

COVID-19 Rapid Evidence Profile #10 (15 May 2020)

Questions

What screening approaches can be used in non-healthcare settings (e.g., universities, stores and office settings) to identify people who may have COVID-19 and need to take appropriate action?

What we found

Screening approaches that can be used in non-healthcare workplaces (e.g., universities, stores and office settings) to identify people who may have COVID-19 include: 1) a list of COVID-19-related symptoms (with the symptoms signalling an increased chance of having COVID-19); 2) temperature taking (with an elevated temperature signalling an increased chance of having COVID-19); and 3) a positive antibody test (with a recent positive test signalling a decreased chance of having COVID-19).

Such screening approaches can be used for those at high risk for COVID-19 (such as travellers passing through air, land and sea borders) and for the entire population (e.g., on entering university buildings, stores and office buildings). Such screening approaches can also be operationalized in different ways (e.g., by self-screening prompted by signage, self-screening using a questionnaire, or screening using a questionnaire administered by another person; by randomly selecting individuals for symptom screening or screening everyone; and by varying the frequency of and settings for symptom screening).

Appropriate follow-up actions for those who screen as being at elevated risk for COVID-19 can include self-isolating and seeking a diagnostic test, among others, however, such follow-up actions are not the focus of this rapid evidence profile.

We previously prepared two rapid evidence profiles focused on [temperature taking at borders or in general as a screening tool](#) and on the [incremental benefit of using a history of sudden loss of taste \(ageusia\) and/or smell \(anosmia\) in symptom screening](#). This rapid

Box 1: Our approach

We identified research evidence addressing the question by searching [the guide to key COVID-19 evidence sources](#) on 13 May 2020 as part of a series of three rapid evidence profiles focused on different aspects of screening for COVID-19.

We searched for guidelines that were developed using a robust process (e.g., GRADE), full systematic reviews (or review-derived products such as overviews of systematic reviews), rapid reviews, protocols for systematic reviews, and titles/questions for systematic reviews or rapid reviews. Single studies were only included if no relevant systematic reviews were identified.

We appraised the methodological quality of full systematic reviews and rapid reviews using AMSTAR. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that: 1) the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial, or governance arrangements within health systems; and 2) quality-appraisal scores for rapid reviews are often lower because of the methodological shortcuts that need to be taken to accommodate compressed timeframes.

We identified experiences from other countries and from Canadian provinces and territories by searching jurisdiction-specific websites (e.g., government ministries and web pages dedicated to COVID-19). Our scan of experiences from other countries focused on those that we identified as being further ahead in resuming regular activities within their health and social systems.

This rapid evidence response was prepared in three hours or less to inform next steps in evidence synthesis, guideline development and/or decision-making related to the question that was posed.

evidence profile broadens the scope to encompass the full range of screening approaches as well as how to screen and support the screening process.

We have structured this rapid evidence profile around these two broad considerations:

- what screening approach to use,
 - symptoms such as fever, cough, shortness of breath/difficulty breathing, headache, runny nose, sore throat, and sudden loss of taste (ageusia) and/or smell (anosmia),
 - signs, specifically temperature, and
 - recent tests, specifically a positive antibody test; and
- how to screen and support screening,
 - how to do the symptom screening, such as self-screening prompted by (passive) signage, self-screening using a questionnaire, and screening using a questionnaire administered by another person,
 - how to do temperature checking, and
 - digital approaches for screening or supporting screening (e.g., an app that prompts the user to complete a symptom check list, enter or provide consent to add their temperature, and provide consent to add a recent antibody test, and then an overall assessment about whether an individual should or should not take appropriate actions).

We identified 21 evidence documents that provide highly relevant evidence in relation to one or more of the above categories:

- nine guidelines developed using a robust process (e.g., GRADE);
- one systematic review;
- five rapid reviews;
- two guidelines developed using some type of evidence; and
- four primary studies with additional important insights.

We provide below both a narrative summary of lessons learned from the highly relevant evidence documents as well as from two jurisdictional scans (one for other countries and the other for Canadian provinces and territories). Additional details for those who want to know more are provided in Table 1 (key findings from highly relevant evidence documents), Table 2 (the type and number of all documents that were identified), Table 3 (for experiences from other countries), and Table 4 (for experiences from Canadian provinces and territories). In addition, we provide a detailed summary of our methods in Appendix 1, the full list of included evidence documents (including those deemed of medium and low relevance) in Appendix 2, abstracts for highly relevant documents in Appendix 3, and hyperlinks for documents excluded at the final stage of reviewing in Appendix 4.

Lessons learned from evidence documents about screening for COVID-19

Most of the findings from highly relevant evidence documents focus on symptom lists and temperature taking as screening approaches, as well as how to do symptom screening and take temperatures. Only one highly relevant primary study and one protocol for a systematic review focus on positive antibody tests. None of the highly relevant evidence documents focused on digital approaches for screening or supporting screening.

For symptoms, the guidelines developed using a robust process, systematic review, rapid reviews and one highly relevant single study all point to a wide array of symptoms for COVID-19 that could be used in screening. Two of these documents provide particularly helpful insights. The first is a [recent study published in the journal Nature](#) that analyzed potential symptoms reported on a smartphone

app from 2.6 million people. It found that loss of smell (anosmia), skipped meals, and fatigue are the three best predictors of COVID-19 and that, while cough is important, it is also common in those who do not have COVID-19. Moreover, among these three top predictors, anosmia was most strongly associated with COVID-19. The second is [an up-to-date tracker that provides signs and symptoms for severe and non-severe COVID-19](#) provided by the Centre for Evidence-Based Medicine. This tracker lists fever, cough, fatigue, dyspnea, sputum production, shortness of breath, myalgia, chill, dizziness and headache as the top 10 symptoms. Moreover, a recent but low-quality systematic review highlighted that a combination of the most frequent symptoms (which it highlights as anosmia, fever, fatigue, persistent cough, diarrhea, abdominal pain, and loss of appetite) have a reasonable specificity for COVID-19 diagnosis. However, the review notes that the symptoms can have rapid cessation or late onset and some people will also be asymptomatic.

For signs to use in screening, our recent [rapid evidence profile](#) about temperature taking as a screening tool (at borders or in general) highlights that most guidelines and the included rapid reviews do not recommend temperature screening based on the available evidence.

Only one highly relevant [primary study](#) and a [protocol for a systematic review](#) focus on positive antibody tests, with the study indicating that antibody-based rapid tests should not be relied on for screening in community settings.

Given the emergent nature of these findings about the use of symptom lists and temperature taking (and the lack of evidence about using a recent antibody test result), there's a clear need for a 'living review' on this topic.

In addition to the above guidelines developed using a robust process, one guideline from the American College Health Association emphasizes that U.S. universities should screen health-service patients and staff regularly using symptom and temperature screening, and two guidelines for the food industry (one [WHO technical guidance](#) and one from [WHO and Agriculture Organization of the United Nations](#)) focus on the need for employees in the food sector to be aware of and recognize the symptoms of COVID-19.

Lastly, two single studies provide insight about additional approaches. The first describes a [walk-through screening centre using negative-pressure booths](#) that has been used in South Korea for COVID-19 screening, and the other describes [geospatial thermometer networks](#) as possibly being useful for identifying anomalously elevated levels of influenza-like illness to help forecast COVID-19 spread and outbreaks in real time.

Lessons learned from international and Canadian experiences with screening for COVID-19

The most common forms of symptom screening is through a self-administered questionnaire that is typically completed online through government websites or mobile apps as a self-assessment tool. No lessons could be gleaned from the jurisdictional scan about the relative effectiveness of the different types of screening. Australia, New Zealand and the U.K. have all established self-assessments, which are then followed up with directives to self-isolate or seek a diagnostic test. China has widely implemented temperature screening using hand-held thermometers and calibrated non-contact thermometers in a range of transit hubs (e.g., buses and train terminals), workplaces and institutions (e.g., childcare facilities, colleges and universities, social housing, among others). In addition, China has established a QR code system based on an online assessment that serves as a regional traffic permit as well as permission to enter public spaces or take public transportation. Finally, Sweden is relying on self-screening by signage.

Many Canadian provinces and territories including British Columbia (B.C.), Alberta, Saskatchewan, Ontario, New Brunswick, Nova Scotia, Newfoundland and Labrador, Yukon, Northwest Territories, and Nunavut, have established online self-assessments for COVID-19, however, the symptoms included in the assessments vary. Alberta, Saskatchewan and the Northwest Territories have implemented temperature screening for particular high-risk groups. In addition, Quebec has established checkpoints to limit travel into and out of select regions whereby access is prohibited for those with symptoms of COVID-19 (as determined through administered questions). As provinces and territories begin to resume normal activities, many of their plans for 're-opening' rely on self-screening for symptoms through signage, questions administered by employers, and in select cases temperature screening (e.g., B.C. universities and Saskatchewan personal care homes and personal services).

Table 1: Overview of key findings from highly relevant evidence documents about screening approaches for COVID-19 in non-healthcare settings

| Screening options | | Key findings from highly relevant evidence documents |
|--------------------------|---|--|
| What to use in screening | Symptoms (such as fever, cough, shortness of breath/difficulty breathing, headache, runny nose, sore throat, sudden loss of taste and/or smell) | <p>Guidelines developed using a robust process (e.g., GRADE)</p> <ul style="list-style-type: none"> • The most common presenting symptoms of COVID-19 were cough (86%), fever or chills (85%), shortness of breath (80%), diarrhea (27%), and nausea (24%), but other reported symptoms have included anosmia. (National Institutes of Health; last updated 12 May 2020) • Institutions of Higher Education recommend that student health services should update screening forms with a more detailed list of symptoms (e.g., chills, repeated shaking with chills, muscle pain, headache, sore throat, anosmia, dysgeusia, and any other COVID-19 symptoms), screen all patients and staff for respiratory symptoms and check temperature (ideally with infrared or laser devices) before entering the clinic, and consider implementing pre-participation screening and evaluation of student athletes. (American College Health Association; last updated 7 May) • The symptoms of COVID-19 vary, but may include ageusia and anosmia (American College of Occupational and Environmental Medicine; last updated 24 April 2020) • Employees conducting inspections in food businesses need to be aware of and recognize the symptoms of COVID-19, so that they can self-report and exclude themselves from work (WHO technical guidance; last updated 22 April 2020) • Employees working in the food sector need to be aware of the symptoms of COVID-19 and refer to written guidance by their employers on reporting such symptoms and on exclusion from work policies (World Health Organization and Food and Agriculture Organization of the United Nations; last updated 7 April 2020) • The typical symptoms for patients with COVID-19 are cough, fever and fatigue, but they may also have breathlessness, muscle aches, sore throat, headache and loss of sense of smell (anosmia). (National Institute for Health and Care Excellence; last updated 3 April 2020) • Ill travellers may be screened through self-reporting, visual observation, or temperature measurement (WHO technical guidance; last updated 19 March 2020) • Upon admission to prisons and other places of detention, all individuals should be screened for fever and lower respiratory tract symptoms, and any other symptoms compatible with COVID-19 using self-reporting questionnaires (WHO Regional Office for Europe; last updated 15 March 2020) <p>Full systematic reviews</p> <ul style="list-style-type: none"> • Presenting symptoms varied widely but, in combination, anosmia, fever, fatigue, persistent cough, diarrhea, abdominal pain and loss of appetite have a reasonable specificity for COVID-19 diagnosis, but the symptoms can have rapid cessation or late onset and some people will also be asymptomatic (AMSTAR rating 1/9; last updated 1 April 2020) <p>Rapid reviews</p> |

| Screening options | | Key findings from highly relevant evidence documents |
|--|---|--|
| | | <ul style="list-style-type: none"> In mild and moderate cases, cough was present in less than half of cases, fever was the most frequent reported symptom, and other reported symptoms included dyspnea, headache, diarrhea, sore throat, fatigue and rhinorrhea (AMSTAR rating 5/9; last updated 1 April 2020) Limited evidence suggests changes in olfactory sensation is a feature of COVID-19 and clinicians are encouraged to incorporate questions around loss of olfactory sensation into their clinical practice when assessing patients with suspected COVID-19 (AMSTAR rating 3/9; last updated 23 March 2020) Anosmia has been reported in suspected or confirmed COVID-19 patients around the world, and (despite the limited research evidence) some public-health authorities recommend adding it to the list of COVID-19 symptoms (AMSTAR rating 3/9; last updated 31 March 2020) <p>Guidelines developed using some type of evidence synthesis and/or expert opinion</p> <ul style="list-style-type: none"> An up-to-date tracker provides signs and symptoms for severe and non-severe COVID-19 (Centre for Evidence-Based Medicine; last updated 29 March 2020) <p>Primary studies with additional important insights</p> <ul style="list-style-type: none"> The three best predictors of COVID-19 infection are loss of smell, skipped meals and fatigue, with cough being common but often present in people who do not have COVID-19 (published 11 May 2020) |
| | Signs (temperature) | <p>Guidelines developed using a robust process (e.g., GRADE)</p> <ul style="list-style-type: none"> Ill travellers may be screened through self-reporting, visual observation, or temperature measurement (WHO technical guidance; last updated 19 March 2020) <p>Rapid reviews</p> <ul style="list-style-type: none"> Temperature-screening programs using infrared temperature-screening devices with or without questionnaires for mass screening of those entering health facilities is ineffective for detecting infected persons due to environmental temperatures, false answers, and the use of fever-reducing drug (AMSTAR rating 3/10; last updated 20 April 2020) While asymptomatic subjects have similar viral loads to symptomatic patients, thermal infrared screening seems to lack sensitivity to detect COVID-19 cases when used in community settings (AMSTAR rating 2/10; last updated 9 April) |
| | Tests (positive antibody test) | <p>Primary studies with additional important insights</p> <ul style="list-style-type: none"> Antibody-based rapid tests should not be relied upon for SARS-CoV-2 screening in community settings (published 18 April 2020) |
| How to screen/how to support the screening | How to do the symptom screening (such as self-screening prompted by (passive) signage, self-screening using a questionnaire and | <p>Guidelines developed using a robust process (e.g., GRADE)</p> <ul style="list-style-type: none"> Institutions of Higher Education recommend that student health services should update screening forms with a more detailed list of symptoms (e.g., chills, repeated shaking with chills, muscle pain, headache, sore throat, anosmia, dysgeusia, and any other COVID-19 symptoms), screen all patients and staff for respiratory symptoms and check temperature (ideally with infrared or laser devices) |

| Screening options | | Key findings from highly relevant evidence documents |
|---|--|--|
| screening using a questionnaire administered by another person) | <ul style="list-style-type: none"> • before entering the clinic, and consider implementing pre-participation screening and evaluation of student athletes (American College Health Association; last updated 7 May) • Employees conducting inspections in food businesses need to be aware of and recognize the symptoms of COVID-19, so that they can self-report and exclude themselves from work (WHO technical guidance; last updated 22 April 2020) • Ill travellers may be screened through self-reporting, visual observation, or temperature measurement (WHO technical guidance; last updated 19 March 2020) • Upon admission to prisons and other places of detention, all individuals should be screened for fever and lower respiratory tract symptoms, and any other symptoms compatible with COVID-19 using self-reporting questionnaires (WHO Regional Office for Europe; last updated 15 March 2020) • Parents should recognize the symptoms of COVID-19 (e.g., coughing, fever, shortness of breath) in their child and keep them home from school and notify the school of their absence and symptoms (UNICEF, WHO and IFRC; last updated March 2020) • Temperature-screening programs using infrared temperature-screening devices with or without questionnaires for mass screening of those entering health facilities is ineffective for detecting infected persons due to environmental temperatures, false answers, and the use of fever-reducing drug (AMSTAR rating 3/10; last updated 20 April 2020) <p>Primary studies with additional important insights</p> <ul style="list-style-type: none"> • A walk-through (WT) screening centre using negative pressure booths has been designed and implemented in South Korea for COVID-19 screening, and has been found to increase patient access to the screening clinics, adequately protect healthcare personnel, reduce consumption of personal protective equipment, increase the number of people tested by 9–10 fold, but increase risk of cross-infection at each stage of screening which can be overcome using mobile technology and increasing the number of booths to reduce congestion inside the centre, reducing booth volume for sufficient and rapid ventilation, and using an effective, harmless, and certified environmental disinfectant (published 9 April 2020) | |
| How to do temperature checking | <p>Guidelines developed using a robust process (e.g., GRADE)</p> <ul style="list-style-type: none"> • Institutions of Higher Education recommend that student health services should update screening forms with a more detailed list of symptoms (e.g., chills, repeated shaking with chills, muscle pain, headache, sore throat, anosmia, dysgeusia, and any other COVID-19 symptoms), screen all patients and staff for respiratory symptoms and check temperature (ideally with infrared or laser devices) before entering the clinic, and consider implementing pre-participation screening and evaluation of student athletes (American College Health Association; last updated 7 May) • Ill travellers may be screened through self-reporting, visual observation, or temperature measurement (WHO technical guidance; last updated 19 March 2020) <p>Rapid reviews</p> | |

| Screening options | | Key findings from highly relevant evidence documents |
|-------------------|--|--|
| | | <ul style="list-style-type: none"> • Temperature-screening programs using infrared temperature-screening devices with or without questionnaires for mass screening of those entering health facilities is ineffective for detecting infected persons due to environmental temperatures, false answers, and the use of fever-reducing drug (AMSTAR rating 3/10; last updated 20 April 2020) • While asymptomatic subjects have similar viral loads to symptomatic patients, thermal infrared screening seems to lack sensitivity to detect COVID-19 cases when used in community settings (AMSTAR rating 2/10; last updated 9 April 2020) <p>Guidelines developed using some type of evidence synthesis and/or expert opinion</p> <ul style="list-style-type: none"> • Evidence shows that non-contact infrared temperature screening is ineffective to detect COVID-19 for travellers (CADTH; published on 6 May 2020) <p>Primary studies with additional important insights</p> <ul style="list-style-type: none"> • Geospatial thermometer networks may be useful for identifying anomalously elevated levels of influenza-like illness to help forecast COVID-19 spread and outbreaks in real time (posted 10 April 2020 (pre-print)) |
| | Digital approaches for screening or supporting screening | No highly relevant documents identified |

Table 2: Overview of type and number of documents that were identified by strategy and setting/population

| Type of evidence document | Total ⁱ | Number of documents addressing different screening options | | | | | | |
|---|--------------------|--|-------|-------|-------|--|--------------------------|--|
| | | What to use in screening | | | | How to screen/how to support the screening | | |
| | | Symptoms | Signs | Tests | Other | How to do the symptom screening | How to take temperatures | Digital approaches for screening or supporting screening |
| Guidelines developed using a robust process (e.g., GRADE) | 10 | 10 | 1 | 0 | 0 | 6 | 1 | 0 |
| Full systematic reviews | 6 | 3 | 2 | 0 | 0 | 0 | 2 | 0 |
| Rapid reviews | 8 | 3 | 3 | 1 | 0 | 1 | 2 | 1 |
| Guidelines developed using some type of evidence | 4 | 2 | 1 | 1 | 0 | 0 | 1 | 0 |
| Protocols for reviews that are underway | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Titles/questions for reviews that are being planned | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| Single studies in areas where no reviews were identified | 23 | 14 | 3 | 1 | 0 | 5 | 2 | 1 |

i) Where the sum of the numbers deviate from the total it is because one or more documents address multiple settings/populations

Table 3: International experiences with screening approaches for COVID-19 in non-healthcare settings

| Country | Key findings |
|-----------|--|
| Australia | <p>What to use in screening</p> <ul style="list-style-type: none"> • The Australian government has established a COVID-19 app to be able to inform individuals when they have been identified as someone who may have been in contact with a confirmed COVID-19 case • The app lists a series of symptoms to look for, namely: headache; muscle pains; runny nose; nausea; vomiting or diarrhea; loss of smell; altered sense of taste; and a loss of appetite <p>How to do the symptom screening</p> <ul style="list-style-type: none"> • In addition to establishing the app, the Australian government has also created an online screening test which uses a questionnaire listing similar symptoms to the app in addition to asking about information related to gender, age and location • Australia’s borders are currently closed, but citizens, residents and immediate family members can travel to Australia and may undergo enhanced health screening on arrival which may include questions related to symptoms (same as listed above) • The Aged Care Quality and Safety Commission’s Chief Clinical Advisor has mandated that routine screening questions related to COVID-19 symptoms and temperature checks are applied to staff and visitors for all residential aged-care facilities |
| China | <p>What to use in screening</p> <ul style="list-style-type: none"> • <u>Temperature-monitoring equipment (hand-held thermometers or calibrated non-contact temperature-monitoring equipment) is set up in China</u> to take the temperature of people entering the settings in the list below, and only those with normal temperature are allowed to enter. Railway and road passenger transport at urban rail transit stations also require temperature to be lower than 37.3°C to enter. The settings with temperature-monitoring requirements include: <ul style="list-style-type: none"> ○ office buildings; ○ hotels (at the entrance of lobby); ○ shopping malls (at the mall entrance); ○ banks (at the bank entrance); ○ restaurants (at the restaurant entrance); ○ barber shops (at the shop entrance); ○ agri-product market (at the market entrance); ○ parks (at the park entrance); ○ medical institutions; ○ railway passenger transport (at the rail station entrance); ○ road passenger transport (at passenger bus stations); ○ waterway passenger transport (at ferry terminals); ○ civil Aviation (taking temperature of all passengers entering or leaving the airport; taking temperature on board based on different flight risk levels and the needs of epidemic prevention and control); ○ urban rail transits (at urban rail transit stations); ○ enterprises (for external personnel, at registry); ○ government departments and public institutions (for staff and external personnel, at the entrance of the unit); ○ childcare institutions (for staff, nursery governess, children and visitors, at the entrance); ○ primary and secondary schools (for teaching staff, students and external personnel, at the entrance); ○ colleges and universities (for teaching staff, students and external personnel, at the entrance); ○ pension facilities; ○ welfare house (for working staff, nursing staff and external personnel, at the entrance); ○ prison (closed-off management); |

| Country | Key findings |
|---------|--|
| | <ul style="list-style-type: none"> ○ mental health medical institution (for staff and external personnel, at the entrance); ○ medical waste disposal centres; and ○ property-management centres. ● Temperature-monitoring equipment (hand-held thermometer or calibrated non-contact temperature-monitoring equipment) is required for some public transportation along with emergency areas set up to temporarily quarantine passengers with symptoms such as fever and cough. This is required for: <ul style="list-style-type: none"> ○ trains (hand-held thermometer); ○ regular buses above Class-III and chartered buses (hand-held thermometer); ○ ships (hand-held thermometer); and ○ terminal buildings (calibrated non-contact temperature-monitoring equipment). ● Before resuming work in the following industries, non-contact thermometers and other anti-epidemic supplies (e.g., masks, liquid hand soap, disinfectants) need to be reserved, and emergency areas to be set up to temporarily quarantine those with suspicious symptoms: <ul style="list-style-type: none"> ○ enterprises (in low-, medium- and high-risk areas); ○ construction industry (in low-, medium- and high-risk areas); ○ postal and express delivery industry (in low-, medium- and high-risk areas); ○ government departments and public institutions (in low-, medium- and high-risk areas); ○ childcare institutions; ○ primary and secondary schools; ○ pension facilities (in medium- and high-risk areas); ○ welfare houses (in low-, medium- and high-risk areas); ○ prisons (in low-, medium- and high-risk areas, and if there is a confirmed case of COVID-19 in a prison, symptom screening is conducted for all prisoners and police officers as soon as possible); and ○ property-management centres (in low-, medium- and high-risk areas). ● The following settings are required to establish an employee health monitoring system, record the employees' health status every day, and those who feel unwell should seek medical treatment in time: <ul style="list-style-type: none"> ○ office building; ○ hotels; ○ shopping malls; ○ banks; ○ restaurants; ○ barber shops; ○ agri-product markets; ○ parks; ○ railway passenger transport; ○ road passenger transport; ○ waterway passenger transport; ○ civil aviation; ○ urban buses and trams; ○ urban rail transits; ○ community staff; ○ enterprises (in low-, medium- and high-risk areas); ○ construction industry (in low-, medium- and high-risk areas); ○ postal and express delivery industry (including postman, courier, transport vehicle drivers and stevedores, in low-, medium- and high-risk areas); ○ government departments and public institutions (in low-, medium- and high-risk areas); ○ childcare institutions (including staff, nursery governess and children and with the requirement to examine children's health status in the morning and at noon, and implement "daily report" and "zero report" systems); |

| Country | Key findings |
|-------------|--|
| | <ul style="list-style-type: none"> ○ primary and secondary schools (including teaching staff and students and with the requirement to examine health status in the morning and at noon, and implement "daily report" and "zero report" systems); ○ colleges and universities (including teaching staff and students); ○ pension facilities (including the elderly and staff); ○ welfare houses (in medium- and high-risk areas); ○ prisons (including prison police officers, working staff and prisoners in medium- and high-risk areas); ○ mental health medical institution; ○ medical waste disposal centres (in low-, medium- and high-risk areas); and ○ property-management centres (in low-, medium- and high-risk areas); ● Preventing imported cases has become the focus of epidemic control and prevention in China. <ul style="list-style-type: none"> ○ The focus of epidemic control and prevention was constantly adjusted to prevent imported cases and domestic re-infections in China. A joint-work mechanism comprising different departments such as civil aviation, customs, public security, health, foreign affairs, border inspection and airports was established to prevent transmission of the virus at the point of first entry. With an increasing number of asymptomatic cases, it was decided to place all such cases under medical observation for 14 days at designated sites, and allow them to be discharged only after the two consecutive negative nucleic acid tests. <p>How to screen/how to support the screening</p> <ul style="list-style-type: none"> ● Health QR codes have been developed and are being used to help local authorities and enterprises monitor an epidemic situation in real time and serve as permits for residents travelling or accessing public venues. <ul style="list-style-type: none"> ○ The code serves as a regional "traffic permit" to ensure orderly population flow during the COVID-19 outbreak. People need to report their travel history and health conditions online in advance, and they are assigned green, yellow or red codes based on the information they provide. ○ The green code is for people with little chance of having been infected, while residents assigned a yellow and red code are required to be quarantined for a few days and report their health information daily before they are cleared for travel again. ○ People who want to enter public spaces or take public transport vehicles are required to show their green health codes (e.g., at the entrances to residential communities, companies and other public places in some cities). Those who do not have smartphones, especially the elderly and children, can pass with valid paper documents. ○ All inbound passengers must report their health condition before entering China and may use a built-in WeChat program or a mobile phone application developed by China Customs to complete the health condition report, resulting in a two-dimensional code for presenting to pass through customs. ○ Big data is also being used to implement the health code and promptly share information such as nucleic acid and blood antibody test results |
| New Zealand | <p>What to use in screening</p> <ul style="list-style-type: none"> ● The list of symptoms provided by the government for self-screening to contact an established hotline or an individual's doctor, include: a cough, a high temperature of at least 38 degrees Celsius, shortness of breath, sore throat, sneezing and runny nose, and temporary loss of smell <p>How to do the symptom screening</p> <ul style="list-style-type: none"> ● Every traveller entering New Zealand is screened for COVID-19 on arrival where they will be met by government officials at the gate where: 1) if they are symptomatic will be tested and placed in a quarantine facility for 14 days; and 2) if not symptomatic they will be placed in an approved managed isolation facility for 14 days <ul style="list-style-type: none"> ○ At the end of the 14 days, a final health check is carried out which includes examining temperature to ensure it is below 38 degrees Celsius, and confirming a non-positive test for COVID-19, no symptoms of COVID-19 are present, and that a suitable travel plan is in place |

| Country | Key findings |
|-------------|--|
| South Korea | <p>What to use in screening</p> <ul style="list-style-type: none"> • All inbound passengers to South Korea are required to pass through infrared cameras and then have their temperatures taken using electronic thermometers, if they show symptoms of a fever they are required to be tested for COVID-19 <p>How to do symptom screening</p> <ul style="list-style-type: none"> • All health workers in senior-care facilities are excused from work for 14 days if they self-screen and determine they have a fever, cough or other respiratory symptoms • Drive-through screening clinics have been established which allow for individuals to open a window while remaining in their car, and undergo an examination for travel history and symptoms including a temperature check, which is then used by medical professionals to decide whether to collect samples for testing |
| Sweden | <p>What to use in screening</p> <ul style="list-style-type: none"> • Symptoms listed by the Public Health Agency of Sweden that may be associated with COVID-19 include: cough, fever, difficulty breathing, runny nose, blocked nose, sore throat, headache, nausea, muscle and joint pain, loss of smell, loss of taste, and diarrhea <p>How to do symptom screening</p> <ul style="list-style-type: none"> • Temperature checks have not been implemented at borders in Sweden |
| U.K. | <p>What to use in screening</p> <ul style="list-style-type: none"> • Symptoms listed by the NHS as part of their mobile app and online website that may be associated with COVID-19 include having a high temperature (assessed by the individual as feeling hot to touch on the chest or back) or a new, continuous cough (meaning coughing for more than an hour or three or more coughing episodes in 24 hours) <p>How to do symptom screening</p> <ul style="list-style-type: none"> • The NHS has been screening symptomatic healthcare workers using an initial symptom screen that asks about a continuous cough or fever, at which point if the answer to either is yes, they are taken to a designated screening pod which is staffed by a trained nurse to get nose and throat swabs to test for COVID-19 • U.K. borders remain closed and as a result temperature checks have not been implemented |

Table 4: Canadian provinces' and territories' experiences with screening approaches for COVID-19 in non-healthcare settings

| Province/ territory | Key findings |
|------------------------|---|
| Pan-Canadian | <p>How to do symptom screening</p> <ul style="list-style-type: none"> • The government of Canada has put in place enhanced border measures at Canadian airports, land and sea borders that includes completing an ArriveCAN application (which includes screening questions related to symptoms) as well as a self-isolate plan, which is subject to monitoring by either federal or provincial authorities <ul style="list-style-type: none"> ○ ArriveCAN mobile App includes a self-assessment questionnaire which asks travellers about the following symptoms related to COVID-19: cough; difficulty breathing; and fever ○ In addition, it asks about where the individual plans to quarantine, whether a vulnerable person will be placed at risk, and whether food and other essential services will deliver to their location |
| B.C. | <p>What to use in screening</p> <ul style="list-style-type: none"> • The British Columbia Centre for Disease Control has established a self-assessment app and online tool to help determine whether individuals should seek additional testing, and the symptoms in the self-assessment include: severe difficulty breathing (e.g., struggling to breathe or speaking in single words); severe chest pain; inability to lie down because of breathing; having a hard time waking up; feeling confused; losing consciousness; having a chronic health condition that the individual is having trouble managing because of illness; and experiencing any cold or flu-like symptoms <ul style="list-style-type: none"> ○ In addition, the self-assessment asks questions related to travel history and living or caring for someone who has a confirmed case of COVID-19 • For vulnerable patients, self-assessment of any of the following symptoms triggers further testing: new respiratory symptoms; gastrointestinal symptoms; headaches; fatigue; chills and muscle aches <p>How to do symptom screening</p> <ul style="list-style-type: none"> • If COVID-19 transmission rates remain low, the province will resume post-secondary institutions for some in-class learning and as a preventive measure will introduce daily screening for all staff and students |
| Alberta | <p>What to use in screening</p> <ul style="list-style-type: none"> • Alberta Health Services has launched an online self assessment that includes the following symptoms: fever, cough, headache, aches and pains, sore throat, chills, runny nose, loss of sense of taste or smell, and shortness of breath or difficulty breathing <ul style="list-style-type: none"> ○ In addition, the survey includes questions related to recent travel history outside of Canada and contact history with confirmed cases COVID-19 <p>How to do symptom screening</p> <ul style="list-style-type: none"> • As part of Alberta's relaunch phase one plan they will be putting in place stronger international border controls and airport screening for international travellers (additional details were not provided) • Following the outbreak of COVID-19 at the Cargill meat-packing plant in Alberta, the chief medical officer of health outlined additional safety measures requiring temperature and symptom checks before entering the workplace |
| Saskatchewan | <p>What to use in screening</p> <ul style="list-style-type: none"> • Saskatchewan online self-assessment tool was adapted from that of Alberta and asks about the following symptoms: fever; cough; headache; aches and pains; sore throat; chills; runny nose; loss of sense of taste or smell; and shortness of breath or difficulty breathing <ul style="list-style-type: none"> ○ In addition, the self-assessment includes questions related to contact with residents in long-term or continuing-care homes; contact with confirmed cases of COVID-19; and travel history within the past 14 days |

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| | <p>How to do symptom screening</p> <ul style="list-style-type: none"> • As part of the Re-Open Saskatchewan plan, visitors to long-term care homes, hospitals, personal-care homes and group homes will be required to undergo additional health screening prior to entry (additional details of what this screening is were not available) <ul style="list-style-type: none"> ○ In addition, as personal services such as hairstylist, registered massage therapist and acupuncturist re-open, clients will be screened as well as asked to wear gloves and face masks • Saskatchewan Health Authority has implemented temperature checks for healthcare workers and visitors upon entering the facility using either a no-touch digital thermometer or tympanic thermometer <ul style="list-style-type: none"> ○ If the temperature registers as over 39 degrees Celcius the individual is not permitted to work and is required to return home and contact the established health line |
| Manitoba | <p>What to use in screening</p> <ul style="list-style-type: none"> • The provincial government released the Workplace Guidance for Business Owners as part of their broader strategy to re-open the province. The document focuses on using COVID-19 symptoms to screen employees, volunteers or clients and includes: cough; headache; fever/chills; muscle aches; sore throat/hoarse voice; shortness of breath/breathing difficulties; loss of taste or smell; vomiting or diarrhea for more than 24 hours; poor feeding if an infant; runny nose; fatigue; nausea or loss of appetite; conjunctivitis (pink eye); and/or skin rash of unknown cause <p>How to screen/how to support the screening</p> <ul style="list-style-type: none"> • The Workplace Guidance for Business Owners provides the following recommendations on how to screen: <ul style="list-style-type: none"> ○ encourage employees and volunteers to use screening information in the provincial self-screening tool before leaving their home to attend work, and emphasize that they must stay home if they are experiencing symptoms of COVID-19 (e.g., cough, fever, runny nose, sore throat, breathing difficulties) ○ post guidance on entrance requirements including screening information, to the facility for all employees, volunteers and patrons ○ do not allow patrons who are exhibiting symptoms of COVID-19 to enter the premises ○ employees, volunteers or clients identified as symptomatic should be instructed to call Health Links ○ in situations where appointments are required, clients should also be screened by telephone before an appointment is booked, and again upon arrival |
| Ontario | <p>What to use in screening</p> <ul style="list-style-type: none"> • The provincial government has created a self-assessment tool which lists the following COVID-19 symptoms: fever (feeling hot to the touch, a temperature of 37.8 degrees Celcius or higher); chills; cough that is new or worsening; barking cough; shortness of breath (out of breath, unable to breathe deeply); sore throat; difficulty swallowing; hoarse voice (more rough or harsh than normal); runny nose (not related to seasonal allergies or other known causes or conditions); lost sense of taste or smell; headache; digestive issues (nausea, vomiting, diarrhea, or stomach pain); extreme tiredness that is unusual (fatigue, lack of energy); falling down often; and or sluggishness or lack of appetite (for young children and infants) • The Ministry of Labour, Training and Skills Development has developed sector specific guidance and signage, which recommends that employees use the self-assessment tool and that any worker with symptoms related to cold, flu, or COVID-19 be sent home • The Infrastructure Health and Safety Association has developed a COVID-19 screening checklist indicating that any workers or visitors accessing a work site should complete <ul style="list-style-type: none"> ○ The checklist includes four questions: <ul style="list-style-type: none"> ▪ Have you travelled outside of Canada in the last 14 days? |

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| | <ul style="list-style-type: none"> ▪ Are you experiencing any symptoms of COVID-19 (e.g., shortness of breath, cough, sore throat, or fever)? ▪ Have you been in close contact with a person showing symptoms or tested positive for COVID-19? ▪ Have you been in close contact with a person with acute respiratory illness who has been outside of Canada in the last 14 days? |
| Quebec | <p>What to use in screening</p> <ul style="list-style-type: none"> • The provincial government has launched a website to inform the public during the COVID-19 pandemic, including details about the main symptoms which can be mild (similar to a cold) or more severe (such as those associated with pneumonia and respiratory or kidney failure): <ul style="list-style-type: none"> ○ fever; <ul style="list-style-type: none"> ▪ in children: 38°C (100.4°F) and above (rectal temperature), ▪ in adults: 38°C (100.4°F) and above (oral temperature), ▪ in older adults: 37.8°C (100°F) and above (oral temperature), ▪ or 1.1°C above the person's usual value; ○ new or worse cough; ○ difficulty breathing; or ○ sudden loss of smell without a stuffy nose, with or without loss of taste. • With the reopening of economic activities, along with preschool, elementary schools and childcare services, the Commission des normes, de l'équité, de la santé et de la sécurité du travail have released a workplace sanitary standards guide, along with additional tools for specific sectors (e.g., posters for manufacturing, retail, construction and mining industry, childcare, schools, and public transportation sectors, describing symptoms and key prevention measures). These tools remind employees to notify their employer if they feel symptoms compatible with COVID-19 (fever or cough, difficulty breathing or sudden loss of smell and taste, other symptoms that could be added on the provincial website listed above) before reporting to work. The same goes for parents and students who must notify their professors of any symptoms before reporting to school. <p>How to screen/how to support the screening</p> <ul style="list-style-type: none"> • In order to protect the most vulnerable populations (and regions that had low prevalence of COVID-19), checkpoints have been established to limit travel into and out of certain regions. Access is blocked for anyone with symptoms of COVID-19 as described by the provincial government website. Since 4 May 2020, many of these checkpoints have been lifted. • The Commission des normes, de l'équité, de la santé et de la sécurité du travail proposed several methods to screen for COVID-19 in its workplace sanitary standards guide: <ul style="list-style-type: none"> ○ self-screening of symptoms before reporting to work/school; ○ self-screening of symptoms prompted by (passive) signage in the workplace (posters are proposed); ○ self-screening of symptoms using a questionnaire before entering the workplace (although no such questionnaire is proposed); and ○ screening of symptoms using a questionnaire administered by employers before entering the workplace (although no such questionnaire is proposed). |
| New Brunswick | <p>What to use in screening</p> <ul style="list-style-type: none"> • To determine who should be tested in the province, individuals advised to seek help immediately if they are in respiratory distress (e.g., severe trouble breathing) with instructions to call an information line for any two of the following symptoms: fever, new cough or worsening cough, sore throat, runny nose, headache, new onset of fatigue, muscle pain, diarrhea, loss of sense of smell or taste, small and purple markings on fingers and toes in children. Special provisions for essential workers (including healthcare staff, long-haul truckers) who can be tested on demand if they want. • As part of reopening plan, additional screening recommendations include: |

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| | <ul style="list-style-type: none"> ○ screening fellow passengers for symptoms when carpooling with co-workers or neighbours outside of their two-house bubble ○ screening drivers travelling through the province <p>How to screen/how to support the screening</p> <ul style="list-style-type: none"> ● Online self-assessment survey, with telehealth support to triage individuals for testing, scheduled pre-surgical screening appointments (which include mandatory testing) for elective/non-urgent surgeries, and questionnaires administered by border patrol/peace officers to those entering the province through air or land |
| Nova Scotia | <p>What to use in screening</p> <ul style="list-style-type: none"> ● Province instructs individuals to call an information line for any two of the following symptoms: fever, new cough or worsening cough, sore throat, runny nose, headache <p>How to screen/how to support the screening</p> <ul style="list-style-type: none"> ● Self-assessment information provided online and telehealth support to triage individuals for testing |
| Prince Edward Island | <p>What to use in screening</p> <ul style="list-style-type: none"> ● Province instructs the general public to call their family physician or nurse practitioner if any of the following symptoms develop: new onset fever, new or worsening cough, sore throat, runny nose, sneezing, congestion or unusual fatigue, or if in close contact with laboratory-confirmed case, and recommends testing for hospitalized individuals, healthcare workers, long-term and community-care residents and staff if they have any of the symptoms, and testing for inter-facility transfer patients, temporary foreign workers and essential workers (e.g., long-haul truck drivers) regardless of symptoms <p>How to screen/how to support the screening</p> <ul style="list-style-type: none"> ● Self-assessment information provided online, and telehealth support (including from primary-care providers) to triage individuals for testing |
| Newfoundland and Labrador | <p>What to use in screening</p> <ul style="list-style-type: none"> ● To determine who should be tested in the province, individuals advised to seek help immediately if they are in respiratory distress (e.g., severe trouble breathing, chest pain) or have other symptoms such as hard time waking up, confusion, or lost consciousness, with instructions to call an information line for any two of the following symptoms: fever, cough, headache, sore throat, painful swallowing, runny nose, unexplained loss of appetite, diarrhea, loss of sense of smell or taste, or small red or purple markings on hands and/or feet. Exposure to someone who has been confirmed or who has travelled outside of the province is also considered. <p>How to screen/how to support the screening</p> <ul style="list-style-type: none"> ● Online self-assessment survey and telehealth support to triage individuals for testing |
| Yukon | <p>What to use in screening</p> <ul style="list-style-type: none"> ● Government of the Yukon has established an online self-assessment for COVID-19 which includes questions related to the following symptoms: severe difficulty breathing; severe chest pain; having a hard time waking up; feeling confused; lost consciousness; shortness of breath at rest; inability to lie down because of difficulty breathing; chronic health conditions that are difficult to manage because of difficulty breathing; fever; chills; sore throat or hoarse voice; headache; runny nose or nasal congestion; gastrointestinal symptoms such as vomiting or diarrhea; fatigue or muscle aches; or loss of sense of taste and/or smell <ul style="list-style-type: none"> ○ In addition, the self-assessment asks about: contact history including providing care to someone who has been diagnosed with COVID-19; and recent travel history outside of the Yukon <p>How to do symptom screening</p> <ul style="list-style-type: none"> ● When entering into the Yukon, individuals will be asked by a government official to confirm that they have not had any symptoms consistent with COVID-19 (see list above) |
| Northwest Territories | <p>What to use in screening</p> |

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| | <ul style="list-style-type: none"> • Government of Northwest Territories has established an online self-assessment for COVID-19 which includes the following symptoms: difficulty breathing; chest pain; having a very hard time waking up; fainted or lost consciousness; difficulty managing your daily life because of breathing difficulties; fever; new or worsening cough; shortness of breath; tiredness; generally feeling unwell; sore throat; muscle aches; runny nose; headache; vomiting; diarrhea; loss of sense of smell/taste; and loss of appetite <ul style="list-style-type: none"> ○ In addition, the assessment asks about recent travel history both internationally and within Canada; contact history with someone who has or is being investigated for COVID-19; lab exposure to biological material; attended a mass gathering; living or working in a facility experiencing a COVID-19 outbreak <p>How to do symptom screening</p> <ul style="list-style-type: none"> • Oil and gas workers before returning to their workplace are required to complete a workplace risk-assessment form as well as complete a health screening that includes a temperature check and COVID-19 symptom inquiry <ul style="list-style-type: none"> ○ In addition, a daily symptom inquiry is administered prior to the start of each shift |
| Nunavut | <p>What to use in screening</p> <ul style="list-style-type: none"> • Government of Nunavut has established an online self-assessment for COVID-19 which asks individuals whether they have experienced any of the following symptoms: severe difficulty breathing; severe chest pain; having a hard time waking up; feeling confused; losing consciousness; mild to moderate shortness of breath at rest; inability to lie down because of difficulty breathing; chronic health conditions that are difficult to manage because of difficulty breathing; fever; new onset or worsening cough; sneezing; sore throat <ul style="list-style-type: none"> ○ In addition, the assessment asks: about recent travel history both internationally and within Canada; care providing for an individual who is being testing for COVID-19 or has been diagnosed; and contact with a person who has travelled outside Nunavut and has become sick |

Wilson MG, Waddell K, Gauvin FP, Mansilla, C, Moat KA, Wang Q, Lavis JN. COVID-19 rapid evidence profile #10: What screening approaches can be used in non-healthcare settings (e.g., universities, stores and office settings) to identify people who may have COVID-19 and need to take appropriate action? Hamilton: McMaster Health Forum, 15 May 2020.

The McMaster Health Forum is one of the three co-leads of RISE, which is supported by a grant from the Ontario Ministry of Health to the McMaster Health Forum. To help Ontario Health Team partners and other health- and social-system leaders as they respond to unprecedented challenges related to the COVID-19 pandemic, the Forum is preparing rapid evidence responses like this one. The opinions, results and conclusions are those of the McMaster Health Forum and are independent of the ministry. No endorsement by the ministry is intended or should be inferred.

The authors declare that they have no professional or commercial interests relevant to the rapid evidence profile. The funders played no role in the identification, selection, assessment, synthesis, or presentation of the research evidence or experiences profiled in the rapid evidence profile.



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Appendix 1: Methodological details

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

Identifying research evidence

For each REP, we search our continually updated [guide to key COVID-19 evidence sources](#) for:

- 1) guidelines developed using a robust process (e.g., GRADE);
- 2) full systematic reviews;
- 3) rapid reviews;
- 4) guidelines developed using some type of evidence synthesis and/or expert opinion;
- 5) protocols for reviews or rapid reviews that are underway
- 6) titles/questions for reviews that are being planned; and
- 7) single studies (when no guidelines, systematic reviews or rapid reviews are identified).

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

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

Identifying experiences from other countries and from Canadian provinces and territories

For each rapid evidence profile we collectively decide on what countries to examine based on the question posed. For international jurisdictions we search relevant sources included in our continually updated guide to key COVID-19 evidence sources. These sources include government-response trackers that document national responses to the pandemic. In addition, we conduct searches of relevant government and ministry websites. In Canada, we search websites from relevant federal and provincial governments, ministries and agencies (e.g., Public Health Agency of Canada).

While we do not exclude countries based on language, where information is not available through the government-response trackers, we are unable to extract information about countries that do not use English, Chinese, French or Spanish as an official language.

Assessing relevance and quality of evidence

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

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

Preparing the profile

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

Appendix 2: Evidence documents that address the question, organized by document type and sorted by relevance to the question and COVID-19

| Type of document | Relevance to question | Focus | Recency or status |
|---|---|--|----------------------------|
| Guidelines developed using a robust process (e.g., GRADE) | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/ difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat ▪ Sudden loss of taste and/or smell | <p>The most common presenting symptoms of COVID-19 were cough (86%), fever or chills (85%), shortness of breath (80%), diarrhea (27%), and nausea (24%), but other reported symptoms have included anosmia. (National Institutes of Health)</p> | Last updated 12 May 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Screening using a questionnaire administered by another person ○ How to do temperature checking | <p>Institutions of Higher Education recommend that student health services should update screening forms with a more detailed list of symptoms (e.g., chills, repeated shaking with chills, muscle pain, headache, sore throat, anosmia, dysgeusia, and any other COVID-19 symptoms), screen all patients and staff for respiratory symptoms and check temperature (ideally with infrared or laser devices) before entering the clinic, and consider implementing pre-participation screening and evaluation of student athletes (American College Health Association)</p> | Last updated 7 May 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/ difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat | <p>The symptoms of COVID-19 vary, but may include ageusia and anosmia (American College of Occupational and Environmental Medicine)</p> | Last updated 24 April 2020 |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|---|--|-----------------------------------|
| | <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell | | |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage ▪ Self-screening using a questionnaire | <p>Employees conducting inspections in food businesses need to be aware of and recognize the symptoms of COVID-19, so that they can self-report and exclude themselves from work (WHO technical guidance)</p> | <p>Last updated 22 April 2020</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage ▪ Self-screening using a questionnaire | <p>Employees working in the food sector need to be aware of the symptoms of COVID-19 and refer to written guidance by their employers on reporting such symptoms and on exclusion from work policies (World Health Organization and Food and Agriculture Organization of the United Nations)</p> | <p>Last updated 7 April 2020</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat | <p>The typical symptoms for patients with COVID-19 are cough, fever and fatigue, but they may also have breathlessness, muscle aches, sore throat, headache and loss of sense of smell (anosmia). (National Institute for Health and Care Excellence)</p> | <p>Last updated 3 April 2020</p> |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|---|---|-----------------------------------|
| | <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell | | |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ○ Signs <ul style="list-style-type: none"> ▪ Temperature • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage ▪ Self-screening using a questionnaire ▪ Screening using a questionnaire administered by another person ○ How to do temperature checking | <p>Ill travellers may be screened through self-reporting, visual observation, or temperature measurement (WHO technical guidance)</p> | <p>Last updated 19 March 2020</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening | <p>Upon admission to prisons and other places of detention, all individuals should be screened for fever and lower respiratory tract symptoms, and any other symptoms compatible with COVID-19 using self-reporting questionnaires (WHO Regional Office for Europe)</p> | <p>Last updated 15 March 2020</p> |

| Type of document | Relevance to question | Focus | Recency or status |
|-------------------------|---|---|-------------------------------------|
| | <ul style="list-style-type: none"> ▪ Screening using a questionnaire administered by another person | | |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage | Parents should recognize the symptoms of COVID-19 (e.g., coughing, fever, shortness of breath) in their child and keep them home from school and notify the school of their absence and symptoms (UNICEF, WHO and IFRC) | Last updated March 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms | U.S. Institutions of Higher Education are not expected to screen students, staff or faculty to identify cases of COVID-19, which is the responsibility of local health officials (U.S. CDC) | Last updated 18 March 2020 |
| Full systematic reviews | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Sudden loss of taste and/or smell (anosmia) ▪ GI symptoms ▪ Fatigue | Presenting symptoms varied widely but, in combination, anosmia, fever, fatigue, persistent cough, diarrhea, abdominal pain and loss of appetite have a reasonable specificity for COVID-19 diagnosis, but the symptoms can have rapid cessation or late onset and some people will also be asymptomatic (AMSTAR rating 1/9) | Last updated 1 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell | Anosmia is indicative of COVID-19 infection and should be carefully monitored among healthcare workers | Literature last searched March 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature | Exit and entry screening practices at borders have been relatively ineffective at detecting cases in previous pandemics (e.g., Ebola; H1N1; and SARS), however may have positive behavioural effects on discouraging travel of ill persons, raising awareness | Literature last searched May 2018 |

| Type of document | Relevance to question | Focus | Recency or status |
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| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | Evidence about the accuracy of tympanic thermometers, thermal scanners and infrared skin thermometers is equivocal | Literature last searched 15 October, 2014 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | Non-contact infrared thermometers have limited efficacy to detect symptomatic international travellers at airports during the early stages of pandemic influenza, and additional factors such as symptom masking, asymptomatic travellers can impair temperature-screening strategies | Literature last searched August 2009 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing | Fever and respiratory symptoms should not be used as a hallmark of COVID-19 in children | Literature last searched 30 March 2020 (pre-print) |
| Rapid reviews | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Screening using a questionnaire administered by another person ○ How to do temperature checking | Temperature-screening programs using infrared temperature-screening devices with or without questionnaires for mass screening of those entering health facilities is ineffective for detecting infected persons due to environmental temperatures, false answers, and the use of fever-reducing drug (AMSTAR rating 3/10) | Last updated 20 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Cough ▪ Fever ▪ Headache ▪ Sore throat | In mild and moderate cases, cough was present in less than half of cases, fever was the most frequent reported symptom, and other reported symptoms included dyspnea, headache, diarrhea, sore throat, fatigue and rhinorrhea | Published on 1 April 2020 |

| Type of document | Relevance to question | Focus | Recency or status |
|--|--|--|-----------------------------------|
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | Limited evidence suggests changes in olfactory sensation is a feature of COVID-19 and clinicians are encouraged to incorporate questions around loss of olfactory sensation into their clinical practice when assessing patients with suspected COVID-19 (AMSTAR rating 3/9) | Last updated 23 March 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | Anosmia has been reported in suspected or confirmed COVID-19 patients around the world, and (despite the limited research evidence) some public-health authorities recommend adding it to the list of COVID-19 symptoms (AMSTAR rating 3/9) | Last updated 31 March 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | While asymptomatic subjects have similar viral loads to symptomatic patients, thermal infrared screening seems to lack sensitivity to detect COVID-19 cases when used in community settings (AMSTAR rating 2/10) | Search conducted on 9 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs | There is an absence of evidence around the impact and value of screening asymptomatic people in priority groups or populations | Last updated 29 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody test | Evidence to confirm that COVID-19 immunity to protect for reinfection is lacking | Search conducted on 17 April 2020 |
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ Digital approaches for screening or supporting screening | Several validated tools are available to diagnose respiratory illness via telehealth | Search conducted on 15 April 2020 |
| Guidelines developed using some type of evidence synthesis and/or expert opinion | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms | An up-to-date tracker provides signs and symptoms for severe and non-severe COVID-19 (Centre for Evidence-Based Medicine) | Last update 29 March 2020 |
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | Evidence shows that non-contact infrared temperature screening is ineffective to detect COVID-19 for travellers (CADTH) | Published on 6 May 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody test | There is a need for prudent use of SARS-CoV-2 antibody testing to avoid over-interpreting and false assumptions (Emergency Care Research Institute, ECRI) | Published on 13 April 2020 |

| Type of document | Relevance to question | Focus | Recency or status |
|--|---|---|---|
| Protocols for reviews or rapid reviews that are underway | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody test | Antibody tests for identification of current and past infection with SARS-CoV-2 | In development |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms ○ Signs | Signs and symptoms to determine if a patient presenting in general practice or at the emergency department has COVID-19, COVID-19 pneumonia or severe COVID-19 pneumonia/acute respiratory distress syndrome (ARDS) requiring ICU admission | In development |
| Titles/questions for reviews that are being planned | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat ▪ Sudden loss of taste and/or smell (anosmia) ○ Signs <ul style="list-style-type: none"> ▪ Temperature ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody test ○ Other • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage ▪ Self-screening using a questionnaire ▪ Screening using a questionnaire administered by another person ○ How to do temperature checking | What is the most effective Covid-19 screening strategy? | Question in development (added 25 March 2020) |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|---|--|--|
| | <ul style="list-style-type: none"> ○ Digital approaches for screening or supporting screening • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat ▪ Sudden loss of taste and/or smell (anosmia) ○ Signs <ul style="list-style-type: none"> ▪ Temperature ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody test ○ Other • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage ▪ Self-screening using a questionnaire ▪ Screening using a questionnaire administered by another person ○ How to do temperature checking ○ Digital approaches for screening or supporting screening | <p><u>Population screening as an option for the long-term isolation of COVID-19 in the entire population</u></p> | <p>Question in development (added 25 March 2020)</p> |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|--|---|----------------------------------|
| | <ul style="list-style-type: none"> ● What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat ▪ Sudden loss of taste and/or smell (anosmia) ○ Signs <ul style="list-style-type: none"> ▪ Temperature ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody test ○ Other | Clinical markers or scoring systems that can be used to help in diagnosis or assessment of severity of COVID-19 infection | Question under review |
| Primary studies | <ul style="list-style-type: none"> ● What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat ▪ Sudden loss of taste and/or smell (anosmia) | The three best predictors of COVID-19 infection are loss of smell, skipped meals and fatigue, with cough being common but often present in people who do not have COVID-19 | Published 11 May 2020 |
| | <ul style="list-style-type: none"> ● How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | Geospatial thermometer networks may be useful for identifying anomalously elevated levels of influenza-like illness to help forecast COVID-19 spread and outbreaks in real time | Posted 10 April 2020 (pre-print) |
| | <ul style="list-style-type: none"> ● What to use in screening <ul style="list-style-type: none"> ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody test | Antibody-based rapid tests should not be relied upon for SARS-CoV-2 screening in community settings | Published 18 April 2020 |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|---|--|--|
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening using a questionnaire ▪ Screening using a questionnaire administered by another person ▪ Digital approaches for screening or supporting screening | <p>A walk-through (WT) screening centre using negative pressure booths has been designed and implemented in South Korea for COVID-19 screening and has been found to increase patient access to the screening clinics, adequately protect healthcare personnel, reduce consumption of personal protective equipment, increase the number of people tested by 9–10 fold, but increase risk of cross-infection at each stage of screening which can be overcome using mobile technology and increasing the number of booths to reduce congestion inside the centre, reducing booth volume for sufficient and rapid ventilation, and using an effective, harmless, and certified environmental disinfectant</p> | Published 9 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | <p>Self-reported olfactory or taste disorders were found to have high specificity as a screening criterion for COVID-19 in an Asian cohort where patients with COVID-19 appeared to have higher odds of olfactory or taste disorders compared to those positive for other respiratory viruses and, as a result, routine screening in patients with new-onset olfactory or taste disorders can improve case detection</p> | Published 24 April 2020 (letter to the editor) |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Sudden loss of taste and/or smell | <p>Anosmia, muscle ache, ocular pain, general malaise, headache, extreme tiredness and fever are strongly associated with COVID-19 positive tests, and can contribute to targeted screening strategies for healthcare workers</p> | Published 23 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) • How to screen/how to support the screening <ul style="list-style-type: none"> ○ Self-screening using a questionnaire | <p>New onset smell/taste disorders were found to occur significantly more frequently among COVID-19 patients than influenza patients, were typically characterized by acute onset and were an initial manifestation, and this symptom is therefore likely helpful to identify COVID-19 and aid in individuals' decision-making about self-isolation</p> | 22 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms | <p>A relationship between COVID-19 and anosmia should be considered during the pandemic</p> | Published 21 April 2020 |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|--|---|--|
| | <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | | |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | Quantitative smell testing demonstrates that decreased smell function, but not always anosmia, is a major marker for COVID-19 and suggests the possibility that smell testing may help, in some cases, to identify COVID-19 patients in need of early treatment or quarantine | Published 17 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat ○ Other | In a cohort of healthcare professionals (HCP) in King County, Washington, screening only for fever, cough, shortness of breath, or sore throat might have missed 17% of symptomatic HCP at the time of illness onset, and expanding criteria for symptom screening to include myalgias and chills may still have missed 10% | Published 17 April 2020 (research letter) |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | Recently, a probability of association between COVID-19 and altered olfactory function has been reported in South Korea, Iran, Italy, France, the U.K. and the United States, but a definitive association between COVID-19 and anosmia has not been established | Published 14 April 2020 (letter to the editor) |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | Acute anosmia or ageusia was observed in 15.3% (488/3,191) patients in the early stage of COVID-19 and in 15.7% (367/2,342) patients with asymptomatic-to-mild disease severity | Published 3 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | In the absence of other respiratory conditions, anosmia and dysgeusia should be carefully evaluated, and special attention should be given to patients with non-classic COVID-19 symptoms in order to reduce transmission and protect health providers (based on case evaluation of elderly patients) | Published 3 April 2020 |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | In a non-negligible number of patients, especially if paucisymptomatic, ageusia and anosmia can represent the first or the only symptomatology manifestation | Published 1 April 2020 |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|---|--|---|
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature | Thermal screening at airports has a 54% COVID-19 detection rate as compared to 72% with COVID-19 infection having a positive sputum test (3.5% with a positive sputum test will not have COVID-19), and therefore the thermal scan screening technique should be complemented with rapid sputum testing | Published 29 March 2020 (letter to the editor) |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | Screening for temperature with a non-contact infrared thermometer using wrist measurements may be more stable than forehead measurements, although both are suitable for indoor patients | Posted 6 March 2020 (pre-print) |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature | Exit or entry screening at airports for initial symptoms, via thermal scanners or similar, is unlikely to prevent passage of infected travellers into new countries or regions where they may seed local transmission | Published 6 February 2020 |
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening using a questionnaire ▪ Screening using a questionnaire administered by another person ○ Digital approaches for screening or supporting screening | A clinical website (https://1922.net.nsysu.edu.tw/) was developed in Taiwan to assist clinicians and ordinary people in judging whether a person matches reporting criteria for COVID-19, and also provides instructions for quarantine regulations under selected circumstances, following Taiwan CDC guidelines | Published 9 April (letter) |
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage ▪ Self-screening using a questionnaire | Under best-case assumptions, screening travellers will miss more than half of infected people, and most cases missed by screening are fundamentally undetectable because they have not yet developed symptoms and are unaware they were exposed | Research advance (non-peer reviewed) posted on 24 February 2020 |

| Type of document | Relevance to question | Focus | Recency or status |
|------------------|---|--|--|
| | <ul style="list-style-type: none"> ▪ Screening using a questionnaire administered by another person | | |
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Self-screening prompted by (passive) signage ▪ Self-screening using a questionnaire ▪ Screening using a questionnaire administered by another person | <p>There is a high sensitivity (100%) for screening for any infections, but low sensitivity for screening for specific disease, which was found to result in a false positive rate of 91.67% in Wuhan, China</p> | <p>21 February 2020 (letter to the editor)</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | <p>A medical record showing high suspicion for COVID-19 infection based on well-known symptoms also reported total anosmia and ageusia</p> | <p>13 April 2020</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | <p>Isolated sudden onset anosmia is identified as a fourth common syndrome of COVID-19 infection based on a single case</p> | <p>Published 2 April 2020</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat | <p>Early recognition of COVID-19 from single-centre data from a Shanghai screening hospital</p> | <p>Published 1 April 2020</p> |

Appendix 3: Abstracts for highly relevant documents

Note that the table below only includes the abstracts for the documents that we identified in Table 1 as being highly relevant to the question.

| Type of document | Relevance to question | Abstract and link to full text |
|------------------------|---|--|
| Full systematic review | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Sudden loss of taste and/or smell (anosmia) ▪ GI symptoms ▪ Fatigue | <p>Presenting symptoms varied widely but, in combination, anosmia, fever, fatigue, persistent cough, diarrhea, abdominal pain and loss of appetite have a reasonable specificity for COVID-19 diagnosis, but the symptoms can have rapid cessation or late onset and some people will also be asymptomatic</p> <p>Key findings</p> <ul style="list-style-type: none"> • Cough was observed in less than half of the mild cases in the largest included study and in two thirds of cases in a systematic review, suggesting it is unreliable as a key diagnostic symptom • Fever (of over 39.1 degrees Celsius) was the most frequent symptom for mild and moderate cases of COVID-19, though a recent U.K. study suggests anosmia may be a stronger predictor of COVID-19 than self-reported fever amongst people in the community • Overall, we found scarce and inconclusive evidence on symptoms that easily distinguish mild and moderate cases of COVID-19 from severe cases • The majority of available evidence was from hospitalized patients. Mild and moderate cases were usually defined as those without pneumonia, acute respiratory distress syndrome or Intense Care Unit admission. Applicability to community cohorts is therefore uncertain. |
| Rapid reviews | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs <ul style="list-style-type: none"> ▪ Temperature • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening <ul style="list-style-type: none"> ▪ Screening using a questionnaire administered by another person | <p>Temperature-screening programs using infrared temperature-screening devices with or without questionnaires for mass screening of those entering health facilities is ineffective for detecting infected persons due to environmental temperatures, false answers, and the use of fever-reducing drug</p> <p>Key messages</p> <p>Temperature-screening programs using IR alone or with a questionnaire for mass screening are ineffective for detecting infected persons, based on our review of evidence from two large systematic reviews (SRs), three simulation studies, and six diagnostic cohort studies (not included in the SRs). Under best-case scenarios, simulation studies suggest such screening will miss more than half of infected individuals. They are ineffective for mass screening because of the low number of infected individuals who have fever at the time of screening and inconsistent technique by operators. Several authors concluded that IR thermometry even when used with a questionnaire was not reliable for screening due to environmental temperatures, false answers to questionnaires, and use of fever-reducing drugs. Using such an approach to reduce infection risk from visitors and staff entering healthcare facilities could provide a false sense of safety.</p> <p>Evidence limitations and strengths: The evidence base is fairly large and up to date. The effectiveness of airport screening with IR devices has been examined in a recent SR with 27 studies, and the</p> |

| Type of document | Relevance to question | Abstract and link to full text |
|------------------|---|--|
| | | <p>effectiveness of IR device screening has been examined in an SR with 20 studies and 11 additional studies identified in our searches. Most of the studies were conducted outside the United States, but two of the newest diagnostic cohort studies were conducted in the United States. Variations across studies are due primarily to variations in the devices used both for noncontact IR measurements and standard reference temperature measurements.</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | <p>Limited evidence suggests changes in olfactory sensation is a feature of COVID-19 and clinicians are encouraged to incorporate questions around loss of olfactory sensation into their clinical practice when assessing patients with suspected COVID-19 (AMSTAR rating 3/9)</p> <p>Key messages The current evidence base to suggest changes in olfactory sensation is a feature of COVID-19 is limited and inconclusive. More evidence is required to establish whether there is a link between changes in olfaction and COVID-19; we therefore encourage clinicians to incorporate questions around loss of olfactory sensation into their clinical practice when assessing patients with suspected COVID-19.</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Sudden loss of taste and/or smell (anosmia) | <p>Anosmia has been reported in suspected or confirmed COVID-19 patients around the world, and (despite the limited research evidence) some public-health authorities recommend adding it to the list of COVID-19 symptoms (AMSTAR rating 3/9)</p> <p>Based on the information available at the time of writing, despite the uncertainty existing in this documentation and in the review process used, it appears that:</p> <ul style="list-style-type: none"> • Several sources of information report a significant number of clinical pictures of anosmia in suspected or confirmed COVID-19 patients around the world In the case of an infection with the new coronavirus, the loss of smell would occur suddenly without nasal obstruction, and sometimes accompanied by a disappearance of taste (ageusia) • The onset of this symptom would generally be seen in young patients with "mild" forms of COVID-19 disease • Loss of smell could occur in isolation without inflammation and without being associated with commonly recognized symptoms of fever and cough • Although this evidence is not yet supported by scientific studies, some French, British and American associations call on the authorities to advise anyone with a loss of smell or taste to isolate themselves and confine themselves as a precaution. Some even recommend adding this symptom to the list of recognized criteria for screening for possible COVID-19 infection • Contrary to what is done in the case of a classic anosmia, French companies recommend not to administer corticosteroid therapy and to refrain from performing nasal washes. <p>[McMaster Health Forum translation]</p> |

| Type of document | Relevance to question | Abstract and link to full text |
|--|--|--|
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | <p>While asymptomatic subjects have similar viral loads to symptomatic patients, thermal infrared screening seems to lack sensitivity to detect COVID-19 cases when used in community settings</p> <p>In brief</p> <ul style="list-style-type: none"> • Infrared thermal detection systems have been used to quantify skin temperature and provide an assessment of internal body temperature; they have been shown to be accurate in identifying people with no fever but much less so in identifying people with fever • Thermal detection systems have been used in border screening at airports for COVID-19 and in previous pandemics • While fever is a common symptom of COVID-19, early estimates of asymptomatic infections are between 18-42% of patients • According to the World Health Organization (WHO), the virus can initially be detected in upper respiratory samples one to two days prior to symptom onset, suggesting potential pre-symptomatic transmission • Completely asymptomatic subjects display viral loads similar to those of symptomatic patients • A recent study of airport screening for COVID-19 estimated that using thermal screening, 46% of infected travellers would not be detected • Thermal screening will lack sensitivity to reliably detect COVID-19 cases in community settings |
| Primary studies with additional important insights | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Symptoms <ul style="list-style-type: none"> ▪ Fever ▪ Cough ▪ Shortness of breath/difficulty breathing ▪ Headache ▪ Runny nose ▪ Sore throat ▪ Sudden loss of taste and/or smell (anosmia) | <p>The three best predictors of COVID-19 infection are loss of smell, skipped meals and fatigue, with cough being common but often present in people who do not have COVID-19</p> <p>Abstract</p> <p>A total of 2,618,862 participants reported their potential symptoms of COVID-19 on a smartphone-based app. Among the 18,401 who had undergone a SARS-CoV-2 test, the proportion of participants who reported loss of smell and taste was higher in those with a positive test result (4,668 of 7,178 individuals; 65.03%) than in those with a negative test result (2,436 of 11,223 participants; 21.71%) (odds ratio = 6.74; 95% confidence interval = 6.31–7.21). A model combining symptoms to predict probable infection was applied to the data from all app users who reported symptoms (805,753) and predicted that 140,312 (17.42%) participants are likely to have COVID-19.</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Signs | <p>Geospatial thermometer networks may be useful for identifying anomalously elevated levels of influenza-like illness to help forecast COVID-19 spread and outbreaks in real time</p> |

| Type of document | Relevance to question | Abstract and link to full text |
|------------------|--|---|
| | <ul style="list-style-type: none"> ▪ Temperature • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do temperature checking | <p>Abstract Containing outbreaks of infectious disease requires rapid identification of transmission hotspots, as the COVID-19 pandemic demonstrates. Focusing limited public health resources on transmission hotspots can contain spread, thus reducing morbidity and mortality, but rapid data on community-level disease dynamics is often unavailable. Here, we demonstrate an approach to identify anomalously elevated levels of influenza-like illness (ILI) in real-time, at the scale of US counties. Leveraging data from a geospatial network of thermometers encompassing more than one million users across the US, we identify anomalies by generating accurate, county-specific forecasts of seasonal ILI from a point prior to a potential outbreak and comparing real-time data to these expectations. Anomalies are strongly correlated with COVID-19 case counts and may provide an early-warning system to locate outbreak epicenters.</p> |
| | <ul style="list-style-type: none"> • What to use in screening <ul style="list-style-type: none"> ○ Tests <ul style="list-style-type: none"> ▪ Positive antibody | <p>Antibody-based rapid tests should not be relied upon for SARS-CoV-2 screening in community settings</p> <p>Abstract Objective: With the current SARS-CoV2 outbreak, countless tests need to be performed on potential symptomatic individuals, contacts and travellers. The gold standard is a quantitative polymerase chain reaction (qPCR)-based system taking several hours to confirm positivity. For effective public health containment measures, this time span is too long. We therefore evaluated a rapid test in a high-prevalence community setting. Study design: Thirty-nine randomly selected individuals at a COVID-19 screening centre were simultaneously tested via qPCR and a rapid test. Ten previously diagnosed individuals with known SARS-CoV-2 infection were also analysed. Methods: The evaluated rapid test is an IgG/IgM-based test for SARS-CoV-2 with a time to result of 20 min. Two drops of blood are needed for the test performance. Results: Of 49 individuals, 22 tested positive by repeated qPCR. In contrast, the rapid test detected only eight of those positive correctly (sensitivity: 36.4%). Of the 27 qPCR-negative individuals, 24 were detected correctly (specificity: 88.9%). Conclusion: Given the low sensitivity, we recommend not to rely on an antibody-based rapid test for public health measures such as community screenings.</p> |
| | <ul style="list-style-type: none"> • How to screen/how to support the screening <ul style="list-style-type: none"> ○ How to do the symptom screening | <p>A walk-through (WT) screening centre using negative pressure booths has been designed and implemented in South Korea for COVID-19 screening, and has been found to increase patient access to the screening clinics, adequately protect healthcare personnel, reduce consumption of personal protective equipment, increase the number of people tested by 9–10 fold, but increase risk of cross-infection at each stage of screening which can be overcome using mobile technology and increasing the number of booths to reduce congestion inside the centre, reducing booth volume for sufficient and rapid ventilation, and using an effective, harmless, and certified environmental disinfectant</p> |

| Type of document | Relevance to question | Abstract and link to full text |
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| | <ul style="list-style-type: none"> ▪ Self-screening using a questionnaire ▪ Screening using a questionnaire administered by another person ▪ Digital approaches for screening or supporting screening | <p>Abstract</p> <p>With the ongoing novel coronavirus disease 2019 (COVID-19) pandemic, the number of individuals that need to be tested for COVID-19 has been rapidly increasing. A walk-through (WT) screening center using negative pressure booths that is inspired by the biosafety cabinet has been designed and implemented in Korea for easy screening of COVID-19 and for safe and efficient consultation for patients with fever or respiratory symptoms. Here, we present the overall concept, advantages, and limitations of the COVID-19 WT screening center. The WT center increases patient access to the screening clinics and adequately protects healthcare personnel while reducing the consumption of personal protective equipment. It can also increase the number of people tested by 9–10 fold. However, there is a risk of cross-infection at each stage of screening treatment, including the booths, and adverse reactions with disinfection of the booths. These limitations can be overcome using mobile technology and increasing the number of booths to reduce congestion inside the center, reducing booth volume for sufficient and rapid ventilation, and using an effective, harmless, and certified environmental disinfectant. A WT center can be implemented in other institutions and countries and modified depending on local needs to cope with the COVID-19 pandemic.</p> |

Appendix 4: Documents excluded at the final stages of reviewing

| Type of document | Focus |
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| Guidelines developed using a robust process (e.g., GRADE) | Not applicable |
| Full systematic reviews | Gastrointestinal manifestations of SARS-CoV-2 infection and virus load in fecal samples from the Hong Kong cohort and systematic review and meta-analysis. |
| Rapid reviews | Molecular and antibody point-of-care tests to support the screening, diagnosis and monitoring of COVID-19 Preventing the transmission of Coronavirus (COVID-19) in older adults aged 60 years and above living in long term care: A rapid review Testing for COVID-19 in correctional facilities: Clinical effectiveness and guidelines |
| Guidance developed using some type of evidence synthesis and/or expert opinion | Not applicable |
| Protocols for reviews that are underway | Anosmia and ageusia of coronavirus disease 2019 Anosmia or dysgeusia in COVID-19 Effectiveness of mass testing for control of COVID-19 |
| Titles/questions for reviews that are being planned | Not applicable |
| Single studies in areas where no reviews were identified | Clinical characteristics of 24 asymptomatic infections with COVID-19 screened among close contacts in Nanjing, China Rapid point-of-care testing for COVID-19 in a community screening setting shows low sensitivity Screening and severity of coronavirus disease 2019 (COVID-19) in children in Madrid, Spain Universal screening for SARS-CoV-2 in women admitted for delivery What can early Canadian experience screening for COVID-19 teach us about how to prepare for a pandemic? Anosmia in a healthcare worker with COVID-19 in Madrid, Spain Responding to the COVID-19 outbreak in Singapore: Staff protection and staff temperature and sickness surveillance systems |

[Gastrointestinal infection could be new focus for coronavirus diagnosis](#)

[Digestive symptoms in COVID-19 patients with mild disease severity: Clinical presentation, stool viral RNA testing, and outcomes](#)

[The use of google trends to investigate the loss of smell related searches during COVID-19 outbreak](#)

[Evaluation of a COVID-19 IgM and IgG rapid test: An efficient tool for assessment of past exposure to SARS-CoV-2](#)