours, tailoring messaging for specific communities, and personalizing information for individual users to avoid information overload and fatigue. Additionally, community- or citizen-engagement strategies such as citizen panels, online forums, soliciting community member feedback to inform reports, and advisory groups were often used to help inform public communication strategies, improve health literacy, or tailor communication approaches for citizens, including equity-seeking groups such as Indigenous peoples, ethnic minorities, those of low-socioeconomic status, people who are homeless or marginally housed, or those living with disabilities. The channels of communication for these messages included social media, online guides, tools and information resources, apps, email and text messaging, and targeted communications using trusted members of communities/organizations. Additional supports that were used to strengthen messages included appeals to collective responsibility, appeals to social norms, incorporating personal narratives, and appealing to a sense of community both broadly and more specifically by leveraging community leaders/partnerships.

In terms of uses for downstream efforts that explicitly leveraged or were attentive to upstream efforts, upstream efforts related to improving physical and human resource infrastructure were often used to ensure upstream environmental considerations helped bridge the gap between intention generated by downstream behaviourally focused efforts and desired behaviour. For example, local governments in B.C. used behavioural insights to combine downstream efforts promoting physical distancing with environmental upstream approaches such as circle markers in parks, bench markings, highly visible floor markers, and one-way routes. Similarly, WHO's technical advisory group on behavioural insights and sciences for health highlighted the importance of upstream approaches such as creating an enabling environment where vaccination was easy, quick and affordable, as well as downstream approaches such as leveraging partnerships with communities and trusted community members, and using open and transparent dialogue to discuss benefits, uncertainty and risk. Downstream efforts to enable physical distancing and quarantine behaviours were frequently part of broader upstream efforts to expand services during the pandemic. Examples included opening emergency response centres, expanding shelters or converting hotels to respond to housing challenges. We also identified several countries that provided grants for community-engaged efforts to reduce health disparities in vulnerable communities during COVID-19, which involved building capacity in the community to help improve vaccination confidence and uptake.

Additionally, international experiences identified through the OECD and WHO libraries focused on strengthening country-level capacity for conducting behavioural-science research and implementing behaviourally informed policies related pandemic responses. The OECD published Transparency, communication and trust: The role of public communication in responding to the wave of disinformation about the new Coronavirus to provide recommendations for improving COVID-19 communications. The World health Organization's (WHO) behavioural sciences for better health initiative report highlights the creation of tools to support the collection of data on social and behavioural insights, such as: 1) the WHO tool for behavioural insights on COVID-19; and 2) the WHO social and behavioural insights COVID-19 data collection tool for Africa. In addition, technical assistance and capacity-building was provided through an online training course on

collecting social and behavioural data on COVID-19 through the OpenWHO knowledge-transfer platform. The WHO Regional Office for Europe published a [technical document](#) on setting up behavioural insights units for improved health outcomes, which highlights several examples of BI units supporting countries' responses to COVID-19. WHO Member States in Europe also adopted a [resolution](#) and action framework (European regional action framework for behavioural and cultural insights for health, 2022–2027) to drive work in behavioural and cultural insights and better integrate behavioural science into policy decision-making processes. In terms of supporting country capacity to advance community-engagement efforts to reduce health disparities during COVID-19, WHO released [recommendations](#) for putting community engagement at the centre of strategies for the COVID-19 vaccine roll-out, including guiding steps to ensure a safe and community-centred appraoch. Another WHO interim guidance document proposed [four objectives for people-centred and community-led approaches](#) to improve trust and social cohesion, and reduce negative impacts of COVID-19.

Table 1: Overview of type of number of documents that were identified about how downstream health promotion approaches were used during the public-health response to the COVID-19 pandemic

Type of document	Total	Conception of pandemic-focused health-promotion efforts	Use of pandemic-focused health promotion efforts	Effectiveness of pandemic-focused health-promotion efforts
Guidelines	0	0	0	0
Full systematic reviews	17	3 (1, 2, 3)	8 (1, 2, 3, 4, 5, 6, 7, 8, 9)	9 (1, 2, 3, 4, 5, 6, 7, 8, 9)
Rapid reviews	11	4 (1, 2, 3, 4)	5 (1, 2, 3, 4, 5)	3 (1, 2, 3)
Protocols for reviews that are underway	0	0	0	0
Titles/questions for reviews that are being planned	0	0	0	0

Table 2: Summary of key findings from highly relevant evidence sources about how downstream health promotion approaches were used during the public-health response to the COVID-19 pandemic

Domain where health promotion approaches were used	Key findings from highly relevant evidence sources related to with downstream efforts	Key findings from highly relevant downstream efforts that leverage (or are attentive to) upstream efforts
Pandemic preparedness	• One medium-quality synthesis examined the willingness of health professionals to get vaccinated for known respiratory viruses (e.g., influenza) and noted that the behaviour was habitual and heavily influenced by previous participation 　o The review did not assess educational strategies but noted that communications efforts should leverage models of behaviour change such as Triandis Model of Interpersonal Behaviour which is particularly well positioned to contend with habits resulting from the frequency of past behaviour • One high-quality evidence synthesis (AMSTAR rating 8/11) noted that hand hygiene programs for households that verbally communicate hand hygiene training and provide hand hygiene materials (e.g., soap or sanitize) are most effective during interepidemic periods, as implementation during the onset of illness is frequently too late for other household members to benefit	• None identified
Pandemic response	• One high-quality evidence synthesis (AMSTAR rating 8/10) suggested that training in psychological supports such as resilience factors and coping strategies be provided in the face of highly contagious disease outbreaks to reduce long-term negative psychological effects • Three medium-quality evidence synthesis (1, 2, 3) (two with AMSTAR ratings of 5/10 and one with an AMSTAR rating of 7/11) noted that providing psychological support programs and dedicated training	• One medium-quality evidence synthesis (AMSTAR rating 4/9) found that risk communications need to be maintained for individuals to form perceptions that are aligned with the current severity and susceptibility 　o The review also found that these communications need to be coupled with demonstrations from trusted sources that what others are doing to maintain protective actions (e.g., mask wearing, physical distancing, getting vaccinated) are effective and warranted

to enhance resilience for healthcare workers was critical during the pandemic to mitigate short and longer-term psychological consequences
- One of the syntheses noted that interventions should target specific skills and processes, as general approaches focused on general well-being showed no reliable improvements on symptoms related to PTSD, anxiety, depression or sleep difficulties

- One high-quality evidence synthesis found that providing videos and educational materials with online chats and weekly text reminders increased handwashing
- One medium-quality evidence synthesis (AMSTAR rating 5/10) found that providing financial incentives including providing financial incentives either through lottery entries or providing cash to encourage vaccine uptake were somewhat effective, but counter-productive among some racialized populations in the U.S.

- One high-quality evidence synthesis (AMSTAR rating 8/10) examined the provision of bereavement support during mass-bereavement events including providing weekend community gatherings, specialist mental health services, open access education and information and community memorials, among others
  - Critical elements to the success of these supports included proactive outreach to affected communities, central coordination of locally delivered support, training of providers in crisis-specific competencies, and group-based supports through existing social networks
- One medium-quality evidence synthesis (AMSTAR rating 5/10) examined the effectiveness of approaches for increasing vaccine uptake and found that targeted persuasive messaging generally had a non-significant effect, however was beneficial for select population-segments when delivered in collaboration with community members
- One high-quality evidence synthesis (AMSTAR rating 10/11) and one medium-quality evidence synthesis (AMSTAR rating 5/9) found that multi-level approaches combining increased education about vaccines, enhanced access to vaccine clinics, and culturally competence discussions with healthcare providers and community members helped to maximize widespread vaccination policies among older adults from racialized communities
- One medium-quality evidence synthesis (AMSTAR rating 6/9) and one low-quality evidence synthesis (AMSTAR rating 3/9) found that supportive environments that set capacity limits helped with physical distancing behaviours
- One medium-quality (AMSTAR rating 4/9) and One low-quality (AMSTAR rating of 3/9) used the capability, opportunity and motivation model of behaviour change to highlight suggested ways to make positive behavioural choices (including getting vaccinated) during the pandemic:
  - running multi-channel and multi-institutional information and education campaigns tailored to different groups

		- helping to rebuild trust through transparent communication about COVID-19 and community engagement that acknowledges past hard against racialized groups and validates feelings of mistrust - providing practical, regulatory and financial support for the creation of work, leisure and transportation environments that enable physical distancing - ensuring that participating in protective behaviours is as simple as possible with respect to time, convenience and cost - providing support and resources to help sustain mutual-aid groups that provide care to communities - ensuring that individuals have sufficient and sustained financial resources including employment protection to enable them to behave in ways that mitigate risk (i.e., remain at home when ill) - increase motivation by targeting information to strengthening social-identities, values and emotional responses around infection prevention and mitigation. • One low-quality evidence synthesis (AMSTAR 3/9) suggested methods to increase adherence to public health messaging including providing tailored information and education that involves community leaders and others perceived as being credible sources • One medium-quality evidence synthesis examined the use of COVID-status certification requirements and found generally poor attitudes to their implementation and some evidence that it might reduce protective behaviours, including social distancing and handwashing • One low-quality evidence synthesis (AMSTAR rating 3/9) identified four key principles that should be embedded into educational or media interventions targeting the behaviours of young people, including: - supporting their autonomy - enabling social learning - openness and inclusion - complementarity of actions

Table 3. Examples of community engagement initiatives from highly relevant primary studies

Country	Targeted downstream public health action	Target community for public health intervention	Declarative title
Australia	Education/awareness training Social support	Arabic and Bangla-speaking communities in Sydney, Australia	Using a stepped-care model, a community-based group mindfulness program was able to assist bilingual clinicians and community partners in providing face-to-face and online mindfulness support and treatment for psychological distress to Arab and Bangla communities before and during the COVID-19 pandemic
Brazil	Education/awareness training Social support	Participants of the Knowledge-Sharing Platform project implemented in Rio de Janeiro, Brazil	Whatsapp groups can be useful tools for sharing pandemic-related information with community group leaders and members
Canada	Social support	Marginalized communities in Toronto, Ontario	Collaboration between grassroots community members serving marginalized communities and institutional and organizational stakeholders can help build resilience in these communities and address gaps in emergency management systems
	Social support	Health professional school students from across the country, and 700 older adults who are socially excluded or at-risk of social exclusion	The Student–Senior Isolation Prevention Partnership serves as an effective low-cost intervention program to virtually connect health professional students with older adults in the community to improve social connectedness
	Supportive environments	Communities in Toronto, Ontario, Canada	During health emergencies, built environment interventions need to address structural determinants of health, embed anti-racist intersectional principles, revisit tactical urbanism as a health promotion tool, and rethink community engagement processes wit
Democratic Republic of Congo	Education/awareness training Health literacy support	Spiritual and religious leaders in the Ituri and Nord-Kivu provinces of the Democratic Republic of Congo – primarily, the city of Bunia	Integrating faith leaders in public health messaging from the initial stages as opposed to the final dissemination stage can help to increase the effectiveness of public health communication during public health emergencies

Country	Targeted downstream public health action	Target community for public health intervention	Declarative title
India	Education/awareness training	Health workers, peer educators, and adolescents participating in the National Adolescent Health Programme-Rashtriya Kishor Swasthya Karyakram (RKSK) in Madhya Pradesh and Maharashtra, India	Health workers and peer educators can play a critical role in facilitating public health communication during a pandemic by repurposing their roles to pandemic-related activities
	Education/awareness training Health literacy support	Community members residing in the Mewat district in Haryana, India	Integrating faith leaders in the co-design process of the community-health worker led intervention for vaccine information and confidence project helped to increase vaccine confidence in community members by promoting open dialogue, sharing personal anecdotes, and dispelling misconceptions and long-standing myths
	Health literacy support	Communities in India	When implementing pandemic response measures such as national lockdowns, governmental publicity using social media can be crucial to shaping the 'outbreak narrative', reaching the widest possible audience, and engaging with vulnerable communities on key health issues
Israel	Education/awareness training	Muslim and Christian religious leaders and the communities they served in Iran	Muslim and Christian religious leaders in Israel played a key role in promotion during the COVID-19 pandemic by bridging communication between health authorities and the Arab community, and by adapting public health guidelines to educate their communities in a culturally sensitive way
Iran	Social support	Communities in Tabriz, Iran	A research center and NGOs in Tabriz collaborated to develop a framework for effective COVID-19 measures and actions that led to enhanced public health education, fundraising for health service and food items for vulnerable families
Oman	Education/awareness training Health literacy support	Communities in Oman	Adapting existing community participation approaches during the COVID-19 pandemic allowed communities in Oman to mobilize resources and empower community

Country	Targeted downstream public health action	Target community for public health intervention	Declarative title
			members to effectively advocate, network, and distribute information on COVID-19
Sri Lanka	Education/awareness training Skill development/training	Community members of three districts of Sri Lanka	Telephone or online communication can be effective in engaging community members in brainstorming pandemic response actions that can be implemented in their households and community to help prevent the spread of COVID-19
	Education/awareness training	Communities in Sri Lanka	Religious leaders and clergy in Sri Lanka played a supportive role in building trust and resilience in communities during the pandemic response and also providing leadership and coordination during education and vaccination campaigns in low-resource settings.
United States	Education/awareness training	Black men who have sex with men (MSM) and transgender and gender nonconforming (TGNC) individuals	Collaborative partnerships between educational institutions and health advocacy groups in Chicago led to the promotion of COVID-19 vaccinations in the Black MSM/TGNC community primarily by nursing students
	Education/awareness training	Adults who self-identify as Black or White and did not possess a college degree	Knowledge and preventive behaviours regarding COVID-19 improved through the use of physician messaging campaigns among adults from a range of ethnic backgrounds
	Education/awareness training Social support	Community health workers (CHWs) in Latinx communities in California	The CHW's can effectively provide vaccine information and counter disinformation, facilitate vaccinations, and address mental health and social needs in structurally vulnerable Latinx communities
	Education/awareness training Health literacy support	Communities impacted by the South Carolina Cancer Prevention and Control Research Network	Awardees of a South Carolina funding initiative successfully implemented community engagement programs during the COVID-19 pandemic, with increased physical activity, testing, screening, and vaccine uptake seen as observed benefits within the population
	Education/awareness training Social support	Afghan families in New Haven, Connecticut, US	The Social-Emotional Learning program that offers preventive mental health education for refugee children was adapted during the COVID-19 pandemic to include

Country	Targeted downstream public health action	Target community for public health intervention	Declarative title
			culturally specific, multilingual, trauma-informed education that effectively informed Afghan refugee families about COVID-19 safety measures
	Education/awareness training Health literacy support	Faith-based organizations (e.g., African American churches) and their communities in the Rochester and Minneapolis–St. Paul regions	African-American churches played an integral role during the pandemic in providing credible and evidence-based information to their communities by offering emergency preparedness manuals and leading social media outreach
	Education/awareness training Health literacy support Social support	Members of the Latinx communities in Oregon	The implementation of Promotores de Salud, a culturally tailored program that enabled the sharing of development and intervention features with researchers, improved SARS-CoV-2 testing uptake within Latinx communities
	Health literacy	Vulnerable refugee communities in Clarkston, Georgia	Strengthening health communication can be achieved through the development of a task force of leaders and community members, expansion of language supports for refugees, integration of refugee perspectives into risk communication messaging, and implementation of cultural competency and health literacy trainings for health care workers
	Social support	Low-income children and families participating in the Brighter Bites school-based health promotion program	Providing health and nutrition education to low-income families during health emergencies through collaborative partnerships with medical and public health institutions helped to fill needed gaps in available services
	Social support	Community and rural clinic patients in North Carolina	Patient messaging campaigns that incorporate text and voice messages are useful tools that may help disconnected patients living in rural communities to access health care resources and reduce disparities
	Social support	Medical students at Vanderbilt University School of Medicine in Nashville, Tennessee	During the COVID-19 pandemic, 79% of participants who engaged in the virtual wellness and learning communities program experienced an increased sense of peer connectivity and improved wellness

Table 4: Experiences in selected jurisdictions on how downstream health promotion approaches were used during the public-health response to the COVID-19 pandemic

Country	Summary of experiences with downstream efforts	Summary of experience with downstream efforts that leverage (or are attentive to) upstream efforts
Australia	- The New South Wales (NSW) Behavioural Insights Unit provided guidance to inform communications advertising campaign aimed at stopping the spread of COVID-19, including: - harnessing social norms such as by showing the public that most people are doing the right thing to stop the spread - highlighting social responsibility and identity by keeping the message positive and reinforcing that we can do this together, and using essential workers in the campaign to tap into the public's identity - simplifying the benefits through simple messaging about why the behaviour is required while being as clear as possible on how to comply with the desired behaviour - The Victorian government created a COVID-19 Decision Tool that helped minimize information overload by tailoring information to individuals based on a decision tool that assessed their specific circumstances - The tool helped streamline information by removing information that isn't relevant to the individual and using plain language and user-centered examples - The tool minimized the effort of relating abstract rules or conditions to the user's personal situation	- The NSW Behavioural Insights Unit co-wrote a guide with Transport for NSW to encourage businesses to allow employees to work remotely when possible by harnessing social norms, using managers and senior staff as advocates or 'work from home' role models, drawing attention to active transport routes such as walking and cycling paths, and making it easier to work flexibly by encouraging staggered start times or simplifying processes around flexible work arrangements - The NSW Behavioural Insights United provided advice to help increase COVID testing rates by making testing easy (highlighting that testing is free and does not require ID), providing clear messages in several languages, simplifying the message while being consistent about who should get tested, when, and how to self-isolate, and stimulating a sense of achievement and community by using leader boards to show the performance of local health districts against targets - On 14 September 2021, the Australian government announced it would boost the COVID-19 vaccination program for Aboriginal and Torres Straight Islander peoples across 30 priority areas - The vaccination program involved working closely with the National Aboriginal Community Controlled Health Organisation (NACCHO), states and territories and other Indigenous organizations - The Rapid Response Engagement Team from the Victorian Department of Health led efforts to engage with multi-cultural communities, people living with disability, Aboriginal and Torres Straight Islander

		peoples and other at-risk groups to improve COVID-19 rapid antigen testing among at-risk communities ○ The program was designed to help inform community members about changes to the COVID-19 testing system and distribution of rapid antigen testing and subsequently sourced feedback from community members and organizations to help adapt the program
France	• In France, a 35-person citizen panel was developed to help address concerns and queries that the public had identified about COVID-19 vaccines and present them to the national government • France's Inter-ministerial Directorate for Public Transformation, alongside the Ministry of Sport and the Behavioural Insights Team, repurposed an existing project to encourage physical activity amongst public servants to educate about the benefits of physical activity in the general population during quarantine periods ○ This project resulted in the creation of bougezchezvous.fr ('get moving at home') which is a platform with physical activity resources and motivational aids	• The Behavioural Insights Team worked with the French public health agency and Ministry of Health to understand and address barriers to vaccination in care homes ○ They identified the need to coordinate vaccination communication efforts to not overwhelm staff and residents ○ Access pathways should be as simple as possible to bridge the gap between intention and action ○ Behavioural levers (such as 'I am vaccinated' pins and social media posts) can be used increase vaccination through perceived norms and notions of reciprocity
New Zealand	• Many areas of New Zealand relied on government policy updates via daily government press briefings to inform behaviour change with respect to isolation and COVID-19 response measures ○ Many residents of New Zealand found an increased need for consistency between the local services' information provision and national health system level communication • In New Zealand, the Evaluation and Behavioural Science team worked in collaboration with the Ministry of Health and other government agencies to inform the COVID-19 response with data on public beliefs and perceptions ○ Data is collected via national and population surveys that measure knowledge, attitudes, and behaviours related to, and at various stages of, the COVID-19 pandemic ○ Not without limitations, these projects have helped inform advice on improving uptake of polices in certain communities	• On 2 November 2021, the New Zealand Government approved $23.5 million for eight Māori organisations and tribes (iwi) to help boost vaccination rates ○ The funding was designated for Māori and iwi-led initiatives to help improve vaccine uptake among Māori community members • The Streets for People COVID-19 guidance document developed by Waka Kotahi New Zealand Transport Agency highlights the importance of communication and community-engagement to ensure that communities play a role in establishing needs and supporting program design as stakeholders
Singapore	• None identified	• None identified

United Kingdom (U.K.)	• Localities within the U.K. used behaviour change techniques during the pandemic, including the creation of a rapid segmentation tool to target communications among different groups, use of the COM-B framework to develop a vaccination uptake strategy, toolkits for small businesses to encourage preventative behaviours, conduct of focus groups to test vaccine hesitancy messaging, development of a program to address health and wellbeing disparity among hard-to-reach communities, use of proper messaging and messengers to combat misinformation among priority populations • The Local Government Association in the U.K. developed a toolkit that uses behavioural insights to improve COVID-19 vaccination uptake, which include information on hard-to-reach communities, communication on myths and prevention measures, and materials for communicating with the community • The Community Champions initiative involves trusted local champions from organizations and councils to deliver health information to local networks about COVID-19 and vaccines • The Local Government Association developed a toolkit for community engagement and local democracy related to COVID-19	• The Scientific Pandemic Influenza group on Behaviour (SPI-B) released 32 documents about behavioural and social interventions such as school closures, home isolation, quarantine, and social distancing during COVID-19 to advise the Scientific Advisory Group for Emergencies (SAGE) • The University of Exeter in collaboration with the World Health Organization established and maintained the BCI-Hub, which is a repository of best practices for using behavioural and cultural insights and contains 32 potentially relevant documents related to COVID-19
United States (U.S.)	• None identified	• The U.S. Department of Health & Human Services (HHS) established the Presidential COVID-19 Health Equity Task Force in January 2021, which includes educators, health care providers, immigrants, public health experts, rural communities, state, local and territorial and Tribal governments, unions from a diversity of backgrounds and expertise, to provide specific recommendations to prevent inequities • The HHS awarded $250 million in grant awards to 73 local governments to implement programs that will improve health literacy to enhance COVID-19 vaccinations among equity-deserving populations o The San Antonio Metropolitan Health District is working with the Community and Stakeholder Advisory Committee of the COVID-19 Community Response and Equity Coalition (CREC), University

		of San Antonio, and UT Health San Antonio to develop and implement a health literacy plan among racialized populations • Hip Hop Public Health, a non-profit organization, created educational resources to improve vaccine literacy, confidence, and uptake among ethno-racial communities in partnership with the Institute for Health Equity Research (IHER) • The National Institutes of Health (NIH) funded $12 million in grants for outreach and engagement efforts in ethnic and racial minority communities affected by the COVID-19 pandemic o The Florida A&M University received $1 million from the National Institutes of Health (NIH) to conduct community outreach and engagement to understand the awareness of COVID-19 in the African American community • The University of North Carolina (UNC) received $500,000 from the U.S. Centers for Disease Control and Prevention (U.S. CDC) to improve the vaccination rates of 18 primary care clinics by coaching, data, and community partnerships with ethno-racial communities
Organisation for Economic Co-operation and Development (OECD)	• None identified	• None identified

World Health Organization (WHO)	• The behavioural sciences for better health initiative report, written on 27 April 2022 by WHO's Director General, highlights WHO's efforts to support country capacity to leverage social and behavioural insights to advance COVID-19 response efforts, including:
	  o The creation of tools to support the collection of data on social and behavioural insights, such as the WHO tool for behavioural insights on COVID-19 and the WHO social and behavioural insights COVID-19 data collection tool for Africa
		• On 15 October 2020, WHO's technical advisory group on behavioural insights and sciences for health produced a meeting report on behavioural considerations for acceptance and uptake of COVID-19 vaccines, which discussed strategies to advance three key drivers of vaccine uptake: 1) enabling environment, 2) social influences, and 3) motivation
		  o Key strategies for creating an enabling environment were focused on making vaccination easy, quick and affordable

- o Technical assistance and capacity-building such as through an online training course on collecting social and behavioural data on COVID-19 through the OpenWHO knowledge-transfer platform
- The WHO Regional Office for Europe published a [technical document](#) on setting up behavioural insights units for improved health outcomes, which highlights several examples of BI units supporting countries' responses to COVID-19
  - o The Cultural, Behavioural and Media Insights Centre in Finland and the Corona Behaviour Unit in the Netherlands, for example, have both collected data to inform public communication strategies during the pandemic
- WHO Member States in Europe adopted a [resolution](#) and action framework (European regional action framework for behavioural and cultural insights for health, 2022–2027) to drive work in behavioural and cultural insights and better integrate behavioural science into policy decision-making processes
- WHO Europe released [a collection of case studies on risk communication and community engagement](#) from 18 countries and area public health partners providing evidence of results achieved and lessons learned since the beginning of the COVID-19 pandemic
  - o Overall, the compendium examines how countries and areas addressed the following four capacities for effective risk communication and community engagement: 1) transparency and early announcement, 2) coordinating public communication, 3 listening through 2-way communication, and 4) selecting effective channels and trusted key influencers
- WHO released [recommendations](#) for putting community engagement at the centre of strategies for the COVID-19 vaccine roll-out, including guiding steps to ensure a safe and community-centred
- An interim guidance document from WHO provides risk communication and community-engagement strategies about COVID-19 related events, proposing [four objectives for people-centred and community-led approaches](#) to improve trust and social cohesion, and reduce negative impacts of COVID-19

- o Key strategies for harnessing social influences included leveraging partnerships with communities and trusted members who identify with relevant communities
- o Key strategies for increasing motivation included using open and transparent dialogue and communication about uncertainty and risks, including with respect to the safety and benefits of vaccination
- WHO has produced guidance documents to help countries better understand social processes, thoughts and feelings and motivations that shape vaccine intention and behaviour, as well as practical issues such as ease of access, availability and clear information about where and how to receive a vaccine
  - o On 3 February 2022, WHO published [data for action: achieving high uptake of COVID-19 vaccines: gathering and using data on the behavioural and social drivers of vaccination: a guidebook for immunization programmes and implementing partners: interim guidance](#)
  - o In 2022, WHO also published [behavioural and social drivers of vaccination: tools and practical guidance for achieving high uptake](#), which includes guidance on behavioural and social data collection for COVID-19 vaccination

Table 5: Experiences in Canadian provinces and territories on current readiness and capacity of public-health systems to address climate change and adjustments that are needed

Country	Summary of experiences with downstream efforts	Summary of experience with downstream efforts that leverage (or are attentive to) upstream efforts
Pan-Canadian	- Impact Canada launched a behavioural science applied research program to support Canada's COVID-19 response efforts, which included: - A COVID-19 Communications Rapid Review that identified the need to demonstrate efficacy of protective behaviours, evoke emotional responses with care, emphasize collective action, altruism/moral responsibility and civic duty, make social norms salient, emphasize adaptiveness and instill a sense of control to support mental health, and address pandemic fatigue, which was subsequently used to guide the federal social media campaigns - Developing a behaviourally-informed ArriveCAN app - A study to identify challenges experienced by shoppers to improve safety while shopping during COVID-19, which subsequently informed interventions to improve shopping safety - A study on the effects of messaging and messengers on vaccine perceptions that found that personal narratives delivered by close friends was most effective and that providing Canadians with a better view about how COVID-19 vaccines are developed using operational transparency is useful for ensuring a better understanding of vaccine-related messaging - A study on the effects of message framing on vaccination intentions that found different messaging approaches similarly impacted vaccination intentions overall, but differed based on socio-demographic factors - A study on messaging in response to adverse events following immunization that demonstrated the importance of combining principles such as operational	None identified

	transparency and risk communication strategies for reducing concerns about vaccine safety and increasing perceptions about message quality o A study demonstrating that unvaccinated participants can respond better to messaging that is operationally transparent	
British Columbia	• The BC Behavioural Insights Group (BC BIG) within the BC Public Service Agency applied behavioural insights to understand unemployment among British Columbians during COVID-19, and created a checklist email to help people to access support through WorkBC	• The BC BIG maintains an internal *Behavioural Science and COVID-19* blog series to keep the provincial government informed, and have also prepared reports on the behavioural dimensions of the pandemic specifically digital technology, deconfinement, and gradual return to the workplace • The BC Behavioural Insights Group (BC BIG) within the BC Public Service Agency applied behavioural insights to understand unemployment among British Columbians during COVID-19, and created a checklist email to help people to access support through WorkBC • The BC BIG documented how local governments applied behavioural insights during the pandemic, such as increasing physical distancing in outdoor spaces (e.g., circle markers in parks, bench markings, highly-visible floor markers, one-way routes), communication (e.g., short and catchy, sense of duty, right messenger, highlighting adherence, personalized messaging showing appreciation), support of local economy (e.g., tips and checklists, WorkSafeBC resources, communicating positive stories, providing flexibility such using parking spaces and sidewalks to use as patio seating, fun incentives and games)
Alberta	• None identified	• None identified
Saskatchewan	• None identified	• None identified
Manitoba	• None identified	• None identified
Ontario	• Ontario's Behavioural Insight Unit (BIU) released the Behavioural Insights In Ontario: Update Report 2020, that	• Ontario COVID-19 Science Advisory Table produced an evidence brief on using behavioural science

	included a report on initiatives using behavioural science to support Ontario's COVID-19 response o BIU helped to improve the COVID-19 self-assessment tool and increase online access to COVID-19 lab results, provided guidance on how to set-up rapid direct communications using text messaging with front-line workers, and assisted with the development of the province's COVID-19 Exposure Notification mobile phone app to support Ontario's plan to re-open	principles to support COVID-19 vaccine confidence and uptake among Ontario health care workers o The brief outlines strategies to guide general communication, supporting healthcare worker vaccination decision-making, and supporting healthcare workers once they have decided to get vaccinated o Key areas of focus include allaying safety concerns and highlighting personal benefits to getting the vaccine, tailoring messages to factors associated with lower intention, employing trusted leaders to set the tone and peers to build social norms around getting vaccinated, and using public health organizations and health institutions to leverage existing channels of influence
Québec	• None identified	• None identified
New Brunswick	• None identified	• None identified
Nova Scotia	• None identified	• None identified
Prince Edward Island	• None identified	• None identified
Newfoundland and Labrador	• None identified	• None identified
Yukon	• None identified	• None identified
Northwest Territories	• None identified	• None identified
Nunavut	• None identified	• None identified

List of included highly relevant evidence syntheses

1. Harrop E, Mann M, Semedo L, Chao D, Selman LE, Byrne A. What elements of a systems' approach to bereavement are most effective in times of mass bereavement? A narrative systematic review with lessons for COVID-19. *Palliative Medicine* 2020;34(9): 1165-1181.
2. Mardi P, Djalalinia S, Kargar R, Jamee M, Esmaeili Abdar Z, Qorbani M. Impact of incentives on COVID-19 vaccination; A systematic review. *Frontier Medicine (Lausanne)* 2022;9: 810323.
3. Hall CM, Northam H, Webster A, Strickland K. Determinants of seasonal influenza vaccination hesitancy among healthcare personnel: An integrative review. Journal of Clinical Nursing 2022;31(15-16): 2112-2124.
4. Silva MT, Galvao TF, Chapman E, da Silva EN, Barreto JOM. Dissemination interventions to improve healthcare workers' adherence with infection prevention and control guidelines: a systematic review and meta-analysis. Implementation Science 2021;16(1): 92.
5. Veys K, Dockx K, Van Remoortel H, Vandekerckhove P, De Buck E. The effect of hand hygiene promotion programs during epidemics and pandemics of respiratory droplet-transmissible infections on health outcomes: a rapid systematic review. BMC Public Health 2021;21(1): 1745.
6. Regmi K, Lwin CM. Factors Associated with the Implementation of Non-Pharmaceutical Interventions for Reducing Coronavirus Disease 2019 (COVID-19): A Systematic Review. International Journal of Environmental Research in Public Health 2021;18(8).
7. Kunzler AM, Stoffers-Winterling J, Stoll M, et al. Mental health and psychosocial support strategies in highly contagious emerging disease outbreaks of substantial public concern: A systematic scoping review. PLoS One 2021;16(2): e0244748.
8. Buselli R, Corsi M, Veltri A, et al. Mental health of Health Care Workers (HCWs): a review of organizational interventions put in place by local institutions to cope with new psychosocial challenges resulting from COVID-19. Psychiatry Research 2021;299: 113847.
9. Ottisova L, Gillard JA, Wood M, et al. Effectiveness of psychosocial interventions in mitigating adverse mental health outcomes among disaster-exposed health care workers: A systematic review. Journal of Trauma and Stress 2022;35(2): 746-758.
10. Sierra-García E, Sosa-Palanca EM, Saus-Ortega C, Ruiz-Hontangas A, Juárez-Vela R, Gea-Caballero V. Modulating Elements of Nurse Resilience in Population Care during the COVID-19 Pandemic. International Journal of Environmental Research in Public Health 2022;19(8).
11. Bhanu C, Gopal DP, Walters K, Chaudhry UAR. Vaccination uptake amongst older adults from minority ethnic backgrounds: A systematic review. PLoS Med 2021;18(11): e1003826.
12. Michie S, West R, Pidgeon N, Reicher S, Amlôt R, Bear L. Staying 'Covid-safe': Proposals for embedding behaviours that protect against Covid-19 transmission in the UK. British Journal of Health Psychology 2021;26(4): 1238-1257.
13. MacMillan G, van Allen Z, Presseau J. Understanding the role of personal risk perceptions during the COVID-19 pandemic: A rapid behavioural science evidence synthesis. Ottawa: COVID-END; 2022.
14. Crawshaw J, Konnyu K, Castillo G, et al. Factors affecting COVID-19 vaccination acceptance and uptake among the general public: A living behavioural science evidence synthesis. Ottawa: COVID-END; 2021.
15. Crawshaw J, Konnyu K, Castillo G, van Allen Z, Grimshaw J, Presseau J. Factors affecting healthcare worker COVID-19 vaccination acceptance and uptake: A living behavioural science evidence synthesis (v3). Ottawa: COVID-END; 2021.
16. Ghio D, Lawes-Wickwar S, Tang MY, et al. What influences people's responses to public health messages for managing risks and preventing infectious diseases? A rapid systematic review of the evidence and recommendations. BMJ Open 2021;11(11): e048750.
17. Gold N, Hu XY, Denford S, et al. Effectiveness of digital interventions to improve household and community infection prevention and control behaviours and to reduce incidence of respiratory and/or gastro-intestinal infections: a rapid systematic review. BMC Public Health 2021;21(1): 1180.
18. Drury J, Mao G, John A, et al. Behavioural responses to Covid-19 health certification: a rapid review. BMC *Public Health* 2021;21(1): 1205.
19. Institut National de Sante Publique du Quebec. Les interventions pour optimiser l'adoption de nouveaux comportement chez les jeunes en contexte de pandemie de COVID-19. Quebec City: INSPQ; 2020.

Appendix 1: Methodological details

We use a standard protocol for preparing rapid evidence profiles (REP) to ensure that our approach to identifying research evidence as well as experiences from OECD countries including Australia, France, New Zealand, Singapore, the U.K. and the U.S. 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 this REP, we searched HealthEvidence, Health Systems Evidence, Social Systems Evidence, COVID-END inventory of best-evidence syntheses; COVID-END website; and PubMed for:
1) guidelines (defined as providing recommendations or other normative statements derived from an explicit process for evidence synthesis);
2) full systematic reviews;
3) rapid reviews;
4) protocols for reviews or rapid reviews that are underway; and
5) titles/questions for reviews that are being planned.

All databases were searched in English and in French. In each database we used the open search function for (COVID-19 or coronavirus) AND (health promotion) AND (behaviour OR behavior OR implementation). We also used filters within each database to search for evidence syntheses (as opposed to primary studies). In French, we searched for (COVID-19 OR coronavirus) AND ("promotion de la santé") AND (comportement OR "mise en oeuvre").

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 or 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. We excluded documents that did not directly address the research questions and the relevant organizing framework.

Identifying experiences from other countries and from Canadian provinces and territories

For each REP, we collectively decide on what countries to examine based on the question posed. For other countries we searched relevant government and stakeholder websites. In Canada, we search websites from relevant national and provincial governments, ministries and agencies (e.g., Public Health Agency of Canada).

In addition, we searched Lexus Uni using the following key search terms (COVID-19 or coronavirus) AND (health promotion) AND (community engagement) AND (Australia OR Canada OR France OR New Zealand OR Singapore OR United Kingdom OR United States).

While we do not exclude countries based on language. Where information is not available in English, Chinese, French or Spanish, we attempt to use site-specific translation functions or Google translate.

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. We then use a colour gradient to reflect high (darkest blue) to low (lightest blue) relevance.

Two reviewers independently appraised the quality of the guidelines we identified as being highly relevant using AGREE II. We used three domains in the tool (stakeholder involvement, rigour of development and editorial independence) and classified guidelines as high quality if they were scored as 60% or higher across each of these domains.

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 a small number of bullet points that provide a brief summary of the key findings, which are used to summarize key messages in the text. Protocols and titles/questions have their titles hyperlinked given that findings are not yet available. For this profile, we only prepared bulleted summaries of key findings for documents deemed to be of high relevance. For those classified as medium or low relevance, we list the title with a link to the primary source for easy retrieval if needed. 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, organized by document type, and sorted by relevance to the question of how downstream health promotion approaches were used during the public-health response to the COVID-19 pandemic

Type of document	Relevance to question	Key findings	Recency or status
Guidelines	None identified		
Full systematic reviews	- Target of health-promotion efforts - Downstream efforts (i.e., targeting individual behaviour change) - Social support (e.g., outreach programs, individual counselling) - Findings related to these efforts by nature of finding - Uses of such efforts (i.e., characteristics of implemented efforts) - Effectiveness of such efforts - Findings related to these efforts by domain where they were used - Pandemic preparedness - Pandemic response	- The systematic review focuses on mental health outcomes for live, health professional-led group interventions delivered by videoconference, teleconference, or live chat platforms - Groups focused on addressing mental health, substance use, and bereavement among community dwelling adults and determining the acceptability of the approaches - None of the studies examined substance use, addiction, or bereavement outcomes - Interventions included had the strongest effects on reducing anxiety and depression when compared to either inactive or active controls, with insignificant effects reported for both perceived coping and quality of life - Interventions with 8-12 contact hours had higher effects on anxiety compared to those with fewer hours, however those with more than 12 hours did not appear to be more effective Source (AMSTAR rating 9/11)	Literature last searched July 2020
	- Target of health-promotion efforts - Downstream efforts of any of the above types that explicitly leverage upstream efforts - Healthy public policy - Supportive environments - Community engagement and action to address health-related issues and promote well-being - Findings related to these efforts by nature of finding	- The primary objective of this review was to assess the mental health implications of the COVID-19 pandemic in low- and middle-income countries - Notable findings revealed: 1) increased rates of psychological distress and mental health disorders, 2) varying responses (e.g., developing national response plans, digitizing platforms, and incorporating guidance from leading health organizations) to mental health crises, 3) a shift of power balance to low- and middle-income countries and to community-oriented psychosocial	Published June 2021

	o Uses of such efforts (i.e., characteristics of implemented efforts)
	• Findings related to these efforts by domain where they were used
	  o Pandemic preparedness
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Race/ethnicity/culture/language
	  o Socioeconomic status
	  o Social capital
		perspectives, and 4) strategies for improved mental health systems (e.g., integration in universal health care, task sharing, using digital technologies, catering to the needs of underserved populations)
		Source	

	• Target of health-promotion efforts
	  o Downstream efforts
	    ▪ Education/awareness raising
	    ▪ Behaviour modification
	  o Downstream efforts of any of the above types that explicitly leverage upstream efforts
	    ▪ Community engagement and actions to address health-related issues and promote well-being
	• Findings related to these efforts by nature of finding
	  o Uses of such efforts (i.e., characteristics of implemented efforts)
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Occupation
	  o Socioeconomic status
		• The main focus of this systematic review was to identify non-pharmaceutical interventions in response to the COVID-19 pandemic, and to evaluate behavioural measures for droplet-borne communicable diseases
		• Behavioural measures to reduce COVID-19 in at-risk communities include having appropriate hand hygiene (i.e., handwashing), face masking, utilizing personal cutlery, disinfecting household surfaces, limiting travel, and avoiding large social gatherings
		• Benefits from preventive measures include reduced household, community, and cross-border transmission, protection against conditions with similar transmission pathways, and improved hygiene
		Source (4/9 AMSTAR rating)
			Published 29 May 2020 (pre-print)

	• Target of health-promotion efforts
	  o Downstream efforts
	    ▪ Education/awareness raising
	    ▪ Skill development/training
	    ▪ Social support
		• This systematic review aimed to examine system-level responses to guide policymaking during mass bereavement events, such as natural or human disasters, and pandemics
		• Individual- and group-based bereavement support initiatives yielded generally positive effects
			Published July 2020

	o Downstream efforts of any of the above types that explicitly leverage upstream efforts
	  ▪ Healthy public policy
	  ▪ Supportive environments
	  ▪ Community engagement and action to address health-related issues and promote well-being
	• Findings related to these efforts by nature of finding
	  o Uses of such efforts (i.e., characteristics of implemented efforts)
	• Findings related to these efforts by domain where they were used
	  o Pandemic preparedness
	  o Pandemic response
		• Key characteristics of effective responses include proactive outreach efforts, a central point of contact with locally targeted interventions, and delivery of psychoeducational content
		• The authors do note that the quality of evidence of the studies was generally low
		Source (8/10 AMSTAR rating)	

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
	    ▪ Supportive environments
	• Findings related to these efforts by nature of finding
	  o Uses of such efforts
	  o Effectiveness of such efforts
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Race/ethnicity/culture/language
	  o Socioeconomic stats
	  o Social capital
	  o Personal characteristics associated with discrimination and/or exclusion
		• The review examines the extent to which existing research evaluates the effectiveness and consequences of all types of incentives provided for increasing uptake/intention of COVID-19 vaccination
		• Studies examined the effects of interventions including financial lotteries, persuasive messaging, and financial incentives
		• The review found that the lottery drove minor changes in vaccination, whereas persuasive messaging had a generally non-significant effect (but may be beneficial among particular groups of people, such as webinars for those with cancer)
		• Most studies found that financial incentives of paying individuals cash were effective but small amounts of money were generally insufficient but larger sums had a number of ethical implications and were found to be counter productive in some racialized populations
		Source (AMSTAR rating 5/10)
			Published 2022

	• Target of health-promotion efforts
	  ○ Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	  ○ Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
	    ▪ Supportive environments
	• Findings related to these efforts by nature of finding
	    ▪ Conceptions of such efforts
	• Findings related to these efforts by domain where they were used
	  ○ Pandemic preparedness
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  ○ Occupation
	  ○ Gender/sex
		• The review examined the willingness of health professionals to undertake the influenza vaccine
		• The review found that features of healthcare workers were more inclined to accept seasonal influenza vaccination include those who are male, are physicians, and are of an older age largely because receiving the vaccination is a habitual behaviour where future intention is heavily influenced by past behaviours
		• Six thematic domains were identified including: perceived vulnerability, trust, past behaviour, professional duty, access and convenience, and knowledge and experience
		• The review notes that the health belief model could be leveraged to the themes to facilitate the development of educational interventions
		• The review suggested the use of the Triandis' Model of interpersonal behaviour which provides a comprehensive view of determinants of complex human behaviour and is especially well positioned to contend with habits resulting from the frequency of past behaviour
		• No educational strategies were assessed as part of this review
		[Source] (AMSTAR rating 7/10)
			Literature last searched 2020

	• Target of health-promotion efforts
	  ○ Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	• Findings related to these efforts by nature of finding
	  ○ Effectiveness of such efforts
	• Findings related to these efforts by domain where they were used
	  ○ Pandemic preparedness
		• The review examined the effects of dissemination interventions to improve healthcare workers' adherence to infection prevention and control guidelines for respiratory infectious diseases in the workplace
		• The review identified six studies that assessed hand hygiene compliance, three studies conducted surveys and focus group sessions to tailor their dissemination, and audit and feedback in four studies, while one included patient-mediated
			Literature last searched September 2020

		interventions and public release of performance data • Combined guideline dissemination strategies improved influenza vaccination, knowledge, and hand hygiene uptake compared to usual activities, however it is unclear the extent to which these were useful compared to single dissemination interventions • The review highlighted that decision-makers should monitor the impact along with the implementation and consider equity issues which may influence disparities related to risks and health outcomes Source (AMSTAR rating 8/10)	

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	• Findings related to these efforts by nature of finding
	  o Effectiveness of such efforts
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Place of residence
		• The review aims to summarize the effectiveness of community-based hand hygiene promotion programs on infection transmission, health outcomes and behavioural outcomes during endemic periods
		• All 12 included studies implemented at least one intervention consisting of a promotional program with both a software and a hardware component
		• The software component was characterized by education of the target group through either verbally communicated hand hygiene lessons, with training or instructions on how and how frequent to practice hand hygiene or in combination with written or visual media
		• The hardware component consisted of provision of hand hygiene materials, either soap, alcohol-based hand sanitizers or a combination of both, provided by the researchers to every participating individual
		• There was some evidence that preventive hand hygiene promotion interventions in interepidemic periods significantly decreased influenza positive cases in the school setting, however no improvements were demonstrated for interventions implemented in households
			Literature last searched August 2021

	• The review noted that hand hygiene promotion can have beneficial effects on health outcomes when the intervention is implemented as a preventative measure, however waiting until the onset of illness particularly when targeting households is too late and ineffective Source (AMSTAR rating 8/11)	

• Target of health-promotion efforts
  o Downstream efforts (i.e., targeting individual behaviour change)
    ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
    ▪ Healthy public policy
• Findings related to these efforts by nature of finding
  o Effectiveness of such efforts
• Findings related to these efforts by domain where they were used
  o Pandemic response
• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
  o Race/ethnicity/culture/language
  o Occupation
  o Socioeconomic status
	• The aim of this review was to identify the factors associated with the implementation of public health and social measures (e.g., physical distancing, isolation, and quarantine) for reducing COVID-19
	• Thirty-three studies were included in the study, with seven descriptive themes emerging related to the positive impact of non-pharmaceutical interventions, effective public health interventions, positive change in people's behaviour and concerns about COVID-19, the role of mass media, physical and psychological impacts, and ethnicity/age associated with COVID-19
	  o Regarding the theme of positive changes in people's behaviour, four studies reported that physical distancing measures influenced people's behaviour and helped to comply with government actions; for instance, one study mentioned that physical distancing measures plus population behavioural changes were less disruptive than total lockdowns and were more effective and meaningful for controlling COVID-19
	  o The review found that control measures and changes in population behaviour coincided with a substantial reduction in influenza transmission in early February 2020
	Source (AMSTAR rating 6/9)
		Literature last searched 12 March 2021

• Target of health-promotion efforts
  o Downstream efforts (i.e., targeting individual behaviour change)
    ▪ Education/awareness raising
	• This scoping review aimed to identify interventions that target the distress of people in the face of highly contagious disease outbreaks	Literature last searched May 7 2020

- Skill development/training - Health literacy support - Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting) - Social support (e.g., outreach programs, individual counselling) - Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches) - Healthy public policy - Supportive environments - Community engagement and action to address health-related issues and promote well-being - Findings related to these efforts by nature of finding - Uses of such efforts (i.e., characteristics of implemented efforts) - Findings related to these efforts by domain where they were used - Pandemic response - Findings related to one or more equity-deserving groups from PROGRESS-Plus framework - Race/ethnicity/culture/language - Religion	- Nineteen studies were included, which described contents that should be addressed in interventions to cope with the psychological challenges of a pandemic - The review found a psychological benefit of interventions that included a mix of information provision (e.g. pandemic-related knowledge, stress) and strategies for teaching psychological support like training of resilience factors and coping strategies - Other interventions such as relaxation and mindfulness techniques (e.g. meditation) were often provided - Several studies indicated that psychological interventions such as cognitive behavioural therapy or training need to be adapted to the cultural context of the target group and respective concepts of mental health - The contents of the interventions identified in the review included: general health care information, psychoeducation about stressors and mental health problems, training/provision of coping skills, training of specific resilience factors (psycho- and social support involving family or peers); prevention of trauma, depression, and anxiety (e.g., behavioural activation; minimizing avoidance; cognitive behavioural therapy based training; arts therapy); fostering sense of control; relaxation, mindfulness and meditation techniques; Psychological First Aid (PFA); and dealing with death Source (AMSTAR rating 8/10)	
- Target of health-promotion efforts - Downstream efforts (i.e., targeting individual behaviour change) - Education/awareness raising	- This review aimed to identify interventions put in place worldwide in reducing stress in healthcare workers during the COVID-19 outbreak - The review included seven studies; overall, few countries have published specific psychological	Literature last searched October 2020

	• Social support (e.g., outreach programs, individual counselling) ○ Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches) • Supportive environments • Findings related to these efforts by nature of finding ○ Uses of such efforts (i.e., characteristics of implemented efforts) • Findings related to these efforts by domain where they were used ○ Pandemic response • Findings related to one or more equity-deserving groups from PROGRESS-Plus framework ○ Occupation	support intervention programs for healthcare workers ○ The review could not conclude if one program offers distinct benefits compared to the others given the heterogeneity of the programs and the lack of standardized protocols and clinical outcomes ○ All interventions were developed during a rapidly evolving situation and prioritized clinical needs over research methods ○ Programs varied from online promotion and awareness campaigns to minimize stigma; to measure quantitatively the level of depression, anxiety, distress, and burnout in frontliners to programs focused on providing peer psychological support, mitigating emotional fatigue, and enhancing resilience ○ The review concluded that considering the evidence of the risk of short and long-term psychological consequences and the impact on job performance and quality of care, psychological protocols for healthcare workers should be urgently implemented Source (AMSTAR rating 5/10)	
	• Target of health-promotion efforts ○ Downstream efforts (i.e., targeting individual behaviour change) • Skill development/training • Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting) • Social support (e.g., outreach programs, individual counselling • Findings related to these efforts by nature of finding ○ Effectiveness of such efforts • Findings related to these efforts by domain where they are used	• This systematic review explored the effectiveness of psychosocial interventions delivered to health care workers in mitigating adverse mental health outcomes before, during, and after disasters ○ Particular outcomes of focus were PTSD, anxiety, depression, and sleep difficulties • Interventions that targeted specific skills and processes (e.g., in-service skills training, problem solving, coping with anxiety, and mindfulness) were found to be most effective • Interventions based on evidence-based protocols, including group-based cognitive behavioral therapy (CBT) for anxiety and depression and for PTSD lead to reliable changes in PTSD and anxiety	Literature last searched 15 February 2021

	o Pandemic preparedness o Pandemic response • Findings related to one or more equity-deserving groups from PROGRESS-Plus framework o Occupation	• Single-session debriefing and psychological first aid workshops that focused on generic well-being showed limited efficacy with no reliable improvements in PTSD symptoms • The review's findings suggest that psychosocial interventions can assist in reducing the negative impact of acute and subsequent phases of disasters on health workers' well-being, but evidence is limited Source (7/11 AMSTAR rating)	
	• Target of health-promotion efforts o Downstream efforts (i.e., targeting individual behaviour change) ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting) • Findings related to these efforts by nature of finding o Effectiveness of such efforts	• A systematic scoping review was conducted to explore the capacity of videogame interventions for young people (ages 12-29) to support treatment in youth mental health services • The study evaluated the data on game use by those with mental health and substance use problems, the way in which stakeholders are involved in developing or evaluating games, and any potential harms and ethical remedies • Findings support the potential integration of digital games in youth services based on relatively high program retention rates, user satisfaction, and the potential usefulness of most games for mental health treatment or promotion/prevention • Involvement ratings were very high for seven games, but potential harms were not addressed in this body of research Source (3/9 AMSTAR rating)	Literature last searched April 2021
	• Target of health-promotion efforts o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches) ▪ Healthy public policy • Findings related to these efforts by nature of finding o Effectiveness of such efforts	• This scoping review found that the COVID-19 pandemic had a considerable impact on primary care at both service and patient levels, and various strategies were implemented to mitigate these impacts • Strategies included infection and control measures and modifications to traditional service delivery or workflow to mitigate COVID-19 spread, and	Literature last searched 16 August 2020

	• Findings related to these efforts by domain where they were used o Pandemic response	government policy responses to mitigate the impact on healthcare provision Source (4/9 AMSTAR rating)	

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Skill development/training
	    ▪ Social support
	• Findings related to these efforts by nature of finding
	  o Uses of such efforts (i.e., characteristics of implemented efforts)
	  o Effectiveness of such efforts
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Occupation
		• This systematic review analyzed the resilience of healthcare nurses to the psychological impact of the COVID-19 pandemic
		• Most of the 22 included studies highlighted the presence of stressors among nurses, emphasizing those of the environment, which led to dysfunctional responses that hurt their resilience.
		• According to the review, coping strategies developed by nurses and especially interventions by organizations were detected as instruments to foster resilience, but have not been well researched
		Source (5/10 AMSTAR rating)
			Literature last searched May 2021

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Health literacy support
	    ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
	    ▪ Social support (e.g., outreach programs, individual counselling)
	• Findings related to these efforts by nature of finding
	  o Uses of such efforts (i.e., characteristics of implemented efforts)
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
		• This systematic review examining perceptions of vaccinations amongst older adults from minority ethnic backgrounds identified factors influencing vaccination uptake at the patient, system, and governance level
		• A tailored, multi-level approach combining increased access to information about vaccines, supportive communities, as well as culturally competent discussions about health beliefs with trusted healthcare professionals can maximise the potential impact, equity, and success of widespread vaccination policies
		  o Other mentioned facilitators of vaccine uptake included vaccination reminders, recognition of age as a risk factor, fear of developing the disease, and vaccination setting
		Source (10/11 AMSTAR rating)
			Literature last searched 15 July 2021

	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Race/ethnicity/culture/language
	  o Personal characteristics associated with disciplinary and/or exclusion		

	• Target of health-promotion efforts
	  o Downstream efforts
	    ▪ Education/awareness training
	  o Downstream efforts of any of the above types that explicitly leverage upstream efforts
	    ▪ Community engagement and action to address health-related issues and promote well-being
	• Findings related to these efforts by nature of finding
	  o Conceptions of such efforts
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Race/ethnicity/culture/language
	  o Education
	  o Socioeconomic status
		• The systematic review aims to identify the factors that encourage and discourage community participation in the vaccine program
		• The review found that strengthening positive information altered the impression of community vulnerability, making it compelling element or the community to receive the vaccine
		Source
			Published October 2022

Rapid reviews	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Skill development/training
	    ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
	    ▪ Social support (e.g., outreach programs, individual counselling)
	• Findings related to these efforts by nature of finding
	  o Conceptions of such efforts
		• The review describes the methods and results of government advisory group's attempt to develop proposals to embed behaviours in the U.K. population, with a focus on maintaining physician distance, wearing face coverings, ensuring adequate ventilation, and working from home
		• The review identified thirty distinct candidate behaviour change approaches for achieving sustained behaviour change
		• The review found that successful risk management and sustaining behaviour change involves having multiple layers of protection, a combination of physical social and psychological measures, effective
			Published 2021

	Findings related to these efforts by domain where they were used	communication of risk and uncertainty, inclusion of the targeted groups in development, and continued monitoring and feedback	

	• Findings related to these efforts by domain where they were used
	  o Pandemic response
		• The review found that to effective long-term behaviour change it is critical to understand how people understand new phenomena and their risks, the role that anchoring on past experience plays, and the use of concrete metaphors to foster understanding
		
		• Suggested strategies that increase individual capability include:
		  o Multi-channel information and communications campaigns
		  o Education on infection risk management across education settings from schools to higher education and through professional training
		  o Providing resources that are easily accessible and usable by all members of the community
		
		• Suggested strategies to increase individual opportunity include:
		  o Providing practical, regulatory and financial support for the creation of home, work, leisure and transportation environments that enable adequate physical distancing, ventilation and wearing of face coverings
		  o Provide support and resources to ensure the sustainability of mutual aid groups, which provide forms of practical support to those in the community
		  o Ensure people have sufficient and sustained financial and other resources, including employment protection, to be able to behave in ways that mitigate risks
		  o Build strong social norms around infection control behaviours
		
		• Increase individual motivation by using all available communication channels to strengthen social-identities, values and emotional responses around	

		infection prevention and mitigation, and a sense of personal control Source (AMSTAR rating 2/11)	

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	    ▪ Health literacy support
	    ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
	  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
	    ▪ Supportive environments
	• Findings related to these efforts by nature of finding
	  o Conception of such efforts
	• Findings related to these efforts by domain where they are used
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Race/ethnicity/culture/language
		• This evidence synthesis assessed how behavioral science can be used to inform messaging and supports for encouraging COVID-19 vaccination for the general public
		• From the 175 studies that were identified (23 studies conducted in Canada), researchers found that 83% of Canadians overall were willing to accept a COVID-19 vaccine
		  o Data was collected from November 2020 to 1 August 2021)
		• The Capability, Opportunity and Motivation-Behaviour (COM-B) model and the *Theoretical Domains Framework* was used to identify barriers and enablers to vaccine uptake
		• Knowledge (or lack thereof) about COVID-19 and vaccines was the most common capability-related factor, while opportunity-related factors that were identified included access, cost, and convenience of vaccines, as well as social influences such as mistrust around the handling of the pandemic
		• Motivation-related factors included beliefs about the consequences of vaccination, the framing of vaccinations as a collective responsibility, reinforcement through having a history of vaccination, and emotion
		• Evidence was also identified that found that some racialized groups (Black and Latinx in particular) expressed more mistrust in governments and pharmaceutical companies, and healthcare providers than other groups (e.g., White, Asian)
		• The authors concluded that addressing the identified barriers and enablers will require multiple approaches at multiple levels in order to maximise uptake of COVID-19 vaccines
		Source (AMSTAR rating 4/9)
			Literature last searched 1 August 2021

	• Target of health-promotion efforts
	  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts
	    ▪ Supportive environments
	    ▪ Community engagement and action to address health-related issues and promote well-being
	• Findings related to these efforts by nature of finding
	  o Effectiveness of such efforts
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Race/ethnicity/culture/language
	  o Gender/sex
	  o Education
	  o Socioeconomic status
		• The review examines personal risk perceptions during the COVID-19 pandemic and their effect on how individuals have taken up, maintained, disengaged, and re-engaged with core protective behaviours
		• The review found that the frequency and method of delivering risk information was associated with risk perceptions, as a result maintaining the frequency and availability of risk information is critical for individuals to form risk perceptions that are aligned with current severity and susceptibility
		• An increase in perceived risk was associated with individuals with higher levels of trust in scientific and medical sources and responses to COVID-19 are within one's control
		• Risk communications need to be coupled with demonstrations that what others are doing to maintain protective actions are effective and warranted
		Source (AMSTAR rating 4/9)	

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
	    ▪ Healthy public policy
	• Findings related to these efforts by nature of finding
	  o Effectiveness of such efforts
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
		• The rapid review examined different factors that affected adherence to quarantine requirements, which included:
		  o Knowledge about the infectious disease outbreak and quarantine protocol, however too much knowledge was perceived as a hindrance
		  o Social norms, cultural values and the law
		  o Perceived benefit of quarantine, for example reducing the risk of transmission to others
		  o Perceived risk of the disease outbreak
		  o Practicalities of quarantine made it easy to do, for example when there was no fear of loss of income
		  o Trust in government
		• Mixed evidence was found for whether the length of quarantine affected adherence to protocol
			Literature last searched January 2020

		• These factors have also been found to influence adherence to other protective health behaviours with regards to infectious diseases such as handwashing, wearing face masks, avoiding crowds, and vaccination
		• Suggested recommendations for increasing adherence based on the findings include:
		  o Providing a timely, clear rationale for quarantine
		  o Providing clear information about quarantine protocol
		  o Emphasizing social norms to encourage this behaviour as altruistic
		  o Highlighting the benefit that engaging in quarantine will have on public health and emphasizing its importance
		  o Ensuring sufficient supplied are provided
		  o Providing assistance for those financially affected by quarantine
		Source (AMSTAR rating 6/11)	

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	    ▪ Skill development/training
	    ▪ Health literacy support
	    ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
	• Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
	  o Supportive environments
	  o Community engagement and action to address health-related issues and promote well-being
	• Findings related to these efforts by nature of finding
	  o Conceptions of such efforts
		• The rapid review examines the elements that influence people's responses to public health messages for managing risks and preventing infectious disease and the ways that these should be integrated into campaigns or interventions
		• Recommendations emerging from the review include:
		  o Engaging with different communities which includes involving community leaders and others with perceived credible sources to disseminate messages as well as tailoring the messages to ensure they are applicable to individual's situations (e.g., levels of perceived susceptibility; likelihood of misunderstanding instructions; and skills needed to enact the behaviour)
		  o Consider difficulties accessing information and levels of literacy by pre-testing information to help identity phrasing that can be confusing
			Literature last searched 20 May 2020

	• Findings related to these efforts by domain where they were used
	   o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	   o Race/ethnicity/culture/language
	   o Socioeconomic status
		o Use different media for delivery and carefully match delivery with the population's need and perceptions
		o Address uncertainty and changing information by clearly communicating known and unknown factors and ensure consistency between different sources of information
		o Identify sources of information to encourage trustworthiness
		o Deliver consistent clear, core messages about risk and preventive behaviour across sources within the same time points and identify inconsistencies from uncontrolled sources, especially when addressing key preventative behaviours
		o Increase the public's awareness of the risks of the virus to their own health and the health of others
		o Increase factual knowledge of all aspects of a virus and benefits of preventative behaviour using an appropriate message frame and where possible use non-narrative messages to change knowledge and perceived response
		o Consider framing messages around social responsibility and norms especially when this can be done in ways that tap into being socially responsible
		o Frame messages to emphasize positive beliefs about one's own health and that preventative behaviour is within their control such as highlighting practical actions that can be taken
		Source (AMSTAR rating 3/9)	

	• Target of health-promotion efforts
	   o Downstream efforts (i.e., targeting individual behaviour change)
	      ▪ Education/awareness raising
	      ▪ Skill development/training
	      ▪ Health literacy support
		• This review aimed to identify digital interventions for improving hygiene practices in order to reduce the incidence of common viral infections (with similar routes of transmission to Covid-19) within the house and community settings (e.g. schools, workplaces)	Literature last searched May 2019

- Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting) - Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches) - Community engagement and action to address health-related issues and promote well-being - Findings related to these efforts by nature of finding - Uses of such efforts (i.e., characteristics of implemented efforts) - Effectiveness of such efforts - Findings related to these efforts by domain where they were used - Pandemic preparedness	- Six studies reported behavioural outcomes, all of them concerned with handwashing - Five out of the six studies reported that the interventions (e.g., sending videos and educational material through chats) increased handwashing - Two studies used or were based on behaviour change theory, one of them found that: "knowledge activation (reminding people of something they already know) worked well for increasing the soap use ratio of women but not men, and disgust (triggering a yuck response) worked well for men but not women" - One study found that sending weekly text messages about prevention and treatment of HFMD to parents increased handwashing among children, another study found that sending weekly 90 s audio messages about hand hygiene to mothers in a relatively low-income area of India led to increased self-reported handwashing - A non-randomised controlled trial circulated educational materials and facilitated that parents ask questions, this study found an statistically significant increase in the proportion of children who mastered the correct way of washing their hands and the proportion of children who formed good habits of washing their hands (changed from 76.7 % to 96.7%) Source (AMSTAR rating 8/10)	
- Target of health-promotion efforts - Downstream efforts (i.e., targeting individual behaviour change) - Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)	- The aim of this review was to describe public attitudes towards Covid-status certification, and its possible impact on the uptake of testing, vaccination, and protective behaviours - Thirty-three studies were included; overall, the review found a favourable public attitude towards the use of immunity certificates (based on vaccination or antibody tests) for	Literature last searched December 2020

	- Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches) - Healthy public policy - Findings related to these efforts by nature of finding - Use of such efforts - Findings related to these efforts by domain where they were used - Pandemic response - Findings related to one or more equity-deserving groups from PROGRESS-Plus framework - Race/ethnicity/culture/language - Education - Socioeconomic status	- international travel and for protecting the vulnerable, for instance, previous to visit a care home setting - The review found a generally unfavourable attitude towards the use of certification for access to work, educational or religious activities or settings - There was no evidence in the review that mandatory vaccination including sanction would increase uptake - Some of the studies included in the review suggested that health certification might reduce Covid protective behaviours, including social distancing and handwashing - The review also found that making access to settings and activities conditional on antibody test certification may lead to deliberate exposure to infection in a minority, especially among young adults and those in precarious employment Source (AMSTAR rating 7/9)	
	- Target of health-promotion efforts - Downstream efforts (i.e., targeting individual behaviour change) - Education/awareness raising - Health literacy support - Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting) - Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches) - Healthy public policy - Findings related to these efforts by nature of finding - Conceptions of such efforts - Findings related to these efforts by domain where they were used	- This review aimed to identify and categorize studies addressing COVID-19 vaccination acceptance in order to identify modifiable factors to increase uptake in healthcare workers - The review included 74 studies; overall, nearly two-thirds of responding healthcare workers were willing to accept a COVID-19 vaccine (median 64%, interquartile range 50-78%) - The review identified twenty barriers and enablers, which were categorized into eight domains of the Theoretical Domain Framework (TDF) - The most frequently identified barriers to COVID-19 vaccination pertain to the TDF domain Beliefs about consequences (i.e., concerns about vaccine safety, efficacy, and speed of development), TDF Social/professional role and identity domain	Literature last searched May 24 2021

	o Pandemic response	(i.e., individuals in certain healthcare workers roles); and the TDF Social influences domain (i.e., mistrust in state/public health response to COVID-19 o The most frequent enablers were routinely being vaccinated for seasonal influenza (domain Reinforcement), concerns about contracting COVID-19 (domain Beliefs about consequences) and working directly with COVID-19 patients (domain Social/professional role and identity) o The review also found evidence indicating that knowledge was associated with vaccination acceptance among healthcare workers, indicating that knowledge or lack thereof is often seen as a key barrier to behaviour change, which explains the numerous strategies merely focused on education and providing information Source (AMSTAR rating 5/9)	

	• Target of health-promotion efforts
	  o Downstream efforts (i.e., targeting individual behaviour change)
	    ▪ Education/awareness raising
	    ▪ Skill development/training
	    ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
	    ▪ Social support (e.g., outreach programs, individual counselling)
	  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches)
	    ▪ Supportive environments
	• Findings related to these efforts by nature of finding
	  o Uses of such efforts (i.e., characteristics of implemented efforts)
		• This rapid review examined what is known about interventions to optimize the adoption of new behaviours among young people in the context of the COVID-19 pandemic. The review identified four principles that can guide the design and implementation of interventions with young people:
		  o support for the autonomy of young people
		  o social learning
		  o openness and inclusion
		  o complementarity of actions.
		• The review then examined the conditions for success of three types of interventions targeting young people or their parents:
		  o media campaigns
		  o interventions in educational establishments
		  o interventions targeting parents
		Source (3/9 AMSTAR rating)
			Published 11 January 2021

• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework o Personal characteristics associated with discrimination and/or exclusion		

• Target of health-promotion efforts
  o Downstream efforts (i.e., targeting individual behaviour change)
    ▪ Education/awareness raising
    ▪ Behaviour modification (e.g., incentives, positive and negative reinforcement, goal setting)
• Findings related to these efforts by nature of finding
  o Uses of such efforts (i.e., characteristics of implemented efforts)
	• This rapid review examined what is known about communication strategies to support the promotion and maintenance of desired behaviours in the context of the pandemic. The review identified seven principles for these communication strategies:
	  o disseminate information that is easy to understand and builds trust
	  o disseminate information sensitive to the psychosocial consequences of the pandemic
	  o disseminate well-balanced information on the risks
	  o disseminate information that affects social norms
	  o disseminate information that improves the capacities to act
	  o disseminate information that promotes community resilience
	  o disseminate information adapted to prolonged collective efforts
	Source (AMSTAR rating 3/9)
		Published 23 November 2020

• Target of health-promotion efforts
  o Downstream efforts of any of the above types that explicitly leverage upstream efforts
    ▪ Healthy public policy
    ▪ Supportive environments
    ▪ Community engagement and action to address health-related issues and promote well-being
• Findings related to these efforts by nature of finding
  o Uses of such efforts (i.e., characteristics of implemented efforts)
• Findings related to these efforts by domain where they were used
	• The primary focus of this article was to identify recommendations that can help to remedy the stigma and discrimination arising from the COVID-19 pandemic
	• Key recommendations identified within the review included focusing on vocabulary and the use of language, media or journalistic practices, public health interventions, targeted interventions for specific population groups, and engagement from communities and key stakeholders in program design
	• Minimizing stigma and discrimination can help to improve individual experience, strengthen communities, and address structural inequalities
		Published January 2021

	○ Pandemic preparedness - Findings related to one or more equity-deserving groups from PROGRESS-Plus framework ○ Race/ethnicity/culture/language ○ Occupation ○ Religion	(5/10 AMSTAR rating)	
Protocols for reviews that are already underway			
Titles and questions for reviews being planned			
Primary studies	- Target of health-promotion efforts ○ Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts (e.g., nudge approaches) ▪ Community engagement and action to address health-related issues and promote well-being - Findings related to these efforts by nature of finding ○ Concepts of such efforts ○ Uses of such efforts (i.e., characteristics of implemented efforts) - Findings related to these efforts by domain where they were used ○ Pandemic response - Findings related to one or more equity-deserving groups from PROGRESS-Plus framework ○ Place of residence ○ Race/ethnicity/culture/language ○ Socioeconomic status	- The study provides an overview of some of the examples of community engagement and community action taking place in the U.K. and the Netherlands - Examples included developing neighbourhood groups to provide information about local food and medicine available once diagnosed with COVID-19, identifying neighbourhood members who could help with particular tasks such as grocery shopping, dog walking or broader support during the initial phases of the pandemic, providing daily music lessons to combat isolation and many others - The study provides six features that can be considered for using community engagement in downstream public health efforts, these include: - considering mutual aid as a key part of the response - using hyper-local approaches and the principles of Asset Based Community Development to draw on local knowledge and consider the different roles that local associations and businesses can play - using community based organizations and their local infrastructure to act as hubs for coordinating volunteers, supplies and other necessities	Published July 2021

		consider new roles that volunteers can take on drawing on trends of solidarity and neighbourliness that have been observed • make use of digital media to connect people and to organize activities through digital neighbourhood platforms/meeting points Source	

	• Target of health-promotion efforts
	  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts
	    ▪ Community engagement and action to address health-related issues and promote well-being
	• Findings related to these efforts by nature of the finding
	  o Uses of such efforts
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
	• Findings related to one or more equity-deserving groups from PROGRESS-Plus framework
	  o Socio-economic status
		• This study examined the perspectives of individuals working within community organizations on the role that large academic health centres play as they interfaced with smaller community organizations to support their work
		• The study noted that barriers to access and lack of transparency were highlight as major issues exacerbating distrust
		• Suggested improvements included increasing information sharing and education opportunities particularly for youth, increasing connection opportunities and collaboration between large academic centres and smaller community organizations, and increasing access to mental health resources for underserved populations
		Source
			Published January 2022

	• Target of health-promotion efforts
	  o Downstream efforts of any of the above types that explicitly leverage (or are attentive to) upstream efforts
	    ▪ Community engagement and action to address health-related issues and promote well-being
	• Findings related to there efforts by nature of finding
	    ▪ Conceptions of such efforts
	• Findings related to these efforts by domain where they were used
	  o Pandemic response
		• The study examined how the Social Identity Approach to health can be used to examine the relationships between help-giving, community relationships and unity during the pandemic and illustrate the pathways through which help-giving may predict residents' mental health and well-being
		• The study found that community participation correlated positively with community identification, unity and well-being, in addition, helping correlated positively with well-being and positive mental health
		Source
			Published June 2022

Appendix 3: Documents excluded at the final stages of reviewing

Type of document	Hyperlinked title
Guidelines	
Full systematic reviews	How frequently do we touch facial T-zone: A systematic review
	Contact tracing apps for the COVID-19 pandemic: A systematic literature review of challenges and future directions for neo-liberal societies
	A scoping review of organizational responses to the COVID-19 pandemic in schools: A complex systems perspective
	Management of parenting preparedness at home in COVID-2019 pandemic based on individual and family self-management theory (IFSMT): A Systematic Review
	Private sector engagement in the COVID-19 response: experiences and lessons from the Democratic Republic of Congo, Nigeria, Senegal and Uganda
	A scoping review of patient engagement activities during COVID-19: More consultation, less partnership
	Public health effectiveness of digital contact tracing in the COVID-19 pandemic: A systematic review of available data
Rapid reviews	A rapid review of pandemic-related behaviours and psychological outcomes
	Transmission of respiratory viruses when using public ground transport: A rapid review to inform public health recommendations during the COVID-19 pandemic
	Digital interventions to support population mental health in Canada during the COVID-19 pandemic: Rapid review
	Behavioural design interventions for the promotion of wellbeing among Filipino healthcare workers during the COVID-19 pandemic
	#StayHomeStayFit: UNIMI's approach to online healthy lifestyle promotion during the COVID-19 pandemic
	Clinician wellness during the COVID-19 pandemic: Extraordinary times and unusual challenges for the allergist/immunologist
Non-systematic reviews	
Protocols for reviews that are already underway	
Titles and questions for reviews being planned	
Single studies	
Other types of documents	