HEALTH EVIDENCE NETWORK SYNTHESIS REPORT 72

What are relevant, feasible and effective approaches to promote acceptance, uptake and adherence to physical distancing measures for COVID-19 prevention and control?

Rebecca E Ryan | Anne Parkhill | Lina Schonfeld | Louisa Walsh | Dianne Lowe | Bronwen Merner | Nami Nelson | Sophie J Hill

ADDITIONAL ANNEX

World Health Organization
REGIONAL OFFICE FOR Europe

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HEN Health Evidence Network
EVIDENCE FOR DECISION-MAKERS

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REGIONAL OFFICE FOR Europe

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TABLES

QUALITY ASSESSMENT

Included papers were appraised for quality using established tools appropriate to the methodological design such as the Assessment of Multiple Systemic Reviews tool (AMSTAR) (1), the Appraisal of Guidelines for Research & Evaluation (AGREE II) instrument (2), survey/cross-sectional adapted from the approach used by Bults et al. (3), the Critical Appraisal Skills Program (CASP) tool for qualitative studies (4) and the CASP tool for RCTs (5). Findings were mapped to each component of the review question (e.g. acceptance or adherence) with a second translational step to identify the promotion or communication purpose and how this might affect interpretation of each paper's findings. Evidence of varied methodological designs was included in this rapid review.

Most synthesized evidence (guidelines and systematic reviews) was of moderate quality (two guidelines and five systematic reviews), as was the single included randomized controlled trial and the qualitative primary studies, but the range was from high quality (one guideline and one systematic review) to low quality (three systematic reviews). Guidelines were developed in different ways, reflecting differences in the included evidence. For example, the WHO guideline included primary studies of comparative (randomized and non-randomized) and survey designs, together with qualitative and mixed-methods studies from all United Nations Member States, while the National Association of County and City Health Officials guideline was developed through a review of national and local pandemic influenza plans in the United States. Overall, guidelines were judged as being of moderate (two guidelines) or high (one guideline) quality. Surveys (of which 12 were included) were typically more limited, with response rates difficult to determine and representativeness lacking in all but a few. Several were also pre-peer review.

Table A.1 summarizes the papers included in the HEN report and the ratings of methodological quality for each.

Table A.1. Included papers and ratings of methodological quality

Measure	Study (design)	Quality, toola
Contact tracing	Bodas & Peleg, 2020 (6) (survey)[b]	Low–moderate
	Heuvelings et al., 2018 (7) (SR)	Moderate, AMSTAR
	Szkwarko et al., 2017 (8) (SR)	Moderate, AMSTAR
	Saurabh & Prateek, 2017 (9) (SR)	Low, AMSTAR
Isolation	Burnet Institute, 2020 (10) (qualitative)[b]	Moderate, CASP
	Burnet Institute, 2020 (11) (qualitative)[b]	Moderate, CASP
	Farooq et al., 2020 (12) (survey)[b]	Low
	Qazi et al., 2020 (13) (survey)[b]	Low
Quarantine	Zhu et al., 2020 (14) (survey)[b]	Moderate
	Webster et al., 2020 (15) (SR)[c]	Moderate, AMSTAR
	Brooks et al., 2020 (16) (SR)	Low, AMSTAR
	Lin et al., 2014 (17) (SR)	Moderate, AMSTAR
School measures	Brooks et al., 2020 (18) (SR)	Low, AMSTAR
Work measures	–	–

Table A.1 contd

Measure	Study (design)	Quality, tool[a]
Crowd avoidance, including individual physical distancing measures	Atchison et al., 2020 (19) (survey)[a]	Moderate
	Briscese et al., 2020 (20) (survey)[a]	Moderate
	Clements, 2020 (21) (survey)[a,b]	Low
	Kwok et al., 2020 (22) (survey)[a,b]	Low-moderate
	Lohiniva et al., 2020 (23) (qualitative)[b]	Moderate, CASP
	Lunn et al., 2020 (24) (RCT)[b]	Moderate, CASP
	Meier et al., 2020 (25) (survey)[b]	Low-moderate
	Roy et al., 2020 (26) (survey)[b]	Low
	Zhong et al., 2020 (27) (survey)[b]	Low
	Eaton & Kalichman, 2020 (28) (scoping review)	Low, AMSTAR
	Lor et al., 2016 (29) (qualitative)	Low, CASP
	NACCHO, 2006 (30) (guideline)	Moderate, AGREE II
	Teasdale et al., 2014 (31) (SR, qualitative)	Moderate, AMSTAR
	Tooher et al., 2013 (32) (SR)	High, AMSTAR
General	Lim et al., 2021 (33) (survey)[b]	Moderate
	ECDC, 2020 (34) (review of guidelines)[c]	Low
	Johns Hopkins Center for Health Security, 2019 (35) (pandemic preparedness guideline)	Moderate, AGREE II
	WHO, 2018 (36) (emergency risk communication, guideline)	High, AGREE II

RCT: randomized controlled trial; SR: systematic review.
[a] Tools: AMSTAR (1), AGREE II (2), CASP (4,5).
[b] COVID-19 specific.
[c] Included research was not COVID-19 specific but a review conducted explicitly in the context of the current pandemic outbreak.

MAPPING IDENTIFIED SOURCES AGAINST PHYSICAL DISTANCING MEASURES

Table A.2 shows the papers included in the HEN synthesis mapped against physical distancing measures, according to a COVID-19 focus. This mapping reflected the search strategies and represents the preliminary mapping and organization of the included papers.

Table A.2. Included papers mapped to key physical distancing measures

Measure	COVID-19 specific	Not COVID-19 specific
Contact tracing	Bodas & Peleg, 2020 (6) (survey)	Heuvelings et al., 2018 (7) (TB, SR) Saurabh & Prateek, 2017 (9) (EVD, SR) Szkwarko et al., 2017 (8) (TB, SR)
Isolation	Farooq et al., 2020 (12) (survey) Burnet Institute, 2020 (10,11) (qualitative) Qazi et al., 2020 (13)	–
Quarantine	Webster et al., 2020 (15) (rapid SR) Zhu et al., 2020 (14) (primary)	Brooks et al., 2020 (16) (SR) Lin et al., 2014 (17) (SR)
School measures	–	Brooks et al., 2020 (18) (SR)
Work measures	–	–
Crowd avoidance, including individual physical distancing measures	Atchison et al., 2020 (19) (survey) Briscese et al., 2020 (20) (survey) Clements, 2020 (21) (survey) Kwok et al., 2020 (22) (survey) Lohiniva et al., 2020 (23) (qualitative) Lunn et al., 2020 (24) (RCT) Meier et al., 2020 (25) (survey) Roy et al., 2020 (26) (survey) Zhong et al., 2020 (27) (survey)	Eaton & Kalichman, 2020 (28) (scoping) Lor et al., 2016 (29) (qualitative) NACCHO, 2006 (30) (guideline) Teasdale et al., 2014 (31) (SR, qualitative) Tooher et al., 2013 (32) (SR)
General measures	ECDC, 2020 (34) (review of guidelines) Lim et al., 2021 (33) (survey)	Johns Hopkins Center for Health Security, 2019 (35) (pandemic preparedness; guideline) WHO, 2018 (36) (emergency risk communication; guideline)

EVD: Ebola virus disease; RCT: randomized controlled trial; SR: systematic review; TB: tuberculosis.

The papers used in the HEN report are summarized in some detail for each of the six physical distancing public health measures in Tables A.3–A.7:

- contact tracing (Table A.3)
- isolation (Table A.4)
- quarantine (Table A.5)
- school measures (Table A.6)
- workplace measures (no studies identified)
- crowd avoidance, including individual physical distancing measures (Table A.7).

Table A.8 describes the studies that had a general physical distancing focus.

In Tables A3–A8, evidence from synthesized sources is given first (guidelines and systematic reviews), followed by primary studies (if available).

Table A.3. Contact tracing

Study type	Study features	Outcomes and findings	Translational steps
SRs, guidelines			
Heuvelings et al., 2018 (7) (SR; maps to acceptability)[a]	Evaluation of effectiveness (including cost–effectiveness) of service models and organizational structures for TB identification and management *Included:* hard-to-reach populations (e.g. homeless people, drug users, migrants), countries with low–moderate TB incidence, effects of health-care worker type or setting type on TB identification and/or management *SR:* 11 studies (RCTs, non-RCTs), NICE and Cochrane methods followed; updates a previous NICE review including 6 studies *Countries:* Germany, Portugal, Spain, United Kingdom, OECD *Quality assessment:* 7/10 AMSTAR rating (1)	**Reported on** • Effectiveness of CHW street teams, peers (screening uptake, treatment and contact tracing), mobile and specialized TB clinics (identifying cases and active treatment), directly observed therapy (treatment completion) • Focus reported here is contact tracing activities only (2 studies) • Involvement of CHWs from the same migrant community as the person with TB in organizing contact tracing improved tracing of contacts (1 study); contact tracing was defined as tracing of at least one contact (rather than all contacts) • Involving peers in contact tracing for drug users rather than CHWs also increased contact tracing (1 study) **Recommendations** • Improve TB control and care in hard-to-reach populations • Involve CHWs from same migrant community or peers among drug-using populations to improve contact tracing in these hard-to-reach groups • Use CHW and peers as these are likely to be highly acceptable and feasible (as in recent guidelines including these studies (37))	**Communication purpose** Inform decisions about who might most effectively conduct contact tracing in hard-to-reach populations such as homeless people and migrants **Related to HEN review question** Insight into improving the acceptability of contact tracing
Saurabh & Prateek, 2017 (9) (SR; maps to acceptability)[a]	Assessment of the role of contact tracing in the 2014 EVD epidemic and identification of factors influencing health workers' ability to perform contact tracing in populations or communities exposed to the EVD outbreak *SR:* 60 studies/reports: primary studies (no details), technical reports, reviews, editorial documents *Countries:* Spain, United States, West Africa (Guinea, Liberia, Republic of the Congo, Sierra Leone) *Quality assessment:* 1/11 AMSTAR rating (critically low quality according to AMSTAR 2) (1)	**Reported on** • Utility of contact tracing for controlling EVD outbreaks, exposed person followed for 21 days (maximum incubation period) • Challenges in implementing contact tracing, and at different stages of an outbreak (early or later) • Logistical challenges in tracing all contacts (e.g. lack of specific address, full name); only effective if performed soon after case identification • Effective contact tracing requires active community involvement, which is affected by understanding of the disease, trust, fear and stigma • Successful contact tracing depends on accurate, culturally sensitive communication to ensure the appropriate message is communicated, as well as providing psychosocial support for community members • Vital to engage and educate community leaders, religious groups and use mass media communication to promote awareness of accurate information in affected communities	**Communication purpose** Decisions about how and who to provide information to about disease outbreaks and subsequent contact-tracing efforts **Related to HEN review question** Improving acceptability of contact tracing and factors influencing uptake (ability to perform) of contact tracing in communities

Table A.3 contd

Study type	Study features	Outcomes and findings	Translational steps
Saurabh & Prateek, 2017 (9) (contd)		• Contact tracing could not be put in place for EVD in the most affected settings due to huge case-load and limited health-care staff • Although not implemented early in the outbreak, later control efforts relied heavily on contact tracing, and success was attributed largely to community involvement, promoted through international efforts **Recommendations** • Support contact tracing by ensuring trust and accurate and appropriate communication with communities, including community leaders as tracing has enormous potential to reduce disease cases (e.g. for EVD) if successfully implemented • Engage and educate communities by communicating accurate information in different ways to ensure that contact tracing can be performed	
Szkwarko et al., 2017 (8) (SR; maps to adherence)[a]	Summarizes implementation of TB child contact management; challenges, predictors, and recommendations for children (aged <15 years) exposed to TB in households in high-burden countries *SR:* 37 studies (25 quantitative, 3 qualitative and 9 mixed methods; excluded RCTs, editorials or commentaries) *Countries:* 22 studies in Africa (most in South Africa (10), Ethiopia (4) and Malawi (3)), 14 in south-east Asia (most in India (5), Indonesia (4)), 1 in Peru *Quality assessment:* 6/11 AMSTAR rating (1)	**Reported on** • Focus on contact identification and tracing (not screening, treatment) • Child contact (aged <5 years) identification varied widely (24–1227 child contacts) • Challenges for contact management/tracing included health system infrastructure (lack of prioritization, limited resources, lack of tools to support contact tracing and documentation) • Lack of awareness of importance of child contact screening and preventive therapy among index cases and caregivers • Lack of knowledge and guidelines for health-care workers, failure to follow guidelines (21 studies) • Anxiety about stigma among caregivers if contact screening could lead to unwanted disclosure of TB and/or HIV to others (5 studies) • Other major barriers or challenges included difficulties in accessing care (e.g. cost, transportation difficulties) and other competing priorities (e.g. work schedules, schooling for child contacts) **Recommendations** • Focus on child contact management-friendly health-care environment with improved processes and tools • Ensure extensive health education for health-care workers, index cases, caregivers and the community • Use active evidence-informed strategies to decrease barriers (e.g. for accessing care or competing priorities)	**Communication purpose** • Communication with caregivers to enhance compliance with contact tracing measures through filling knowledge gaps, decreasing stigma, and increasing the perceived importance of contact tracing • Decisions about how to decrease barriers to contact tracing **Related to HEN review question** Factors that may impact non-adherence to contact tracing, such as knowledge gaps and competing demands

Table A.3 contd

Study type	Study features	Outcomes and findings	Translational steps
Primary studies			
Bodas & Peleg, 2020 (6) (maps to adherence; also maps to quarantine and isolation rather than contact tracing)[b]	Assessment of public attitudes (adults, aged ≥18 years) to self-quarantine for COVID-19, including economic factors (compensation for lost wages) as a factor influencing compliance *Survey:* cross-sectional, 563 participants (randomized sample of population) *Country:* Israel *Quality assessment:* response rate, +; representativeness, ++; results relied on self-reported intentions (not behaviours) at a single time point; sample may underrepresent those without computer skills/Internet access; peer-reviewed published paper *COI:* none declared	**Reported on** • Public attitudes to COVID-19 outbreak, including personal concern, attitudes towards public health regulations and compliance with public health regulations, including when compensation was provided or not • Most (60%) respondents reported monitoring the situation via news reports; over 80% reported moderate or higher levels of concern about the outbreak; and over 80% reported a moderate or higher rating of trust in the Ministry of Health during the current outbreak • 94% indicated intention to comply with 2-week self-quarantine when compensated for lost wages; compliance decreased to 57% when compensation was removed (11% indicated they would no longer comply) **Recommendations** • Take into account the effects of monetary compensation on compliance with self-quarantine measures when making polices • Target risk communications to reach those who are undecided about self-quarantine compliance in the absence of compensation (approximately 30% of respondents)	**Communication purpose** • Communication with communities to prevent transmission through adherence to public health measures (short-term (2 week) self-quarantine) • Communication with and support for people undecided about behavioural compliance in the absence of financial compensation **Related to HEN review question** Factors influencing behavioural adherence to public health measures, particularly those related to monetary compensation and its effects (that financial security is important for guaranteeing adherence to the proposed measured)

CHW: community health worker; COI: conflict of interest; EVD: Ebola virus disease; NICE: United Kingdom Institute for Health and Care Excellence; OECD: Organisation for Economic Co-operation and Development; RCT: randomized controlled trial; SR: systematic review; TB: tuberculosis.
[a] Not a COVID-19-specific study.
[b] COVID-19-specific study.

Table A.4. Isolation

Study type	Study features	Outcomes and findings	Translational steps
Primary studies			
Burnet Institute, 2020 (11) (maps to adherence; also to acceptability; also relevant to quarantine and crowd avoidance)[a]	Exploration of adult (aged 20–73 years) experiences of self-isolation/ quarantine after being instructed to do so by a health or government authority and of barriers and enablers to successful self-isolation/quarantine *Primary study:* qualitative *Country:* Australia *Quality assessment:* 6/10 CASP score (4) (recruitment strategy not reported; no reference to researcher–participant relationship; ethics approval not reported; no primary quotations used, analysis method not stated, coding framework not included)	**Reported on** • Social isolation communications: participants were highly motivated to "do the right thing" but were uncertain about what to do to comply with the self-isolation/quarantine measures requested; provided information was inadequate (confusing, unclear, contradictory), with confusion about physical distancing requirements compared with self-isolation, which may lead to noncompliance with measures; de-motivated for isolation because of government inaction and lack of support • Home-based quarantine communications: government announcements perceived as incomplete (not presenting evidence/ whole story), impractical, unhelpful, inadequate (lacking hard and fast rules) and having a shaming tone (creating lack of support) • Service provision: basic services limited, with little or no follow-up contact by government to assess compliance with isolation or ability to do so; no service support for access to basics (food, medication, activities); most participants relied on family and friends • Service provision for mental health: expanded services needed during home-based quarantine as people are at higher risk of new or recurring problems exacerbated by uncertainty about the pandemic and response to the pandemic; unclear how to access immediate support • Service provision for finance: job security may be lost during home-based quarantine, difficulties in accessing financial support while isolating caused distress and noncompliance; may take additional risks (work in close contact with others) once quarantine is completed in order to survive financially **Recommendations** • Enhance immediate and ongoing communication to promote better knowledge about required self-isolation/ quarantine measures, making clear the distinction between these measures and physical distancing • Create and disseminate consistent central information using lay language and incorporating practical information about initiation of measures, compliance, support services available (including mental health services) • Develop better ongoing support for home- and community-based quarantine to enable compliance, while reducing long-term physical and mental health effects (easily accessed food, medication, mental health services and financial support), particularly targeting those in home-based quarantine without immediate government support • Communicate the availability of support services widely • Communicate about home- and community-based quarantine in a supportive manner without aspects of blame	**Communication purpose** • Inform individuals who have been asked to self-isolate or quarantine to support adherence to health authority or government requirements • Inform communities about preparing for, or complying with, isolation or quarantine **Related to HEN review question** • Individuals' perceptions and experiences of self-isolation and quarantine are affected by their access to clear information; lack of information, contradictory/confusing information or difficult-to-find information about what can and cannot be done while in isolation/quarantine was related to non-adherence • Access to basic services must be assured for those in isolation/quarantine; information about these services must be communicated widely, including about mental health services, financial support and how to access these services

Table A.4 contd

Study type	Study features	Outcomes and findings	Translational steps
Burnet Institute, 2020 (10) (maps to adherence (primarily) but may also map to acceptability; also relevant to quarantine and crowd avoidance)[a]	Exploration of adult (aged 20–73 years) experiences of self-isolation/quarantine (or having done so) after being instructed to by a health or government authority and of barriers and enablers to successful self-isolation/quarantine *Primary study:* qualitative *Country:* Australia *Quality assessment:* 6/10 CASP score (4) (recruitment strategy not reported; no reference to researcher–participant relationship; ethics approval not reported; some primary quotations used but analysis method not stated, coding framework not included)	**Reported on** • Communication, access to information, service provision and preparedness, with a focus on social distancing measures and communication • Information access: fear and lack of clear advice drove people with symptomatic COVID-19 to travel back to Australia without reporting their symptoms as they did not trust they would be supported to return and did not understand Australian Government policy • Community-level plain language information is required about transmission risks in those transitioning from quarantine to physical distancing, aiming to reduce stigma (rights and responsibilities assured); information materials included discussion scripts (e.g. for employers, colleagues, family); community-level stigma based on fear of disease transmission might inhibit contact tracing and testing, so reducing the effectiveness of public health measures • Service provision: families and pregnant women tested for COVID-19 reported not receiving mental health assessments and support despite the presence of pre-existing and acute mental health issues, risking the exacerbation of current illness or new pathology; ensure that people are assured of provision of appropriate support, including food, maternal and child checks, mental health services **Recommendations** Key recommendations to improve compliance with quarantine and reduce negative population-wide health effects • Improve communication and information about home-based quarantine, including practical information, such as FAQs to support decision-making and service provision • Develop officially the range of specific support services available to people in quarantine and information provision (e.g. how to access food and medication, financial support, mental health services) • Acknowledge the difficulties of quarantine by providing moral support to individuals undergoing home-based quarantine • Encourage and support people (through information) to develop quarantine plans ahead of time	**Communication purpose** • Communication with individuals who have been asked to self-isolate or quarantine to help them adhere to requirements and also to clarify transmission risks once quarantine is complete • Communication with communities about preparing for, or complying with, isolation or quarantine and also transmission risks once recovered from COVID-19 to reduce stigma **Related to HEN review question** • Better communication about home-based quarantine, including practical information, is needed to support people's adherence to required measures • Access to support services must be assured, and information about these services communicated clearly (including mental health services, maternal and child checks, financial support), including how to access these services • Community-level plain language information is required about transmission risks in those transitioning from quarantine to physical distancing, aiming to reduce stigma and fear of community transmission; this may potentially lessen testing and contact tracing and the effectiveness of public health measures

Table A.4 contd

Study type	Study features	Outcomes and findings	Translational steps
Farooq et al., 2020 (12) (maps to uptake; also relevant to general distancing measures, particularly crowd avoidance)[a]	Investigation of the impact of cyberchondria (continuous impulses to go online and read about a concerning health topic) and information overload on voluntary self-isolation intention; study develops and tests a model based on protection–motivation theory to identify whether intermediate constructs (related to threat appraisal and coping appraisal) are impacted by cyberchondria or information overload and then influence self-isolation intention; included students, faculty, and employees of a university *Primary survey:* questionnaire-based; 225 respondents (19 March 2020) using online survey tool Webropol; descriptive statistics for all survey measures *Country:* Finland *Quality assessment:* response rate, +; representativeness, +; participants were students/staff of a university in Finland; preprint, not peer reviewed *COI:* none declared	**Reported on** • Cyberchondria and information overload affected individuals' threat and coping perceptions, and self-isolation intention • Perceived severity and self-efficacy positively influenced intentions to self-isolate, whereas costs of response had a negative effect • Cyberchondria increased threat appraisals through perceived severity and vulnerability: perceived severity is related to increased self-isolation intention; perceived vulnerability is not • Information overload reduced coping appraisal (assessed via self-efficacy) and increased threat appraisal (assessed via perceived response cost); self-efficacy increased self-isolation intention, whereas perceived response cost reduced self-isolation intention • Social media as the primary information source increased both cyberchondria and information overload compared with other sources **Recommendations** • Personalize communication by providing reassuring/hopeful messages targeting individuals experiencing cyberchondria • Target those with no intention to self-isolate by communications aimed to increase the perceived severity of the situation • Clearly structure communication using reliable health information targeting those experiencing information overload	**Communication purpose** Enabling communication to facilitate decision-making and support individuals' behavioural change in relation to uptake of physical distancing behaviours (intention to adopt self-isolation) **Related to HEN review question** • Information provision (cyberchondria and information overload) is linked to perceived threat and appraisal of coping, thus influencing intention to self-isolate • Clear, tailored communication targeting particular groups may counteract negative effects, particularly those for which social media is the primary information source

Table A.4 contd

Study type	Study features	Outcomes and findings	Translational steps
Qazi et al., 2020 (13) (maps to uptake; focused on general distancing measures, particularly crowd avoidance)[a]	Effects of formal and informal information sources for adults (aged ≥18 years) on situational awareness (perceived public understanding) to predict the adoption of physical distancing measures during COVID-19; formal information sources (e.g. newspapers, press releases, educational messages); informal sources (social media, peer and family views); specific to COVID-19 but based on same theory used for SARS outbreak analysis *Survey:* questionnaire-based; 210 responses; people with lower computer skills/access underrepresented *Country:* unclear, likely Pakistan *Quality assessment:* response rate, +; representativeness, +; peer-reviewed paper *COI:* none declared	**Reported on** • Formal information sources included newspapers, press releases, educational messages; informal sources included social media, online reviews, family or peer views • Both sources affected perceived understanding, which related to physical distancing behaviour adoption **Recommendations** • Use formal and informal information sources to influence public situational awareness and increase adoption of preventive behaviours • Formal sources are associated with greater compliance with physical distancing measures • Informal sources may not be influential until preventive behaviours have been adopted by the community	**Communication purpose** Communication with communities to prevent transmission through adoption of public health measures (physical distancing) **Related to HEN review question** Information provision through informal and formal routes is linked to changes in perceived understanding and adoption of physical distancing measures

COI: conflict of interest; FAQ: frequently asked question; SARS: severe acute respiratory syndrome; SR: systematic review.
[a] COVID-19-specific study.

Table A.5. Quarantine

Study type	Study features	Outcomes and findings	Translational steps
SRs, guidelines			
Brooks et al., 2020 (16) (rapid review; maps to acceptability, feasibility and related factors)[a]	Psychological impact of quarantine and mitigation in those entering quarantine of at least 24 hours outside hospital setting *Rapid SR:* surveys (cross-sectional, longitudinal, other), observations; focus groups and interviews; 24 included studies – SARS (14), EVD (5), H1N1 (2), MERS (2), equine influenza (1) *Countries:* Canada (8), China (4) and China, Hong Kong Special Administrative Region (1), Australia (2), Liberia (2), South Korea (2), Taiwan (China) (2), Canada and United States (1), Senegal (1), Sierra Leone (1) *Quality assessment:* 4/9 AMSTAR rating (1)	**Reported on** • Psychological effects of quarantine on both health workers and patients (adult and child) are substantial, varied and may be long term in some, including symptoms of depression, anxiety and post-traumatic stress disorder • Stressors during quarantine associated with poorer mental health outcomes included duration (≥10 days); fear of infection (particularly pregnant women or those with young children); frustration, isolation, boredom; inadequate supplies (e.g. food, water, shelter, regular prescriptions); inadequate information, such as insufficient or conflicting information about guidelines or quarantine purpose, risk levels, severity of outbreak • Stressors post-quarantine included financial losses (related to poor psychological outcomes and socioeconomic distress), stigma (both patients and health-care workers) particularly for minority groups within communities) • Pre-quarantine factors predicting psychological impact unclear **Recommendations** • Quarantine for the shortest possible time (based on scientific evidence of incubation times) • Provide clear, consistent information on what is happening and why (rationale and guidelines for quarantine) • Provide adequate supplies, general and medical • Reduce boredom by providing meaningful activities and ensuring communication with social networks (including support lines) • Provide clear lines of communication for those in quarantine should they develop symptoms (e.g. telephone/ online service staffed by health professionals) • Consider health professionals as special cases, needing support from both immediate colleagues and organizationally • Reinforce the protective, altruistic choice of quarantine/ self-isolation in public health messages	**Communication purpose** Strategies for communicating with and supporting people in quarantine/self-isolation, in particular identifying information required and channels of communication that may best support people in order to minimize psychological impacts **Related to HEN review question** Lack of information, communication and support may have negative psychological effects that influence acceptability and related factors

Table A.5 contd

Study type	Study features	Outcomes and findings	Translational steps
Lin et al., 2014 (17) (SR; maps to adherence; relevant to general distancing measures, particularly crowd avoidance/ individual measures)[a]	Identification of factors associated with inequalities in communication with public during the H1N1 pandemic; studies on information environment *SR:* 118 included studies (92 population based), primarily survey based (cross-sectional or other), some interview or focus group based; empirical data; published in Chinese, English, French, Italian, Portuguese or Spanish *Excluded:* focus on communication between agencies or health professionals, development of telecommunication strategies, public health surveillance or epidemiology not related specifically to the 2009 H1N1 pandemic *Countries:* mainly China, United Kingdom, United States *Quality assessment:* 5/11 AMSTAR rating (1)	**Reported on** • Communication outcomes: information seeking, trust, credibility, information use • Preparedness outcomes: knowledge/awareness, preventive behaviours (including physical distancing) • Potential predictors of communication inequalities: socioeconomic status, social capital • Formal vs informal information sources • Predictors of behaviour compliance to preventive recommendations for H1N1: sociodemographic (age, ethnicity, education), attitudinal (perceived severity of disease), communication determinants (e.g. information-seeking behaviours, knowledge levels, exposure to media) • Trust in information source linked to compliance with non-pharmaceutical interventions • Trust and credibility substantially affected choice of information source as well as attitude towards the message; trustworthy information sources included social networks (including physicians), communities and health agencies **Recommendations** • Engage with community leaders, physicians, mass media and others to ensure that public health messages are accurate, timely and have the greatest possible reach in the community, including among more vulnerable groups • Tailor communication messages to ensure that those with lower educational levels are reached and minimize communication inequalities • Identify factors that will support the greatest compliance with preventive measures during a pandemic; younger people, the less educated and those of lower socioeconomic status might reasonably be the focus of targeted communication efforts to ensure that these groups are aware of the disease risks and the need to comply with preventive actions	**Communication purpose** • Planning communication campaigns and seeking to reduce communication inequalities across communities • Identified factors may be useful for developing targeted messages to vulnerable groups and may inform the medium of communication and sources of information used **Related to HEN review question** • Several factors influence community awareness of public health messages related to a pandemic; these, in turn, influence compliance with recommended protective measures • Communication intended to inform populations about pandemic disease and preventive measures need to take account of such factors to ensure that communication is as equitable and with as extended a reach within communities as possible, in order to mount a consistent preventive response to a pandemic

Table A.5 contd

Study type	Study features	Outcomes and findings	Translational steps
Webster et al., 2020 (15) (rapid review; maps to adherence)[b]	Identification of factors affecting adherence to quarantine in those entering quarantine (at least 24 hours, up to 14 days) outside hospital setting during disease outbreaks; EVD studies included restriction of movements (1 month), check-ups and social distancing (21 days), state-enforced home and neighbourhood quarantine (21 days) *Rapid SR:* 14 included studies, surveys (cross-sectional), retrospective cohort, interviews, focus groups; reporting primary research on factors associated with or reasons for (non)-adherence outcomes; published in English or French – H1N1 (5), EVD (3), SARS (5), mumps (1) *Countries:* Australia (5), Canada (3), Germany (1), Liberia (1), Senegal (1), Sierra Leone (1), Taiwan (China) (1), United States (1) *Quality assessment:* 5/11 AMSTAR rating (1)	**Reported on** • Adherence to quarantine: varied dramatically across 8 studies; compliance estimates ranged from 0% (home quarantine 10–14 days, SARS, Taiwan (China)) to 93% (home quarantine 7 days, H1N1, Australia) • Voluntary quarantine adherence: affected by a number of practical and psychological factors, as was adherence to other protective measures, such as crowd avoidance • Factors reported most often: – people's knowledge about the outbreak and about the quarantine protocol (knowing why (rationale for) and what to do) – social norms (e.g. social pressure to adhere, sense of altruism for adhering to voluntary measures) – perceived benefits of quarantine (such as preventing transmission to others, especially those at higher risk) – perceived risk of the disease (in terms of transmission and severity of the disease) – practical issues associated with being quarantined (such as loss of income, lack of supplies or medical care) **Recommendations** To increase adherence to quarantine protocols, public health officials should provide: • a clear and timely rational for the measures • clear information about the steps required (quarantine protocol) • clear messages reinforcing social norms and promoting the behaviour as altruistic • clear messages that emphasize both the importance and the benefits of quarantine for public health • sufficient supplies and assistance for those financially impacted by undergoing quarantine	**Communication purpose** Decisions about main information messages to communicate to populations and individuals being asked to quarantine **Related to HEN review question** Several factors influence adherence to quarantine measures; consideration of these should inform public health communication related to quarantine

Table A.5 contd

Study type	Study features	Outcomes and findings	Translational steps
Primary studies			
Zhu et al., 2020 (14) (maps to uptake; relevant to general awareness of measures required such as crowd avoidance)[c]	Use of social media post to assess public attention to a disease outbreak; awareness and attentiveness have implications for acceptance and adoption of prevention and control measures *Primary study:* longitudinal analysis of posts from cohort (52 268 randomly sampled accounts) of Weiboscope database between 31 December 2019 and 12 February 2020; search for COVID-19-related keywords to calculate daily COVID-19-related posts as a percentage of total daily posts *Country:* China *Quality assessment:* response rate, +; representativeness, +++; peer-reviewed published paper *COI:* none declared; possibility of Internet censorship in China, sample included only one of several social media platforms	**Reported on** • Percentage of daily posts related to COVID-19 from the sampled cohort • Limited evidence of attention to the outbreak prior to 20 January (when human-to-human transmission acknowledged and initiation of nationwide reporting in China begun) compared with previous major COVID-related Chinese events • Rapid increase in attention after this date, with attention remaining high and particular peaks in posts after major events (e.g. Wuhan quarantine initiated) **Recommendations** • Stimulate adoption of personal protective behaviours through increasing trust in government • Increase citizen's awareness of outbreak severity at an early stage to support acceptance and adherence with prevention and control measures, such as large-scale physical distancing measures • Proactively communicate early warnings of disease outbreaks to the public in order to engage people earlier in control and prevention measures	**Communication purpose** Decisions about timing of communications of outbreak information to communities and populations in that earlier awareness might promote better engagement with required physical distancing measures **Related to HEN review question** Lack of outbreak awareness creates missed opportunities for the public to take up preventive and control measures

COI: conflict of interest; EVD: Ebola virus disease; H1N1: H1N1 influenza A; MERS: Middle East respiratory syndrome; SARS: severe acute respiratory syndrome; SR: systematic review.
[a] Not COVID-19-specific paper.
[b] Included research not COVID-19 specific but a review conducted in the context of the current pandemic outbreak.
[c] COVID-19-specific paper.

Table A.6. School measures

Study type	Study features	Outcomes and findings	Map to
SRs, guidelines			
Brooks et al., 2020 (18) (SR; maps to adherence, acceptability, feasibility)[a]	Assessment of effects of unplanned school closures (1–14 days) on children's activities and contacts outside home; reports children's social activities during temporary unplanned school closure; related to H1N1 (12), other influenza/influenza-like outbreak (6), and a hurricane (1) *SR:* 18 used a cross-sectional design with questionnaire, 1 was a qualitative study; primary, peer-reviewed research excluded research on hypothetical/simulation scenarios, or intentions; written in English or Italian *Countries:* United States (10), Australia (4), Argentina (1), Japan (1), Russian Federation (1), Taiwan (China) (1), United Kingdom (1) *Quality assessment:* 3/11 AMSTAR rating (1)	**Reported on** • Activities and social contacts decreased during closures; all studies reported children leaving the home and/or child care provided by someone outside the home (i.e. social contact with others they could potentially infect if they themselves were infected) • Some evidence that continuing to engage in social contact during school closures may be related to older child age, parental disagreement with closure, mixed evidence of infection status • Length of time at home was not associated with length of isolation and did not fluctuate over the course of isolation in 1 study of participants asked to undertake voluntary home quarantine of 1–14 days • Parents typically agreed with school closures, most often because they believed it would protect health (community, child, household) and that there were too many sick children for the school to remain open • Some parents disagreed with closures, most often because of perceived low infection risk, mildness of illness and ineffectiveness of closures against infection • Practical factors affecting parental attitudes included child-care arrangements, educational impact, financial impact, uncertainty about closure duration **Recommendations** • Ensure parents understand why school closure is important as this is a key factor in determining the success of the measure • Consider how to support parents who need child-care arrangements (outside home) that might increase disease transmission risk • Provide advice from schools that is consistent with public health advice; hosting extracurricular activities or sporting events during a closure sends mixed messages that can be confusing or detrimental • Consider that short closures (up to 2 weeks) may be manageable by parents but longer closures (e.g. for mitigating pandemic waves) may be more challenging	**Communication purpose** Communication with parents about why school closures and adherence to avoiding social contacts are important **Related to HEN review question** • Despite public health advice, many children have social contact outside the household during school closures • Parents may accept and adhere to school closures if they perceive benefits from the measure • Parents may not accept or adhere to school closures if they do not perceive the measure will decrease infection risk, or they have concerns about practicalities and impact of the closure (e.g. on the child's education, difficulty for child-care arrangements, economic impacts)

H1N1: H1N1 influenza A; SR: systematic review.
[a] Not a COVID-19-specific study.

Table A.7. Crowd avoidance, including individual physical distancing measures

Study type	Study features	Outcomes and findings	Translational steps
SRs, guidelines			
NACCHO, 2006 (30) (guideline; maps to adherence, acceptability)[a]	Assistance for local health departments writing new or improving existing local pandemic influenza plans by identifying common elements; guidance related to communication targeting community-dwelling public about physical distancing to limit viral transmission *Guidance:* numerous local-level health department plans reviewed to develop the guide *Country:* United States *Quality assessment:* AGREE II (2) scope and purpose, 100%; stakeholder involvement, 67%; rigour of development, 44%; clarity of presentation, 94%; applicability, 33%; editorial independence, 25%	**Reported on** • Risk communication and public information for pandemic planning and implementation throughout all phases; continuous updating to reflect status (pandemic status, impacts on essential services, actions being taken to address the outbreak, ways people can protect themselves) • Dissemination of timely and accurate information to the public, including advice that actions taken to minimize exposure will help to reduce transmission and may help to relieve strain on health system and other essential services • Provision of messages that detail how to limit the spread of the virus (e.g. cover your cough) and that home health care for family members may be better than medical care during a pandemic • Provision of information and education, plus tools necessary for people to meet basic needs (e.g. food, medicines) if people are required to stay home for prolonged periods • Participation and compliance with public health measures can be increased by involving the public and informing about the rationale for measures and the essential role individuals play in responding to a pandemic outbreak **Recommendations** • Consider the following when planning for and responding to a pandemic – how the necessity of isolation/quarantine should be communicated, and what advice will be given – how to communicate clearly the rationale for measures to reduce infection spread during a pandemic (e.g. cancelling public events, closing schools) – how to urgently convey the importance of staying at home (unless requiring medical care) – how to direct people to get usual medical care (if unavailable through usual routes) – how to ensure consistent information and messages, and to address misinformation that may arise – how to reach groups not reached through traditional communication channels (e.g. through community groups) – how to ensure information is available in all needed languages, prepare translations in advance	**Communication purpose** • Guidelines outlining methods of enabling communication and supporting behavioural change in pandemic influenza planning • Focus on public education and risk communication related to limiting the spread of the disease **Related to HEN review question** • Communications targeting community-dwelling public about physical distancing to limit viral transmission • Critical role of public information and risk communication in a pandemic outbreak • Communication planning prior to an outbreak and for updating throughout pandemic

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
NACCHO, 2006 (30) (contd)		• Phases 1–3 (pre-pandemic and early alert phase of pandemic) – educate the public about influenza pandemics and the role that quarantine and isolation measures have in preventing the spread of the virus – focus on the role that each person has in taking care of themselves and their families – develop information resources beforehand for rapid dissemination during an outbreak – detail how to prevent infection (cover that cough, wash hands), when to stay home, when to seek medical care, how to find information about the outbreak and caring for others – ensure information resources are available in the main languages used in the community – engage with religious and community organizations to reach people who may not access traditional communication channels (e.g. homeless populations) – choose an official pandemic spokesperson • Phases 4 and 5 (pandemic alert period with increasing clusters of cases) – distribute information resources developed in advance – ask health departments to provide a public information hotline; use national and local guidelines to develop standardized message scripts for the public information hotline – consider activating a joint (regional) information centre – develop press releases tailored to local needs that utilize national and local information, with relevant local telephone numbers, websites, health-care information – regularly update local websites with emerging information – develop message maps for conveying key information – brief the public and media daily on the status of the pandemic – work with employers to plan support for their workers if services (e.g. child care) are unavailable during a pandemic – ensure that administrators, managers and supervisors know about and promote the use of tools and techniques for supporting staff with mental health-care needs during crisis, including training staff to help employees cope with grief, anger, exhaustion, fear • Phase 6 (pandemic period, increased and sustained transmission) – establish a joint information centre – update message maps as required to ensure information is current – continue to regularly update the public about the pandemic, including advice on caring for the unwell and ways people can obtain further information – activate plans for psychosocial support of the workforce	

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Teasdale et al., 2014 (31) (SR; maps to: acceptability, uptake, adherence, feasibility; also relevant to quarantine, school and workplace measures)[a]	Exploration of public beliefs and perceptions (1022 public or patients, aged ≥17 years) of NPIs for acute respiratory infections aimed to reduce transmission *SR:* 16 qualitative or mixed-methods studies (with a substantial qualitative component), generally examined multiple NPIs or NPIs in combination with pharmaceutical measures; focus on public (12), ethnic groups (2), people with chronic conditions (2); focus on actual outbreak/pandemic (SARS and H1N1 2009 pandemic (10), physical distancing as an element of NPIs (9) *Countries:* United Kingdom (6), United States (4), Australia (1), Bangladesh (1), Canada (1), China, Hong Kong Special Administrative Region (1), New Zealand (1), Spain (1) *Quality assessment:* 6/11 AMSTAR rating (1)	**Reported on** • Isolation and physical distancing behaviours (quarantine, school closures) were viewed as acceptable, showing social responsibility (protecting others from infection) • Concerns regarding potential to attract social stigma, wearing of masks in some contexts • Perceived adverse physical (segregation) and socioeconomic (economic pressures of returning to work, social stigma) impacts • Physical distancing within households and some cultural groups was viewed as unacceptable as limiting interactions regarded as socially and culturally necessary, including caring for sick family members *Perceived vulnerability to respiratory infection* • People acknowledged that uncertainty is associated with emerging infections and did not express confidence about self-diagnosing in an emerging outbreak, which may affect their propensity to take up NPIs such as social isolation • People typically accepted that an emerging outbreak created risk to the community, although some identified themselves as less vulnerable/more capable (e.g. than people with chronic health problems), this may influence their own likelihood of adopting NPIs • During the H1N1 2009 pandemic, people seemed to rate their susceptibility to a new infection in terms of features of their living environment (e.g. infection more likely with lower hygiene levels, high population density), suggesting that risk is not assessed rationally; distancing from risk may lead to underestimation of personal infection risk and failure to comply with NPIs *Anxiety about emerging respiratory infections* • Public anxiety was increased by emergence of a new infection in early stages of an outbreak, but this decreased over time, with people making light of the threat • Diminishing anxiety over the course of an outbreak was influenced by people's views of communications related to an emerging outbreak; people were commonly sceptical about information, particularly from the media, often viewing communication as unreliable, inconsistent, premature and unduly alarmist • Personal risk appeared to be assessed by comparing personal experiences with official information, with mismatches commonly leading to doubts about the credibility and trustworthiness of information • Feelings of inconsistency between personal experience and official information might lead to fatigue related to infection communication, influence behavioural responses and blunt messages about NPIs	**Communication purpose** Communication with communities to improve the acceptability, feasibility and uptake of physical distancing, and to support behavioural changes **Related to HEN review question** • People's views and perceptions of physical distancing may impact their acceptance, uptake and adherence • Messages should be framed positively where possible to reduce stigma and encourage adherence • Communication should target people's perceptions that they personally are not at risk and also aim to address barriers such as costs

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Teasdale et al., 2014 (31) (contd)		**Recommendations** • Address common public beliefs and concerns about the necessity, effectiveness, acceptability and feasibility of measures to improve adoption of NPIs • Address key barriers such as personal vulnerability to emerging infections, rejection of personal risk, and concerns about possible costs and stigma associated with some NPIs • Frame advice messages positively to encourage take up of NPIs (e.g. maintaining well-being rather than avoiding infection) to encourage those who do not feel at risk to comply	
Tooher et al., 2013 (32) (SR; maps to uptake, adherence; also relevant to quarantine, isolation and workplace measures)[a]	Assessment of community behavioural responses during or after the 2009 H1N1 pandemic (including adoption of NPI measures) and association with community knowledge levels, perceived severity and level of concern *SR:* 19 cross-sectional or repeated population surveys; excluded were studies of population subgroups, other respiratory diseases, mathematical modelling or qualitative studies *Countries:* Australia (5), United States (4), China, Hong Kong Special Administrative Region (2), China (1), Mexico (1), Saudi Arabia (1), United Kingdom (1), several other European countries (5), Malaysia (1) *Quality assessment:* 8/11 AMSTAR rating (1)	**Reported on** *Pandemic knowledge* • Awareness of the pandemic was high • Level of knowledge about H1N1 in general and transmission was moderate • Knowledge of prevention methods (e.g. avoiding those with infection) was reasonable *Levels of concern and risk perception* • Levels of concern and anxiety about the pandemic were typically low to moderate; 2–36% reported high or very high levels of concern • Perceived severity of H1N1 ranged from low to very severe across countries, with perceived severity declining over time • Perceived personal vulnerability to contracting H1N1 was generally low to moderate; 5–25% reported high or very high levels of perceived vulnerability • Perceived threat posed to the community was typically low to moderate across countries, but 8–16% rated the threat as high *Pandemic behaviours* • Precautionary behavioural actions were lower than intentions: 30–99% expressed intentions to undertake protective behaviours and precautions, such as staying home with symptoms; lower proportions of respondents had undertaken any of the recommended behaviours and precautions e.g. staying home from work ranged from <1% to 26%, with similar proportions for other behaviours • Factors most commonly influencing recommended behaviour adoption were increased risk perception and older age, increased pandemic knowledge and being female	**Communication purpose** • Communication with communities about pandemic health threats and the importance of behavioural mitigation measures, including to populations less likely to take up those measures • Inform policy-makers about communication strategies to enhance knowledge about prevention methods and perceived risk to maximize behavioural uptake of required measures **Related to HEN review question** Linkage between knowledge, perceived risk levels and behavioural change, which may provide insights into improving acceptability and uptake of physical distancing measures such as staying away from work with symptoms

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Tooher et al., 2013 (32) (contd)		**Recommendations** • Consider tailoring communication and strategies to local circumstances and groups within communities, such as those most vulnerable to the disease, younger people, those with lower education levels • Institute pandemic planning and public health communication regarding risk as differences between intended and actual behaviours may be related to people's perceived risk of infection, especially early in pandemics when perceived risk may be lower but the disease is being transmitted	
Scoping reviews, qualitative analyses			
Eaton & Kalichman, 2020 (28) (scoping review; maps to uptake, acceptability, adherence; also people's views and experiences)[b]	Lessons learned from the HIV epidemic tailored to what is currently known about COVID-19 using the Social Ecological Model of Health as a unifying framework *Review:* scoping; no review method included; study types not stated nor inclusion/exclusion of study types *Countries:* not explicit (no method), but studies from Bulgaria, Thailand, South Africa, United States; unspecified countries in Africa, maybe other countries *Quality assessment:* AMSTAR 0/11 (no method provided, non-systematic) (1)	**Reported on** • Sustained, individual-level behavioural change, which is challenging to achieve and is affected by many factors that vary across populations • Those most likely to require support for behavioural change are typically those with the greatest barriers to accessing support • Awareness of factors increasing communities' vulnerability to COVID-19 is needed: poverty, high population density, difficulty in physical distancing, limited access to health care and other resources • Information, motivation and skills are key to initiating behavioural change but alone are unlikely to lead to sustained changes unless individually addressed; sustained change may require boosters • Medical mistrust, stigma and other factors can undermine public health interventions and lead to poor outcomes • Multilevel community interventions yield more robust and sustainable outcomes than single-level efforts • Early public health efforts often focus on individual behaviour but broader social and structural systems need to be taken into account for behavioural change interventions in the context of COVID-19; required physical distancing and hygiene requirements can and have been delivered via online platforms, which provide a model for sustaining the required measures **Recommendations** • Use multilevel approaches (not just interventions targeted at the individual) and regular communication/reiteration of messages over time to support sustained changes to behaviour • Use existing approaches to address stigma and disadvantage in the context of promoting well-being and preventing disease for COVID-19	**Communication purpose** • Development of communication around public health measures (including physical distancing) beyond behavioural change messages targeted at individual level • Communications considering wider societal factors that influence individual behavioural change **Related to HEN review question** • Factors outside of individual control (often socioeconomic) influence ability to take up or adhere to public health recommendations around physical distancing • Acceptance of communication may be negatively influenced by anti-science communication or conspiracy thinking • Communication seeking to shift social norms is more likely to result in uptake of and adherence to public health measures than communication aiming for individual behavioural change

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Lor et al., 2016 (29) (qualitative analysis of meeting reports; maps to adherence, also feasibility/ barriers; also maps to quarantine and isolation)[a]	Identification of cultural perspectives that may shape thinking about ethical considerations relevant to pandemic influenza preparedness and response; 168 health professionals, scientists, academics, ethicists, religious leaders and other community members representing 40 countries (attended the meeting) *Qualitative thematic analysis:* 4 regional meeting reports, notes, stories *Countries:* 40, from Africa, Asia, Eastern Mediterranean Region, Latin America *Quality assessment:* 6/10 CASP score (potential bias not discussed; no mention of ethics approval/consent; data analysis methods unclear) (4)	**Reported on** Outcomes mapped to key ethical challenges for pandemic influenza response described in WHO's *Ethical considerations in developing a public health response to pandemic influenza* (38): • Transparency and public engagement were considered important • Resource allocation cannot use a one-size-fits-all approach because of variation in impacting factors (economic, cultural, contextual) • Community engagement may help to identify and overcome impeding factors • Social distancing was an important tool to limit disease transmission but difficulties in achieving it included socioeconomic issues (densely populated settings) and cultural factors (e.g. family duty, funeral rituals and stigma) • Health-care workers may have competing obligations (e.g. patients, employers, governments, families), which may compromise their ability to fulfil public health duties • International collaboration was considered important for combating global health threats **Recommendations** • Assist health-care workers by providing appropriate training and equipment • Consider the importance of procedural ethics, especially transparency and inclusiveness, when planning pandemic response • Help to bring people and countries together to respond to the shared health threat posed by a pandemic despite existing cultural differences using procedural ethics	**Communication purpose** • Guidance for communication and promotion of inclusiveness and public engagement in order to develop culturally appropriate messages for measures such as physical distancing • Communication with and support of health staff facing competing obligations during a pandemic **Related to HEN review question** Cultural factors influence behavioural adherence to public health measures, and communications regarding such measures require tailoring to cultural and contextual factors
Primary studies			
Atchison et al., 2020 (19) (survey; maps to uptake, adherence, feasibility; also relevant to isolation)[c]	Perceptions and behavioural responses in 2108 adults (aged ≥18 years) to COVID-19 within 48 hours of government advice to stop non-essential contacts and cease unnecessary travel *Cross-sectional survey:* descriptive statistics for all survey measures *Country:* United Kingdom *Quality assessment:* response rate, ++; representativeness, ++; results rely on self-reported data; those without Internet are underrepresented; preprint, not peer reviewed *COI:* none declared	**Reported on** • Rates of uptake of preventive control measures (e.g. crowd avoidance): at least 50% avoided crowds or social events, with physical distancing uptake rates higher in older (aged ≤70 years) than younger (aged 18–34 years) people • High willingness to self-isolate • Reported a range of factors associated with uptake of physical distancing measures, including socioeconomic (household income) factors • Ability to comply with measures lower in disadvantaged communities; of those with lowest household incomes, only a minority were able to work from home or self-isolate, with lower rates in black and minority groups	**Communication purpose** Strategies to communicate with and support behavioural change within the community, focusing on groups who may be less likely to practise measures such as crowd avoidance, and those with fewer socioeconomic resources to enact needed behavioural changes **Related to HEN review question** Even where willingness to comply with physical distancing measures is high, those with lower household incomes may lack the practical and financial resources to do so and this may affect uptake and adherence to physical distancing measures

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Atchison et al., 2020 (19) (contd)		**Recommendations** • Ensure that social and economic policies mitigate inability to take up and comply with certain NPI measures, such as self-isolation, working from home • Provide financial assurance for those from lower income backgrounds, in particular where uptake/compliance may be difficult	
Briscese et al., 2020 (20) (survey; maps to adherence, acceptability; also relevant for isolation/quarantine)[c]	Intention to comply with self-isolation measures and assessment of effects of duration of restrictions on intended compliance among 894 adults (representative sample of population drawn from market research company database of 60 000 individuals); 18–20 March 2020 in the context of national lockdown declared 9 March until 3 April *Survey:* descriptive statistics for all survey measures *Country:* Italy *Quality assessment:* response rate, +; representativeness, +++; results rely on self-reported compliance data; unpublished working paper *COI:* none declared	**Reported on** • 27% of respondents were not aware of/ confused about end date of restrictions • Only 3% responded that they expected restrictions to end on the announced date (3 April) • Expectations of length of extension varied, with 34% expecting restrictions to last indefinitely, as necessary (at the time of survey, the Italian media considered extension to restrictions likely) • Proportion of self-reported compliance intentions were similar across scenarios (extension of few weeks, few months, indefinite): 68% indicated they would maintain current behaviour; 22% responded they would increase/increase greatly; and 8% decrease or consider not complying (2%) with restrictions • Intentions to maintain current behaviour did not vary according to the degree of match between respondent's expectations and different duration scenarios • Intended compliance with self-isolation measures did depend on how well the length of the extension matched a person's own expectations; respondents with "negative surprises" (restrictions longer than expected) were less likely to intend to increase and more likely to intend to decrease compliance; pattern was more pronounced among respondents already reporting strong compliance with measures **Recommendations** • Consider the factor of intended compliance with self-isolation measures being influenced by the communicated duration of measures and the match/mismatch with expectations • Manage population expectations in situations such as the COVID-19 pandemic, where self-isolation measures may be prolonged and/or extended beyond the initially proposed duration	**Communication purpose** Planning communication with populations and communities about restrictions and required self-isolation measures **Related to HEN review question** Although most people intend to maintain their current self-isolation behaviours in the context of shifting end-points for restrictions (irrespective of their own expectations), extension of restrictions beyond those expected reduced compliance, which suggests that public health messages related to self-isolation need to consider expectations, particularly when the timeline of a pandemic situation is uncertain

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Clements, 2020 (21) (survey; maps to adherence)[c]	Assessment of COVID-19 knowledge and influence on behaviours, including crowd avoidance, in 1034 of 1070 responding adults (aged ≥ 18 years) recruited through Amazon Mechanical Turk on 17 March 2020, approximately 8 weeks after first case diagnosed in the United States *Survey:* cross-sectional, based on survey by Zhong et al., 2020 (27); descriptive statistics for all survey measures *Country:* United States *Quality assessment:* response rate, +; representativeness, +; >60% had first degree or higher education; other groups may be underrepresented; preprint, not peer reviewed *COI:* none declared	**Reported on** • Knowledge of COVID-19, protective behaviours: social distancing, crowd avoidance • Correct knowledge varied across questions, with overall correct rate of 80% (knowledge) • For every point increase in knowledge the odds of attending large gatherings (>50 people) decreased by 13% • Older people (aged ≥55 years) had generally higher knowledge than younger age groups • Differences in knowledge varied with education, sex, income, race and political party • People reporting attending large gatherings were generally younger on average **Recommendations** • Increase knowledge of COVID-19 in all segments of the population to maximize compliance with recommendations such as crowd avoidance • Address knowledge differences in order to promote behavioural compliance with preventive recommendations • Consider a nationally coordinated pandemic response	**Communication purpose** Planning communication to improve knowledge of populations and associated risk behaviours **Related to HEN review question** Knowledge is associated with several factors and may influence compliance with recommended measures such as crowd avoidance
Kwok et al., 2020 (22) (survey; maps to uptake)[c]	Assessment of psychological and behavioural responses in early phase of the COVID-19 outbreak (within 36 hours of first confirmed cases, 24 January–13 February 2020), include perceived effectiveness and adoption of preventive measures (including social distancing measures) in 1715 adults (aged ≥18 years), understanding Chinese and living 5 days/week in China, Hong Kong Special Administrative Region within the previous month; recruited via district councillors for all 452 areas *Survey:* cross-sectional, descriptive statistics for all survey measures *Country:* China, Hong Kong Special Administrative Region *Quality assessment:* response rate, +; representativeness, ++; respondents were of working age, mainly female; older people and those without Internet access may be underrepresented; preprint, not peer reviewed *COI:* no statement	**Reported on** • Most respondents thought themselves likely to be infected with COVID-19 (89%), considered COVID-19 symptoms serious (97%), thought they were likely to survive COVID-19 infection (18%) • Almost all considered COVID-19 as severe as SARS (>98%), were worried about COVID-19 (97%), and indicated some or great daily routine disruption (98%) • Almost all continuously monitored COVID-19 progression (99.5%) and actively sought information (83%), most often on case distribution, infection numbers, and government infection control interventions and preventive measures • Most trusted information sources were doctors (84%) but only 5% could obtain information from them • Broadcasts and newspapers were rated the next most trusted sources but less than 40% of respondents used them • Social platforms and websites were most commonly used (>90%) but rated as reliable by only a minority • Information from official websites was rated as reliable by only 16% • Social distancing measures were perceived as effective for preventing infection but adoption rates were low • Good/very good perceived understanding of COVID-19 and higher anxiety levels were both associated with greater adoption of physical distancing measures; being female and living in the New Territories were also associated with greater adoption	**Communication purpose** Planning communication with communities, particularly in deciding how to provide information from trusted sources **Related to HEN review question** • Knowledge and anxiety may affect adoption of physical distancing and other preventive measures • Risk communication strategies about COVID-19 and preventive measures might be informed by consideration of how different sources are viewed in terms of trust, as well as their usage

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Kwok et al., 2020 (22) (contd)		**Recommendations** • Improve public knowledge since those with good knowledge of COVID-19 may be more likely to adopt preventive measures • Use trusted and most commonly used information sources to communicate information on COVID-19 and preventive measures • Collaborate with associations of medical doctors to share official information in more social communication channels	
Lohiniva et al., 2020 (23) (qualitative; maps to acceptability, uptake, adherence)[c]	Analysis of risk perceptions and trust in public authorities to inform risk communication efforts related to COVID-19; included members of the public requesting information from the Finnish Institute for Health and Welfare or commenting on COVID-19 via its email or social media *Qualitative study:* thematic analysis of 116 emails and social media posts from the public; 3–25 February 2020 *Country:* Finland *Quality assessment:* 7/10 CASP score (4); may not reflect full range of risk perceptions; no referral to researcher–participant relationship; ethics approval not reported	**Reported on** Public's risk perceptions related to 5 domains *Catastrophic potential* • Linked with emotional response, anticipated epidemic growth, belief that authorities not interested in taking action, suspicion that authorities unable to take action • Lack of knowledge led to greater uncertainty, increasing perceived catastrophic potential *Probability of death* • Linked with increasing perceptions of death as uncontrollable and as likely (authorities were believed to have taken inadequate action for public protection) *Reasons for exposure* • Believed to be contact of those infected, with foreign nationals or with people coming from abroad *Controllability beliefs* • Only authorities could control the spread of COVID-19, as individuals they had no power *Trust in authorities* • Information produced by authorities is unreliable • Actions by authorities to control COVID-19 are insufficient	**Communication purpose** Risk communication efforts and identification of effective features to consider in order to convey information about COVID-19 to the community **Related to HEN review question** • Content and delivery of information to the community about COVID-19 should account for people's perceptions of risks related to COVID • Lack of trust in government messages, and lack of belief in the individual's ability to control spread in particular, may negatively impact acceptance, uptake and adherence to physical distancing measures and may represent targets for risk communication efforts

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Lohiniva et al., 2020 (23) (contd)		**Recommendations** • Avoid downplaying strong feelings • Provide facts • Express care and concern • Share what is known about available resources • Emphasize known facts about COVID-19 mortality in different groups • Emphasize actions taken by authorities • Humanize infected people by telling stories • Emphasize individual actions for prevention of COVID-19 • Emphasize known facts about global situation • Repeat information and provide an explanation (reason) • Communicate actions taken by authorities	
Lunn et al., 2020 (24) (RCT; maps to uptake)[c]	Effect of 2 communication interventions focusing on different COVID-19 messaging for a broadly nationally representative group of 500 adults recruited by a market research agency; examined intentions and attitudes to marginal physical distancing behaviours (acceptable to some but not others) as identified through focus groups (intentions, e.g. to visit others in their home or meet others outside; attitudes towards others, e.g. allowing children to play outdoors with others) *RCT:* 15-minute online study (€5 incentive for completion); intervention 1, identifiable person poster (highlighting risk to vulnerable people, e.g. older people); intervention 2, transmission rate poster (highlighting exponential infection rate and risk of transmission to large numbers of people); control, standard information poster; outcomes, cautious intentions to engage in marginal physical distancing behaviours and attitudes towards acceptability of marginal physical distancing behaviours of others *Country:* Ireland *Quality assessment:* 6/10 CASP (5); no detail about randomization, allocation concealment, participants completing study; confounding of interventions effects possible; not all relevant outcomes considered; rapid trial; not peer reviewed	**Reported on** • Control poster was perceived as more effective than the identifiable persons poster but there was no difference between control and transmission rate posters • Control poster was perceived as more memorable than either intervention posters • No differences in proportion of individuals expressing medium or low cautious intentions to engage in marginal physical distancing between control group and both intervention groups • Significant difference favouring the transmission rate intervention (but not the identifiable persons intervention) compared with the control in the proportion expressing high vs medium cautious intentions to engage in marginal physical distancing behaviours • More individuals in both intervention groups judged the marginal behaviours of others to be less acceptable than did control participants • No differences in participant attitudes and intentions when comparing the 2 intervention posters **Recommendations** • Consider the use of intervention posters as they were effective, having a significant effect on intention and attitude (increasing participants' caution about marginal behaviours) compared with the control • Influence community view of marginal physical distancing behaviours using intervention posters as both alone led participants to judge the marginal physical distancing behaviours of others to be less acceptable • Use information that not only promotes recommended behaviours but also emphasizes the impact of noncompliance with recommended measures on identifiable people and numbers of infections	**Communication purpose** More effective communication and support for behavioural change in relation to people's attitudes and intentions towards reducing the risk of infection to themselves or others in the community **Related to HEN review question** Communication strategies that emphasize the likelihood of infecting vulnerable people or large numbers of people can help to motivate physical distancing by increasing people's intention to be cautious in their own physical distancing behaviours and change their attitudes to be less accepting of marginal physical distancing behaviours in others

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Meier et al., 2020 (25) (survey; maps to acceptability, uptake)[c]	Assessment of public belief in effectiveness of protective measures, uptake of measures in daily life and communication channels used to obtain relevant information on COVID-19 for 9796 respondents to a survey in March 2020 *Survey:* cross-sectional (adapted from the telephone questionnaire designed for the flu pandemic (39)) in the validated FluTEST), descriptive statistics for all survey measures *Countries:* Germany, the Netherlands (88%) in stage III restrictions (community-wide measures to increase social distance); Italy, stage IV (widespread community quarantine, including cordon sanitaire); other countries with >500 adult respondents *Quality assessment:* response rate, +; representativeness, ++; digital online survey, recruitment may introduce selection bias, preprint, not peer reviewed *COI:* none declared for all authors but one (not lead)	**Reported on** • Public belief in effectiveness of prescribed protective measures was high: 95–97% believed that protective measures were effective for preventing COVID-19 spread; 59–87% believed total social isolation measures/lockdown were effective • Over 90% respondents reported being sufficiently informed about the COVID-19 outbreak and what to do to prevent infection • Limiting interactions with other people were reportedly high: cancelling social events (>95%), avoiding crowds (>92%), avoiding sick people (>81%) • Information sources: most frequently used, television, newspaper/ news applications, social media and official websites; least frequently used, health-care professionals and official health hotlines **Recommendations** • Encourage public belief in effectiveness of prescribed protective measures to support their implementation • Use a variety of communication channels, focusing on traditional information sources (respondents most often relied on these)	**Communication purpose** • Information dissemination strategies underpinning physical distancing measures for communities • Choice of information dissemination routes to support individuals' decision-making in relation to protective behaviours **Related to HEN review question** High levels of perceived effectiveness and feeling adequately informed about required measures co-occurred with strong uptake of physical distancing and other measures to protect against COVID-19 infection
Roy et al., 2020 (26) (survey; maps to acceptability, feasibility and other factors)[c]	Assessment of knowledge, attitudes, anxiety, perceived mental health-care needs during the COVID-19 pandemic in 662 adults (aged ≥18 years) able to understand English and give informed consent, and with Internet access *Survey:* cross-sectional, descriptive statistics for all survey measures *Country:* India *Quality assessment:* response rate, +; representativeness, +; respondents limited (English speakers, Internet access), educated (half were health professionals); snowball recruitment; paper published *COI:* none declared	**Reported on** • Awareness of basic features of COVID-19; some misunderstandings about the disease were common; 98% believed physical distancing essential for controlling the disease; 96% would self-isolate if having fever or cough • Anxiety about COVID-19 was common (thinking, worrying or talking about the virus) • Over 80% had avoided social contact, large meetings or going out, as well as adoption of other measures (e.g. handwashing) • Over 80% considered that mental health experts were needed to help with emotional and psychological issues of the pandemic **Recommendations** • Provide information regarding protective measures to influence attitudes and willingness to follow physical distancing measures • Address mental health-care needs as anxiety levels can be high; enhance public awareness of the benefits of good mental health • Encourage sensible media reporting as this may be beneficial in mitigating and tackling mental health challenges	**Communication purpose** Prioritization of strategies for improving knowledge in communities and for supporting people experiencing particularly high levels of anxiety **Related to HEN review question** Levels of willingness to comply with required physical distancing measures were high despite variable knowledge levels about COVID-19; anxiety associated with the pandemic may represent an unmet need

Table A.7 contd

Study type	Study features	Outcomes and findings	Translational steps
Zhong et al., 2020 (27) (survey; maps to adherence)[c]	Investigation of knowledge, attitudes and practices towards COVID-19 in 6910 Chinese nationals (aged ≥16 years) in Hubei province during the rapid rise period of the outbreak (27 January–1 February 2020) who were able to understand the content of the recruitment poster but had no history of COVID-19 infection *Survey:* online self-reporting; convenience sampling by recruitment through authors' social media channels, websites/social media accounts of media outlets *Country:* China *Quality assessment:* response rate, +; representativeness, +; overrepresentation of women, well-educated, occupations associated with higher knowledge, attitudes and practices; published peer- reviewed paper *COI:* none declared	**Reported on** • Overall correct rate of 90% on the knowledge questionnaire • 90.8% were optimistic, believing that COVID19 will finally be successfully controlled • Behaviour practices were very cautious: 96.4% avoided crowded places, 98.0% wore masks when leaving the home • Knowledge, attitudes and practices towards COVID19 were typically lower among men; younger people (aged 16–29 years); and those who were less highly educated, unemployed, single or a student **Recommendations** • Target public health education measures to reach demographic groups more at risk of low knowledge and risky behaviour as this may increase effectiveness • Educate people about COVID-19 to improve their knowledge as higher knowledge was associated with lower likelihood of dangerous practices and negative attitudes	**Communication purpose** To understand which groups more at risk of low knowledge, poor attitudes and poor preventive health practices, which can help in designing communication interventions to target higher-risk groups **Related to HEN review question** Knowledge about COVID19, and some demographic factors (sex, education level, age, occupation), affects adherence to physical distancing measures (avoiding crowds)

COI: conflict of interest; H1N1: H1N1 influenza A; NPI: non-pharmaceutical intervention; RCT: randomized controlled trial; SARS: severe acute respiratory syndrome; SR: systematic review.
[a] Not COVID-19-specific study.
[b] Not COVID19 specific but interpreted specifically in light of COVID19 outbreak
[c] COVID-19 specific.

Table A.8. Studies with general physical distancing focus

Study type	Study features	Outcomes and findings	Translational steps
SRs, guidelines			
ECDC, 2020 (34) (review of guidelines, non-SR; maps to acceptability, adherence; also feasibility/ barriers)[a]	ECDC guidelines used to support public health preparedness planning and response activities based upon physical distancing measures aimed at minimizing the spread of COVID-19 *Guideline:* based on several rapid risk assessments; technical report *Countries:* EU/EEA, United Kingdom *Quality assessment:* 1/11 AMSTAR rating (non-SR) (1)	**Reported on** *Public health communications* • Establishment of an anticipated end date and clarifying that some measures could be extended, removed or reduced while others remain in place • Comprehensive risk communication strategies should include the rationale and justification behind physical distancing measures and encourage individuals to enact the required changes • Monitor public perceptions of the outbreak and the outbreak response • Stigma related to quarantine/self-isolation should be proactively addressed to increase adherence and reinforce that everyone is at risk • Support systems should be developed and the population informed of these (e.g. access to essential supplies and services); social networks promoting community support should be highlighted, particularly for vulnerable groups (e.g. elderly people, homeless people, migrants) • Financial compensation for communities for losses (restricted income or employment) due to restrictive physical distancing measures should be considered to promote adherence *School measures* • Unequal access to digital education may impact on continuity of education • Social isolation and mental health issues may impact ability to adhere to physical distancing • Students or teaching staff from other countries may have limited resources and require additional support • Parents are likely to miss work and may require financial compensation to ensure adherence *Workplace measures* • Strict instructions required to ensure that employees with symptoms do not attend work • Teleworking and videoconferencing from home may not be viable for all • Physical distancing measures that can be taken at work include closing down areas where people are in closer proximity, avoiding having too many people in confined spaces • Financial compensation may increase adherence to workplace measures and help those working from home *Mass gatherings* • Cancellations should be explained to encourage adherence • Religious leaders should be engaged in public health messaging as they play an important role in public opinion	**Communication purpose** How to address potential barriers to physical distancing measures and guide communication with communities to improve acceptance and adherence **Related to HEN review question** A range of factors identified that may impede uptake of and adherence to physical distancing measures (e.g. financial losses, stigma, unequal access to support); these vary across populations

Table A.8 contd

Study type	Study features	Outcomes and findings	Translational steps
ECDC, 2020 (34) (contd)		**Recommendations** • Target communications for different audiences (e.g. minority languages) • Tailor decisions about implementing physical distancing measures to context and setting (social and political factors) • Promote solidarity and mutual community support to encourage implementation of social distancing measures • Communicate using clear, coordinated and comprehensive information about physical distancing measures • Recognize and address inequalities in terms of information provision (e.g. vulnerable populations), financial losses (e.g. those unable to work from home), educational disadvantage (e.g. unequal access to digital learning), stigma (for those self-isolating/quarantined) and support requirements (essential services and supplies)	
Johns Hopkins Center for Health Security, 2019 (35) (guideline; maps to acceptability, uptake, adherence; also maps to crowd avoidance, a specific example relates to quarantine)[b]	Identification of priority actions to mitigate the public health, economic, social and political consequences of emergence of a high-impact respiratory pathogen *Guideline:* review of several high-level reviews on global preparedness, interviews with international experts in pandemic preparedness and response *Countries:* no specific country *Quality assessment:* AGREE II (2), scope and purpose, 90%; stakeholder involvement, 62%; rigour of development, 34%; clarity of presentation, 67%; applicability, 50%; editorial independence, 14%	**Reported on** • Strong, evidence-based rationale for the necessity of NPIs is required and must be communicated to the public for effective implementation • Community engagement may be highly relevant when considering (positive and negative) public reactions to outbreak responses; pre-existing community relationships (developed as part of pandemic preparedness measures) enable risk communication to be framed successfully to support NPIs • Countries must be able to communicate in a timely, accurate and effective manner with their populations about health and protective actions that can be taken • Risk communication and surveillance systems and processes established to serve routine health purposes can be expanded/adapted as needed during emergencies • Public trust is a key element of effective communication before, during and after an outbreak • Partnership with community members and community engagement can strengthen responses to outbreaks (e.g. increasing cultural appropriateness and acceptability of public health interventions, ensuring interventions are attuned to local conditions) and help to incorporate community views and values into difficult decisions that may arise, thus helping to ensure broad support for required measures • Establishment of trusted communication lines between the community and public health services is an essential element of successful engagement to improve risk understanding; communications should be timely, transparent and understandable • Communications about risk, including through trusted partners and news media, are needed to disseminate messages on accurate risk and protective measures; such partners may also serve as advocates to strengthen the public perception of accurate information • Communication of consistent messages to the public requires collaboration between public and private sectors	**Communication purpose** Aspects of this report may inform the development of more effective public health communication and engagement, including those around physical distancing **Related to HEN review question** • Describes actions countries can take to prepare for effective communication with the public during a pandemic • Implementation of the described communication methods may lead to greater acceptability and uptake/adherence to physical distancing measures

Table A.8 contd

Study type	Study features	Outcomes and findings	Translational steps
Johns Hopkins Center for Health Security, 2019 (35) (contd)		**Recommendations** • Take measures to ensure public trust in government and public health messages for effective risk communication and community engagement • Plan prior to outbreaks to ensure rapid and effective communications with the public and involve communities as well as public health experts to support messages • Communicate messages about risk that are consistent, timely and accurate • Provide a strong, evidence-based rationale for public health measures to maximize effective implementation and disease prevention	
WHO, 2018 (36) (guideline; maps to uptake, adherence, acceptability; also maps to feasibility and barriers)[b]	Up-to-date evidence-informed systems-focused guidance based on systematic analyses of the literature, particularly for public health aspects of emergencies (infectious disease, floods, earthquakes, volcanic eruption, bioterrorism, foodborne illness, radiological emergencies) *Guideline:* evidence assembled from quantitative (comparison groups, descriptive methods), qualitative, mixed-methods and case studies *Countries:* all United Nations Member States, but most evidence from emergency events in high- and middle-income countries in Asia, Europe, North America and Oceania *Quality assessment:* AGREE II (2), scope and purpose, 81%; stakeholder involvement, 86%; rigour of development, 83%; clarity of presentation, 88%; applicability, 67%; editorial independence, 100%	**Reported on** • Approaches for building trust and engaging with communities and affected populations; higher trust in the ability of governments and public officials is associated with greater likelihood of the recommended actions being adopted • Approaches for integrating risk communication into existing national and local emergency preparedness and response structures, including building capacity for risk communication • European Research Council practice based on a systematic assessment of the evidence on what worked and what did not work during recent emergencies: strategizing, planning, coordinating, messaging, channelling different methods and approaches of communication and engagement, monitoring and evaluation **Recommendations** *Building trust and engaging with communities* • Ensure risk communication interventions are timely, transparent, easy-to-understand, consistent (i.e. not conflicting) and link with self-efficacy, including encouraging engagement and dialogue with the public • Ensure that information is available early in the emergency before misinformation or rumours can become established • Clearly and openly acknowledge uncertainty, including explicit, clear and consistent information about what is known and what is not (uncertainty associated with events, risks and interventions) at a given point in time • Avoid use of contradictory messages regarding uncertainty as this can have unintended negative effects, such as loss of trust • Target affected groups or populations and disseminate information in multiple ways (platforms, methods, channels) • Involve people the community trusts in decision-making to ensure interventions are collaborative, contextually appropriate and community owned • Involve the community prior to an event as this may increase preparedness and response to an emergency event and is more likely to be successful	**Communication purpose** • Provision of clear, transparent and consistent risk information to communities that is disseminated widely and through different media, inform people about specific actions for protection of their health, and build trust through transparency and acknowledgement of uncertainty • Engagement of local stakeholders in risk communication planning and dissemination **Related to HEN review question** Recommendations link effective risk communication strategies with enhanced trust and understanding of public health messaging, which may increase uptake of and adherence to risk mitigation measures

Table A.8 contd

Study type	Study features	Outcomes and findings	Translational steps
WHO, 2018 (36) (contd)		• Initiate strategic communication planning prior to making recommendations on new practice as there is no one strategy to ensure successful communication in emergency situation • Ensure that the needs of an affected community are identified and considered in strategic planning efforts; involve local stakeholders who can communicate key messages and move populations from awareness to action • Use both social media and traditional media in an integrated strategy to convey accurate, verified information • Use social media to engage the public, create situational awareness, facilitate responses (peer-to-peer and local level) and monitor and respond to rumours, public reactions and concerns during an emergency; social media should not be used as a sole strategy as it may have significant limitations (e.g. misuse, cultural concerns, varying degrees of affordability) • Ensure risk messages are consistent and come from different information sources as these are more likely to be trusted and acted upon • Avoid use of technical terms in risk messaging as confusion or misunderstanding can stop people from undertaking the required mitigation behaviours • Promote specific actions people can take to protect their health, with adaptation of messages for different cultural contexts and changing issues as the emergency develops	
Primary studies			
Lim et al., 2021 (33) (maps to uptake)[a]	Assessment of initial perceptions and responses towards COVID-19 in order to identify factors associated with anxiety and behavioural change (included avoidance of workplaces, public spaces, social engagements or public transportation, and changes to work-related or personal travel plans); 4505 respondents who were invited (via email and text messaging), online panel members (received incentive for completing) or Facebook users (clicked the survey link advertised but did not receive an incentive) *Survey:* online questionnaire February–March 2020 *Countries:* China, Italy, Singapore	**Reported on** • Knowledge of COVID-19 symptoms and modes of transmission: high for most respondents (all countries) • Most respondents (all countries) actively searched for information, with main sources the Internet and social media; most respondents also rated traditional media (television, radio, print) and government sources as the most trusted sources of information • Most respondents (all countries) reported high levels of information sufficiency and self-efficacy although fewer respondents from China reported having sufficient information about risk of infection and why authorities were taking specific control measures • Anxiety towards COVID-19 was higher in China than in other countries; positive behavioural responses were higher in Italy; superstition and fatalism were higher in Singapore • Most respondents (all countries) reported high acceptance of restrictive public health measures; confidence in authority was similar in Italy and Singapore • Higher self-efficacy was associated with lower anxiety levels (all countries)	**Communication purpose** Enabling communication, facilitating decision-making and supporting behavioural change in relation to specific behaviours that would reduce risk of infection for self or others **Related to HEN review question** • Lower anxiety was associated with higher self-efficacy and information sufficiency • Higher acceptance of restrictive control measures and information sufficiency were associated with participants modifying or engaging in specific behaviours to reduce the risk of infection to themselves or others

Table A.8 contd

Study type	Study features	Outcomes and findings	Translational steps
Lim et al., 2021 (33) (contd)	*Quality assessment:* response rate overall, ++ (China ++, Italy +, Singapore +++); sample methodology, ++; underrepresentation for older people (China), younger people (Singapore), men and those without tertiary education (all 3 countries); majority of Italian respondents were from Lombardy and Veneto; preprint, not peer reviewed *COI:* none declared	• Higher acceptance of restrictive control measures and information sufficiency were strongly associated with greater positive behavioural responses to reduce spread of infection to others • Higher anxiety was associated with higher superstition and fatalism, and with regarding traditional media as the most trustworthy information source (Italy and Singapore) **Recommendations** • Use communication strategies that increase self-efficacy and information sufficiency to help reduce anxiety and promote positive behavioural changes • Disseminate information as early as possible using trusted health and government authorities about signs and symptoms of the disease, risk reduction measures, protective behaviours and why specific control measures are being taken; use a variety of online and traditional media outlets	

COI: conflict of interest; ECDC: European Centre for Disease Prevention and Control; EU/EAA: European Union/European Economic Area; NPI: non-pharmaceutical intervention: SR: systematic review.
[a] COVID19 specific study
[b] Not a COVID-19-specific study.

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