

## Evidence check

7 December 2020

Rapid evidence checks are based on a simplified review method and may not be entirely exhaustive, but aim to provide a balanced assessment of what is already known about a specific problem or issue. This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.

## Routine border screening

### Evidence check question

1. What is the evidence or existing policy for routine asymptomatic screening for COVID-19 in exposed workers at border settings (such as airports, seaports, hotel quarantine)?
  - a. Is there evidence for which workers should be screened (such as all staff, cleaning staff, compliance staff, security, catering, health)?
  - b. What is the most effective frequency of screening?
  - c. What is the most effective type of screening (such as saliva, nasopharyngeal swabs, serology)?

### In brief

#### Peer reviewed literature

- No studies were identified in the peer reviewed literature for routine asymptomatic screening for COVID-19 in exposed workers at border settings. Many articles on asymptomatic screening for travellers were identified, but not included in this review.

#### Grey literature and news

- Many documents outline action plans, including monitoring and reporting of COVID-19 symptoms of workers and encouraging testing if workers have symptoms, without mentioning routine testing.
- In Australia, hotel quarantine has been identified as a major risk for the reintroduction of COVID-19 to Australia and as a result, state health authorities have introduced weekly testing of quarantine staff.
- Asymptomatic workers at Western Australia's borders and in quarantine hotels will be able to take up weekly COVID-19 testing (from 11 September until 30 November). This includes testing staff at:
  - quarantine hotels including; hotel employees, security staff working at the hotel, health staff, drivers of transport of quarantine guests, WA police and others such as the defence force
  - Perth airport including; workers on site, airport or airline staff, WA police, security, federal agencies, drivers of hotel quarantine buses

- sea ports and border crossings including; anyone involved with close contact of people arriving from overseas or interstate.
- In New Zealand, an asymptomatic testing program for higher-risk workers includes:
  - managed quarantine facilities and transport (testing once every 7 days)
  - managed isolation facilities and transport (testing once every 14 days)
  - Ports of Auckland, Port of Tauranga and Auckland International Airport (testing once every 14 days)
  - people who work in managed isolation or quarantine facilities, including those who drive people entering the country from the airport to the facilities, border workers in customs, biosecurity, immigration and aviation security at airports, people who clean in areas used by arriving travellers, or who clean the aircraft, and people working in airside services such as food-halls where people in transit may be waiting. Border workers at maritime ports such as ship pilots, stevedores and those providing seafarer welfare support as well as people working in customs, immigration and public health at maritime ports and air crew.
- In Singapore, staff at Changi Airport who come into close contact with passengers are tested for COVID-19 every two weeks.
- The United States
  - Department of Transportation have guidance for air carriers and staff based around health monitoring and screening for symptoms at the start of duty
  - Delta airlines announced it will start offering rapid response COVID-19 tests to its flight attendants. The optional tests will be performed by a clinician via nasal swab with results taking fewer than 15 minutes (news article)
  - In high-density critical infrastructure workplaces, the Centers for Disease Control and Prevention recommend a risk-based approach to testing co-workers of a person with confirmed COVID-19. General practices should include pre-screening (temperature and symptom assessment) and regular monitoring of symptoms.

## Limitations

Guidance on border screening should be interpreted in the context of disease prevalence and this information is rarely provided by the included publications. This review includes international publications from grey literature, where targeted searches were done on specific countries, but this may not be complete. Articles included in this review vary in type and quality, and due to a lack of relevant findings, low level evidence and news articles have been included. The evidence behind how these decisions are made is not generally described in the publications and articles.

## Background

In Australia, following a second outbreak of COVID-19 linked to overseas travellers in supervised isolation, staff working at quarantine hotels and other facilities will be subject to mandatory weekly COVID-19 tests as reported by [ABC news](#).

The United States Department of Labor provided examples of border protection and transportation security work tasks associated with exposure risk levels.

- Lower: administrative duties and routine border security in non-public areas of work sites

- Medium: routine border security activities and transportation security screening activities at passenger check points
- High: entering rooms where travellers with suspected COVID-19 have been isolated or physical contact with travellers with suspected COVID-19
- Very high: not applicable for most anticipated tasks.

Centers for Disease Control and Prevention in the United States have guidance for border health which focuses on testing travellers rather than workers. General principles include:

- adjusting screening processes according to current local needs
- considerations for capacities needed to implement including legal and regulatory authority, funding, housing, healthcare and communication.

Screening travellers for COVID-19 at border entries is well described through the grey literature. Temperature screening alone, at exit or entry, is not an effective way to stop international spread, as infected individuals may be in incubation period as it may not express apparent symptoms early in the course of the disease.(1)

## Methods (Appendix 1)

PubMed and grey literature were searched on the 19 November 2020. For grey literature searches, targeted searches for individual countries were carried out. Targeted countries searched included Germany, Hong Kong, Japan, New Zealand, Norway, Singapore, South Korea, Spain, the United Kingdom (2), Australia and the United States. Some articles not on routine testing but on information for border workers were also included in Table 2.

**Table 1: Grey literature routine testing**

Source	Summary
<b>Australia</b>	
<p data-bbox="145 427 448 528"><a href="#">New COVID-19 testing for border workers and hotel quarantine staff</a></p> <p data-bbox="145 595 381 712">Government of Western Australia September 2020</p>	<ul style="list-style-type: none"> <li data-bbox="536 434 1302 533">• Workers at Western Australia's borders and in quarantine hotels who display no symptoms of COVID-19 will be able to take up weekly COVID-19 testing.</li> <li data-bbox="536 555 1294 618">• The new volunteer testing program, DETECT Borders, will run from 11 September until 30 November 2020.</li> <li data-bbox="536 640 1326 801">• People who fit the criteria for asymptomatic testing can resume normal activities immediately and will be informed of a negative result via SMS. Anyone who tests positive will be followed up in line with existing public health procedures.</li> <li data-bbox="536 824 1318 922">• People who are eligible for testing include adult workers who display no symptoms of COVID-19 and are working or contracted at:             <ul style="list-style-type: none"> <li data-bbox="632 945 1307 1003">○ <b>State Health Incident Control Centre (SHICC) quarantine hotels</b> <ul style="list-style-type: none"> <li data-bbox="727 1025 1294 1057">▪ Hotel employees (including contractors)</li> <li data-bbox="727 1061 1214 1093">▪ Security staff working at the hotel</li> <li data-bbox="727 1097 927 1128">▪ Health staff</li> <li data-bbox="727 1133 1302 1164">▪ Drivers of transport of quarantine guests</li> <li data-bbox="727 1169 911 1200">▪ WA Police</li> <li data-bbox="727 1205 1291 1263">▪ Others, such as the Australian Defence Force.</li> </ul> </li> <li data-bbox="632 1263 863 1294">○ <b>Perth Airport</b> Workers on-site at Perth Airport in areas through which arriving passengers (or their baggage) transit.                     <ul style="list-style-type: none"> <li data-bbox="727 1413 1126 1444">▪ Perth Airport or airline staff</li> <li data-bbox="727 1449 911 1480">▪ WA Police</li> <li data-bbox="727 1485 879 1516">▪ Security</li> <li data-bbox="727 1520 999 1552">▪ Federal agencies</li> <li data-bbox="727 1556 1214 1588">▪ Drivers of hotel quarantine buses.</li> </ul> </li> <li data-bbox="632 1588 807 1619">○ <b>Seaports</b> <ul style="list-style-type: none"> <li data-bbox="727 1630 1286 1760">▪ Any employee or contractor involved in any function of a seaport that involves close contact with people arriving from overseas.</li> </ul> </li> <li data-bbox="632 1783 1230 1814">○ <b>Eucla and Kununurra border crossings</b> <ul style="list-style-type: none"> <li data-bbox="727 1825 1326 1955">▪ Any employee or contractor involved in any function at Eucla or Kununurra border crossings that requires close contact with people arriving from interstate.</li> </ul> </li> </ul> </li> </ul>

Source	Summary
<p><a href="#">Quarantine hotel staff to face mandatory weekly testing</a> ABC news</p>	<ul style="list-style-type: none"> <li>Staff working at quarantine hotels and other facilities will be subject to mandatory weekly coronavirus tests, following a second Australian outbreak of COVID-19 linked to overseas travellers in supervised isolation.</li> </ul>
<p><a href="#">Queensland to begin weekly testing of all staff who work in hotel quarantine, Chief Health Officer says</a> ABC news</p>	<ul style="list-style-type: none"> <li>The Chief Health Officer has announced staff who work in Queensland hotels that are used for COVID-19 quarantine will be tested for coronavirus on a weekly basis.</li> <li>They will start testing staff who have direct contact with people who are in hotel quarantine.</li> </ul>
<b>United States</b>	
<p><a href="#">Migration and Border Health</a> Centers for Disease Control and Prevention 23 June 2020</p>	<ul style="list-style-type: none"> <li>Public health screening occurs in two stages             <ol style="list-style-type: none"> <li>Primary screening, which includes observing travellers for obvious signs of illness, measuring temperature, and collecting information on travel and exposure history</li> <li>Secondary screening, which includes having a healthcare or public health professional (whenever possible) conduct an additional public health assessment of ill or potentially exposed travellers identified through the primary screening process.</li> </ol> </li> <li>Screening processes should be adjusted according to current local needs, for example screening may be most effective early in an outbreak.</li> <li>The following limitations should be kept in mind.             <ul style="list-style-type: none"> <li>Screening is most effective for detecting overtly ill travellers and presymptomatic or asymptomatic travellers may be missed.</li> <li>COVID-19 transmission from presymptomatic and asymptomatic infected persons is known to occur.</li> <li>Obtaining reliable temperature readings is affected by multiple factors.</li> <li>Screening is dependent on travellers behaving in a manner that may conflict with their immediate personal interest.</li> </ul> </li> <li>Considerations about capacities needed to implement public health screening including:             <ul style="list-style-type: none"> <li>legal and regulatory authority for quarantine</li> <li>sufficient funding</li> <li>place to house travellers</li> <li>methods to provide good, water, medication</li> <li>enable communication</li> <li>healthcare facility for each point of entry.</li> </ul> </li> <li>Additional considerations for ground crossing or shipping ports.</li> </ul>

Source	Summary
	<ul style="list-style-type: none"> <li>○ Countries should evaluate their available resources, considering the volume of travellers, type of travellers, connectivity to geographic areas with known community transmission, screening feasibility where it can be done safely and securely.</li> </ul>
<p><a href="#">Testing Strategy for Coronavirus (COVID-19) in High-Density Critical Infrastructure Workplaces after a COVID-19 Case Is Identified</a></p> <p>Centers for Disease Control and Prevention</p> <p>October 21 2020</p>	<ul style="list-style-type: none"> <li>• This document presents different testing strategy options for exposed co-workers when public health organisations and employers determine testing is needed to help support existing disease control measures.</li> <li>• After a COVID-19 case is identified, testing strategies of exposed co-workers may be considered to help prevent disease spread, to identify the scope and magnitude of SARS-CoV-2 infection, and to inform additional prevention and control efforts that might be needed.</li> <li>• Viral (nucleic acid or antigen) testing should be used to diagnose acute infection.</li> <li>• Positive test results indicate the need for exclusion from work and isolation at home.</li> <li>• A risk-based approach to testing co-workers of a person with confirmed COVID-19 may be applied. Such an approach should take into consideration the likelihood of exposure, which is affected by the characteristics of the workplace and the results of contact investigations.</li> <li>• Tier 1 is the highest priority for testing of exposed co-workers. This includes close contacts and co-workers who work during the same shift or overlapping shifts, in the same area, for example on the same line and same room, as one or more of the workers with COVID-19, based on the employer’s assessment of risk in the workplace, such as the layout and size of the room.</li> <li>• Tier 2 is the next highest priority tier for testing. Tier 2 includes workers on the same shift, but in a different area of the facility or operation who may have had an exposure to a worker with confirmed COVID-19.</li> <li>• Tier 1 and Tier 2 testing. This would include testing all exposed workers on the same shift as the worker(s) with confirmed COVID-19, regardless of area of the facility.</li> <li>• Tier 3 includes workers who shared a common space (e.g. a rest room, break room) and therefore exposure to worker(s) with confirmed COVID-19 cannot be definitively ruled out. Testing may be extended to workers in Tier 3 based on contact tracing or on the employer’s concern about overall risk of COVID-19 in the workplace.</li> </ul>
<p><a href="#">Implementing Safety Practices for Critical Infrastructure Workers</a></p>	<ul style="list-style-type: none"> <li>• Critical Infrastructure workers who have had an exposure but remain asymptomatic should adhere to the following practices prior to and during their work shift.</li> </ul>



Source	Summary
<p><a href="#">Who May Have Had Exposure to a Person with Suspected or Confirmed COVID-19</a></p> <p>Centers for Disease Control and Prevention September 11, 2020</p>	<ul style="list-style-type: none"> <li>○ Pre-Screen: employers should measure the employee’s temperature and assess symptoms prior to them starting work. Ideally, temperature checks should happen before the individual enters the facility.</li> <li>○ Regular monitoring: as long as the employee doesn’t have a fever or symptoms, they should self-monitor under the supervision of their employer’s occupational health program.</li> <li>○ PPE</li> <li>○ Social distance</li> <li>○ Disinfect and clean workspaces.</li> </ul>
<p><a href="#">Delta Will Give Flight Attendants Rapid COVID-19 Tests on Demand</a></p> <p>Conde Nast Traveler (news)</p>	<ul style="list-style-type: none"> <li>● Delta Air Lines says it will start offering rapid response COVID-19 tests to its flight attendants.</li> <li>● The optional tests, performed via nasal swab, will be available in crew lounges at Delta's hub airports. Results will take fewer than 15 minutes, according to the airline.</li> </ul>
<b>New Zealand</b>	
<p><a href="#">Covid-19: New testing rules to be enforced for border workers</a></p> <p>RNZ, 19 November 2020</p>	<ul style="list-style-type: none"> <li>● New report indicting new rules from 26 November 2020.                             <ul style="list-style-type: none"> <li>○ Increasing the frequency of testing for ship pilots and some other port workers who carry out work on affected ships, from fortnightly to weekly</li> <li>○ Increasing testing frequency for some workers who carry out work on aircraft that have arrived from outside of New Zealand, from fortnightly to weekly</li> <li>○ Mandatory fortnightly testing for port workers not already covered.</li> </ul> </li> <li>● Mandatory fortnightly testing for airport, airside and landside workers not already covered, who interact with international arriving or transiting passengers.</li> </ul>
<p><a href="#">COVID-19: Epidemic notice and Orders</a></p> <p>Ministry of Health, Manatu Hauora, 11 November 2020</p>	<ul style="list-style-type: none"> <li>● COVID-19 Public Health Response (COVID-19 Testing) Order 2020                             <ul style="list-style-type: none"> <li>○ A new health order came into force at 11:59pm 14 August 2020, requiring those who work at managed isolation and quarantine facilities, at Ports of Auckland and Port of Tauranga</li> </ul> </li> <li>● COVID-19 Public Health Response (Required Testing) Order 2020                             <ul style="list-style-type: none"> <li>○ An amendment - most workers who are required to receive ongoing tests were required to receive a one-off test by 11:59pm on Sunday 6 September.</li> <li>○ Workers who transport people to and from affected ships at the Ports of Auckland and Port</li> </ul> </li> </ul>

Source	Summary
	<p>of Tauranga are now required to receive ongoing tests as well.</p> <ul style="list-style-type: none"> <li>○ Managed quarantine facilities; weekly tests until further notice for workers at the quarantine facilities and workers who transports persons to or from the facility, until further notice.</li> <li>○ Managed isolation facilities; fortnightly tests for workers at the quarantine facilities and workers who transports persons to or from the facility, until further notice.</li> <li>○ Ports of Auckland and Tauranga; fortnightly tests for pilots and stevedores, any person who has boarded an affected ship and any person who transports persons to or from affected ships.</li> <li>○ Auckland airport; fortnightly tests for members airside, government officials, health board worker, retail food and beverage workers, airside, airline, airport and cleaning workers.</li> <li>● COVID-19 Public Health Response (Required Testing) Amendment Order (No 2)             <ul style="list-style-type: none"> <li>○ The COVID-19 Public Health Response (Required Testing) Amendment Order (No 2) 2020 extends the requirement for mandatory testing of certain higher-risk workers to all airports and ports in New Zealand that receive international arrivals.</li> <li>○ Fortnightly tests until further notice for the same ship and airport personnel as above.</li> </ul> </li> <li>● Maritime Border Order.</li> <li>● Air Border Order.</li> </ul>
<p><a href="#">Assessment and testing for COVID-19</a></p> <p>Ministry of Health, Manatu Hauora, as of 30 October 2020</p>	<ul style="list-style-type: none"> <li>● Border workforce groups include:             <ul style="list-style-type: none"> <li>○ people who work in managed isolation or quarantine facilities</li> <li>○ border workers in customs, biosecurity, immigration and aviation security at airports, people who clean in areas used by arriving travellers, or who clean the aircraft, and people working in airside services such as food-halls where people in transit may be waiting</li> <li>○ border workers at our maritime ports such as ship pilots, stevedores, and those providing seafarer welfare support as well as people working in customs, immigration and public health at our maritime ports</li> <li>○ staff who work in managed isolation and quarantine facilities, including those who drive people entering the country from the airport to the facilities</li> </ul> </li> </ul>



Source	Summary																
	<ul style="list-style-type: none"> <li>○ staff who test people who have symptoms consistent with COVID-19</li> <li>○ air crew.</li> <li>● Testing for higher-risk workers                         <ul style="list-style-type: none"> <li>○ Managed quarantine facilities and transport (once every 7 days)</li> <li>○ Managed isolation facilities and transport (once every 14 days)</li> <li>○ Ports of Auckland, Port of Tauranga and Auckland International Airport (once every 14 days).</li> </ul> </li> </ul>																
<p><a href="#">COVID-19 Public Health Response: Testing Overview</a></p> <p>Ministry of Health, Manatu Hauora, as of 30 October 2020</p>	<p><b>COVID-19 Public Health Response: Testing Overview</b></p> <p><b>TESTING STRATEGY OBJECTIVES</b></p> <p>The objectives of the updated testing strategy are to:</p> <ol style="list-style-type: none"> <li>Ensure rapid identification of all cases of COVID-19 to assess and clinically care for them as well as stop any ongoing transmission of infection by isolation, tracing and quarantining their contacts</li> <li>Identify and minimise any undetected community spread in New Zealand and</li> <li>Monitor people at higher risk of exposure to COVID-19 to ensure that protections in place are working</li> <li>Ensure access to testing is effective and equitable for all groups in particular Māori</li> </ol> <p><b>Stream 1</b>  <b>TEST 1</b> People presenting with symptoms consistent with COVID-19      • Healthcare      • CBACs      • Primary Care      If positive, becomes a <b>CASE</b></p> <p><b>Stream 2</b>  <b>TEST 2</b> High Index Susceptible (HIS)      If asymptomatic, and have had any of the following:      • International travel      • Contact with a confirmed or probable case      • Direct contact with a person who has travelled overseas (e.g. Customs and Immigration staff, staff at quarantine/isolation facilities)      • Worked or cleaned at an international airport, shipping vessel or maritime port in area visited by international arrivals, or any other clearing requested by the local Medical Officer of Health      These people are referred to:      • CBACs      • GPs      If positive, becomes a <b>CASE</b></p> <p><b>Stream 3</b>  <b>TEST 3</b> Contacts of cases (Contact Tracing)      This includes symptomatic, and where appropriate asymptomatic testing      These people are referred to:      • CBACs      • GPs      If positive, becomes a <b>CASE</b></p> <p><b>Stream 4</b>  <b>TEST 4</b> Health Intelligence Gathering Surveillance Information      • FluTracker survey      • Healthstat      • GP Sentinel Surveillance</p> <p><b>Testing at the Border</b></p> <p><b>International Arrivals</b></p> <p><b>Health Check on Arrival</b></p> <p><b>Asymptomatic</b></p> <p>Symptomatic → Managed Isolation Facilities (MIF)</p> <p>QUARANTINE (e.g. Jet Park)</p> <p>TEST (On Day 1 and Day 12)</p> <p>If testing is refused, exit delayed until Day 28 in MIF</p> <p>If Positive... → CASE</p> <p>If Negative... → Stay in Quarantine Managed according clinical protocol for clinical care and discharge</p> <p>Contact Tracing Stream 2, Test close contacts/family</p> <p><b>Air Crew</b></p> <p><b>Health Check on Arrival</b></p> <p>Symptomatic → QUARANTINE (as International)</p> <p>Asymptomatic → High Risk Airport / Low/Med Risk Airport</p> <p>Self isolate for 48 hours</p> <p>TEST</p> <p>NEGATIVE → Able to work (Phase 2 only)</p> <p>POSITIVE (Quarantine) → CASE</p> <p>Contact Tracing Stream 2</p> <p>Rolling schedule for asymptomatic testing</p> <p>1. Rolling schedule for asymptomatic testing</p> <p>2. Test via GP / CBAC if becomes symptomatic Stream 1</p> <p><b>Border Staff</b></p> <p><b>Includes:</b></p> <ul style="list-style-type: none"> <li>• Customs staff</li> <li>• Immigration staff</li> <li>• Aviation Security</li> <li>• Bio Security</li> <li>• Cleaning Staff</li> <li>• Airport retail</li> <li>• Transport</li> <li>• Staff at Facilities</li> <li>• Health Staff and testers at Facilities</li> <li>• Maritime border – e.g. Ship pilots</li> </ul> <p>1. DAILY HEALTH CHECK/ HEALTH SURVEY</p> <p>Regular (daily) health checks / health surveys for all staff by employers.</p> <p>If report symptoms → TEST → Via CBAC / GP → Stream 1</p> <p>2. ASYMPTOMATIC TESTING</p> <p>Starting from 10 July, a rolling schedule for testing asymptomatic staff will take place.</p> <p><b>SURVEILLANCE DATA ANALYSIS</b></p> <p>The whole system relies on analysis of data gathered locally and nationally from:</p> <ul style="list-style-type: none"> <li>• The testing and activities outlined above in parts 1 to 4 of the system</li> <li>• Supplementary data attached to the test results</li> <li>• Rapid and comprehensive investigations of a new outbreak, including lessons learned from operational performance locally and nationally, and details of active clusters and activity at the border</li> <li>• A thorough understanding of the individual circumstances at the DfHPHU level, and</li> <li>• Integration of one-off findings from local and international research and experience, and emerging evidence</li> <li>• Information from new COVID-19 testing methods as they become available, such as serology tests and detecting SARS-CoV-2 in wastewater</li> <li>• Interpretation of modelling of disease spread, and</li> <li>• The results of intermittent surveys on attitudes towards health services</li> </ul> <p>The COVID-19 expert working group is a team of technical experts drawn from EDR and teams from the Ministry of Health. This working group will work closely with other related advisory groups and stakeholders as appropriate. Regular data and information are gathered and supplied to the working group about active clusters, investigations, observed symptoms, border activity, testing and other pertinent information to inform next steps.</p> <p><b>Risk levels for Air Crew</b></p> <p>The risk levels for aircrew are determined by international airport (i.e. a combination of the country, the layover conditions and it is determined port by port). Current examples:</p> <table border="1"> <tr> <td><b>LOW</b></td> <td>Rarotonga, Cook Islands</td> </tr> <tr> <td></td> <td>Nadi, Fiji</td> </tr> <tr> <td></td> <td>Sydney (no layover)</td> </tr> <tr> <td><b>MED</b></td> <td>Hong Kong</td> </tr> <tr> <td></td> <td>Norfolk Island</td> </tr> <tr> <td></td> <td>Sydney (1 night layover)</td> </tr> <tr> <td><b>HIGH</b></td> <td>San Francisco, USA</td> </tr> <tr> <td></td> <td>Los Angeles, USA</td> </tr> </table>	<b>LOW</b>	Rarotonga, Cook Islands		Nadi, Fiji		Sydney (no layover)	<b>MED</b>	Hong Kong		Norfolk Island		Sydney (1 night layover)	<b>HIGH</b>	San Francisco, USA		Los Angeles, USA
<b>LOW</b>	Rarotonga, Cook Islands																
	Nadi, Fiji																
	Sydney (no layover)																
<b>MED</b>	Hong Kong																
	Norfolk Island																
	Sydney (1 night layover)																
<b>HIGH</b>	San Francisco, USA																
	Los Angeles, USA																
<p><a href="#">COVID-19 Public Health Response: Testing Implementation Plan</a></p> <p>NZ Government</p> <p>7 August 2020</p>	<ul style="list-style-type: none"> <li>● Managed isolation and quarantine facility staff             <ul style="list-style-type: none"> <li>○ Daily health checks and a test conducted if symptoms reported</li> <li>○ Participation in asymptomatic testing program</li> <li>○ Rolling schedule of asymptomatic testing across all facilities</li> <li>○ On-site testing, or refer for testing at the GP or local designated testing facility</li> <li>○ 55 tests per day (indicated in 6 August 2020) with view to move towards weekly testing of asymptomatic workers.</li> </ul> </li> <li>● International airport staff (border agencies, cleaners airside retailers)             <ul style="list-style-type: none"> <li>○ Risk assessment by airport destination (layover conditions and country)</li> <li>○ Asymptomatic testing program - dedicated testing units.</li> </ul> </li> <li>● Maritime port staff (ship pilots and crew)</li> </ul>																

Source	Summary
	<ul style="list-style-type: none"> <li>○ Daily health checks and tested if symptoms reported                             <ul style="list-style-type: none"> <li>○ Participation in asymptomatic testing programme</li> <li>○ On-site testing, or refer for testing at the GP or local designated testing facility.</li> </ul> </li> <li>● There were 55 tests per day on average (indicated in August 2020).</li> </ul>
<b>Singapore</b>	
<a href="#">Routine testing, PPE for some Changi Airport staff to avoid Covid-19 transmission: Ong Ye Kung</a>  The Strait Times October 2020	<ul style="list-style-type: none"> <li>● Staff at Changi Airport, who come into close contact with passengers, such as swab assistants, will have to don full personal protective equipment at work and be tested for COVID-19 every two weeks.</li> </ul>

**Table 2: Information for border workers; not routine testing**

Source	Summary
<b>Australia</b>	
<a href="#">Information for Border Staff</a> Australian Department of Health April 2020	<ul style="list-style-type: none"> <li>● This information sheet provides information on risk of infection to border workers and how they can reduce the risk. According to this information sheet:                             <ul style="list-style-type: none"> <li>○ risk of infection to border workers from someone who has COVID-19 but is not yet displaying symptoms is still considered low</li> <li>○ use PPE if close contact with an ill traveller or crew</li> <li>○ if develop symptoms, call a doctor.</li> </ul> </li> <li>● Routine testing was not mentioned.</li> </ul>
<a href="#">COVID-Safe Airport Operations</a> Melbourne Airport September 2020	<ul style="list-style-type: none"> <li>● This document outlines actions to be taken by Melbourne Airport and its tenants and vendors in ensuring a COVID-safe environment.</li> <li>● In terms of staff health checks and quarantine, the following action plans are outlined:                             <ul style="list-style-type: none"> <li>○ monitoring and reporting COVID-19 symptoms of workers</li> </ul> </li> </ul>

Source	Summary
	<ul style="list-style-type: none"> <li>○ encouraging workers to report other workers who are displaying COVID-19 symptoms</li> <li>○ prohibiting workers with symptoms from working</li> <li>○ prohibiting workers who contracted COVID-19 from returning to the workplace until evidence of clearance provided.</li> </ul> <ul style="list-style-type: none"> <li>● Routine testing was not mentioned.</li> </ul>
<p><a href="#">COVID-Safe Airport Operations</a> Perth Airport</p>	<ul style="list-style-type: none"> <li>● This document outlines actions to be taken by Perth Airport and its tenants and vendors in ensuring a COVID-safe environment.</li> <li>● In terms of staff health checks and quarantine, the following action plans are outlined:                             <ul style="list-style-type: none"> <li>○ monitoring and reporting COVID-19 symptoms, exposure and travel history of workers</li> <li>○ encouraging workers to report other workers who are displaying COVID-19 symptoms</li> <li>○ prohibiting workers with symptoms from working</li> <li>○ prohibiting workers who contracted COVID-19 from returning to the workplace until evidence of clearance provided.</li> </ul> </li> <li>● Routine testing was not mentioned.</li> <li>● This document mentions that some mining companies have introduced pre-site medical testing of their staff at the airport. Perth airport recommends such testing facilities to be located outside but of close proximity to the terminal.</li> <li>● Airlines looking to introduce health screening measures at check in need to seek approval from the airport.</li> </ul>
<b>United States</b>	
<p><a href="#">COVID-19: Updated Interim Occupational Health and Safety Guidance for Air Carriers and Crews.</a> U.S. Department of Transportation</p>	<ul style="list-style-type: none"> <li>● The FAA and CDC also recommend that crewmembers with known exposure to COVID-19, or persons with SARS-CoV-2, not work until 14 days after the last potential exposure.</li> <li>● Health monitoring of staff                             <ul style="list-style-type: none"> <li>○ Crew members should monitor themselves for fever</li> <li>○ Crew members should stay home or in their hotel room, notify their employer’s occupational health program, and not report to work if they develop symptoms, test positive or are exposed to someone with COVID-19 symptoms</li> </ul> </li> </ul>

Source	Summary
	<ul style="list-style-type: none"> <li>○ Crew members who are symptomatic, test positive for COVID-19, or have been exposed to a person with COVID-19, should not return to work until cleared to.</li> <li>● Health monitoring air carriers                             <ul style="list-style-type: none"> <li>○ Educating crew members</li> <li>○ To the extent feasible, screening air crews for symptoms of COVID-19 at the start of their day using a combination of visual observation for signs of illness, temperature checks and asking about fever, cough, or shortness of breath or other symptoms.</li> </ul> </li> <li>● Crew members should be excluded from work if they have symptoms, test positive or were exposed to someone with likely or confirmed COVID-19.</li> </ul>
<p><a href="#">Border Protection and Transportation Security Workers and Employers</a></p> <p>United States Department of Labor</p>	<ul style="list-style-type: none"> <li>● This document provides guidance for workers and employers involved in border protection and transportation security operations.</li> <li>● Examples for border protection and transportation security work tasks associated with exposure risk levels.                             <ul style="list-style-type: none"> <li>○ Lower: administrative duties in non-public areas of work sites and routine border security activities not involving travelling public, such as inspecting cargo</li> <li>○ Medium: routine border security activities, such as passport review and routine transportation security screening activities at passenger check points</li> <li>○ High: entering rooms where travellers with suspected COVID-19 have been isolated, such as during augmented screening steps and physical contact with travellers with suspected COVID-19, such as during searches</li> <li>○ Very high: category not applicable for most anticipated work tasks, most border protection and transportation security work tasks are associated with lower or medium exposure risk.</li> </ul> </li> </ul>
<b>United Kingdom</b>	
<p><a href="#">Coronavirus (COVID-19): Border Force, IE and NAIU staff guidance</a></p> <p>UK Government July 2020</p>	<ul style="list-style-type: none"> <li>● A first responder guidance on COVID-19 for Border Force, Immigration Enforcement and the National Asylum Intake Unit.</li> <li>● Recommended safety measures include:                             <ul style="list-style-type: none"> <li>○ physical distancing when in contact with members of the public</li> <li>○ hygiene measures</li> </ul> </li> </ul>

Source	Summary
	<ul style="list-style-type: none"> <li>○ PPE use when in close contact with others or performing cardiopulmonary resuscitation</li> <li>○ cleaning areas that are likely to be contaminated.</li> <li>● Staying at home for seven days if symptoms develop (no matter how mild) and getting tested.</li> </ul>
<p><a href="#">Coronavirus (COVID-19): safer aviation guidance for operators</a></p> <p>UK Government</p> <p>June 2020, updated 5 November</p>	<ul style="list-style-type: none"> <li>● Guidance on safer travel and working principles for airports and aviation operators.</li> <li>● The guidance includes recommendations on risk assessment, who should be at work, social distancing, PPE use, social contact, face coverings, cleaning, workforce planning, emergency incidents, ventilation and communications and training.</li> <li>● Workers with symptoms, no matter how mild, or workers who tested positive with or without symptoms, should self-isolate for 10 days from when their symptoms started or the day when the test taken.</li> <li>● Workers with symptoms are encouraged to get tested.</li> <li>● This guidance does not mention routine testing for asymptomatic workers.</li> </ul>
<b>Hong Kong</b>	
<p><a href="#">Health Advice on Prevention of Coronavirus disease (COVID-19) for Hotel Industry (Interim)</a></p> <p>Centre for Health Protection, Hong Kong</p> <p>October 2020</p>	<ul style="list-style-type: none"> <li>● This document outlines preventative and infection control measures for hotel industry.</li> <li>● Hotel staff are advised to minimise contact with guests who are under compulsory quarantine, wear surgical masks when entering the room and wear full PPE with surgical mask when cleaning and disinfecting the room.</li> <li>● Hotel staff are advised to wear PPE with a surgical mask when in contact with guests with respiratory symptoms or cleaning and disinfecting.</li> <li>● This guidance does not mention routine testing for asymptomatic workers.</li> </ul>

## Appendix

### PubMed search terms

Filters: English

#### Search string #1:

((COVID-19)

AND (("border"[Title/Abstract] OR "cross border"[Title/Abstract] OR airports[MeSH Terms] OR airport\*[Title/Abstract])

AND ("state"[Title/Abstract] OR "international"[Title/Abstract] OR "provinc\*[Title/Abstract] OR "national"[Title/Abstract])) AND (((((((("travel"[Title/Abstract] OR "travel"[MeSH Terms] OR "travel nursing"[MeSH Terms] OR "air travel"[MeSH Terms] OR "travel medicine"[MeSH Terms] OR "travel related illness"[MeSH Terms] OR (transport\*[Title/Abstract])) OR (cross\*[Title/Abstract])) OR (enter\*[Title/Abstract])) OR (entry[Title/Abstract])) OR (entries[Title/Abstract])) OR (exit\*[Title/Abstract])) OR (leave\*[Title/Abstract])) OR (leaving[Title/Abstract]))

AND (((((((((((Epidemiological Monitoring[MeSH Terms] OR (Epidemiology[MeSH Terms])) OR (Public Health Surveillance[MeSH Terms])) OR (Population Surveillance[MeSH Terms])) OR (Safety Management[MeSH Terms])) OR (Infection Control[MeSH Terms])) OR (COVID-19 diagnostic testing[MeSH Terms])) OR (screen\*[Title/Abstract])) OR (test\*[Title/Abstract])) OR (surveil\*[Title/Abstract])) OR (questionnaire\*[Title/Abstract])) OR (measur\*[Title/Abstract])) OR (swab\*[Title/Abstract]))

=62 results

#### Search string #2:

(border\*[Title/Abstract])

AND ((COVID-19)

AND (("early"[Title/Abstract] OR "routine"[Title/Abstract] OR "universal"[Title/Abstract] OR "rapid"[Title/Abstract] OR "asymptomatic\*[Title/Abstract] OR "presymptomatic\*[Title/Abstract] OR "pre symptomatic\*[Title/Abstract] AND ((screen\*[Title/Abstract] OR (test\*[Title/Abstract] OR (detect\*[Title/Abstract] OR (diagnos\*[Title/Abstract] OR (identif\*[Title/Abstract] OR (risk assessment[MeSH Terms] OR (mass screening[MeSH Terms] OR (anonymous testing[MeSH Terms] OR (mandatory testing[MeSH Terms] OR (multiphasic screening[MeSH Terms] OR (Diagnostic Tests, Routine[MeSH Terms] OR (COVID-19 diagnostic testing[MeSH Terms]))))

=55 hits

#### Search string #3:

(((((worker\*[Title/Abstract] OR (employee\*[Title/Abstract])) OR (staff\*[Title/Abstract])) OR (workforce\*[Title/Abstract]))

AND (((((((transients and migrants[MeSH Terms] OR (cross-border\*[Title/Abstract])) OR (inter-border[Title/Abstract])) OR (interborder[Title/Abstract])) OR (interstate[Title/Abstract])) OR (international[Title/Abstract])) OR (point-of-entry[Title/Abstract])) OR (migrant\*[Title/Abstract]))

AND ((COVID-19) AND (("early"[Title/Abstract] OR "routine"[Title/Abstract] OR "universal"[Title/Abstract] OR "rapid"[Title/Abstract] OR "asymptomatic\*[Title/Abstract] OR



"presymptomatic"[Title/Abstract] OR "pre symptomatic"[Title/Abstract]) AND ((screen\*[Title/Abstract]) OR (test\*[Title/Abstract]) OR (detect\*[Title/Abstract]) OR (diagnos\*[Title/Abstract]) OR (identif\*[Title/Abstract]) OR (risk assessment[MeSH Terms]) OR (mass screening[MeSH Terms]) OR (anonymous testing[MeSH Terms]) OR (mandatory testing[MeSH Terms]) OR (multiphasic screening[MeSH Terms]) OR (Diagnostic Tests, Routine[MeSH Terms]) OR (COVID-19 diagnostic testing[MeSH Terms])))

=70 hits

**Search string #4**

(COVID-19 exit strategy OR COVID-19 easing restrictions)

AND (travel\*[Title/Abstract] OR border\*[Title/Abstract] OR screen\*[Title/Abstract] OR test\*[Title/Abstract])

=83 hits

**Search string #5**

(COVID-19)

AND (((border\*[Title/Abstract]) OR (point-of-entry[Title/Abstract])) OR (points-of-entry[Title/Abstract]))

AND ((screen\*[Title/Abstract]) OR (test\*[Title/Abstract]) OR (detect\*[Title/Abstract]) OR (diagnos\*[Title/Abstract]) OR (identif\*[Title/Abstract]) OR (risk assessment[MeSH Terms]) OR (mass screening[MeSH Terms]) OR (anonymous testing[MeSH Terms]) OR (mandatory testing[MeSH Terms]) OR (multiphasic screening[MeSH Terms]) OR (Diagnostic Tests, Routine[MeSH Terms]) OR (COVID-19 diagnostic testing[MeSH Terms]))

=156 hits

**Google search terms**

- screening workers borders (org/country)
- testing workers for COVID-19 borders (org/country)
- quarantine worker testing for COVID-19 (org/country)
- “easing restrictions COVID-19 border screening workers”

**Google Scholar search terms**

- easing border restrictions COVID-19 "routine screening"
- easing border restrictions COVID-19 test

**Inclusion and exclusion criteria**

Inclusion	Exclusion
<ul style="list-style-type: none"> <li>• Asymptomatic screening for COVID-19 of border workers</li> <li>• System level policies (Country, State, Territory or Province level)</li> </ul>	<ul style="list-style-type: none"> <li>• Asymptomatic screening for travellers</li> </ul>



Inclusion	Exclusion
<ul style="list-style-type: none"> <li>Any study design/publication type, including news articles where relevant</li> </ul>	

## References

- World Health Organisation. Updated WHO recommendations for international traffic in relation to COVID-19 outbreak [Internet]. Geneva: WHO; 2020 [cited 19 November 2020]. Available from: <https://www.who.int/news-room/articles-detail/updated-who-recommendations-for-international-traffic-in-relation-to-covid-19-outbreak>. 2020.
- Han E, Tan MMJ, Turk E, Sridhar D, Leung GM, Shibuya K, et al. Lessons learnt from easing COVID-19 restrictions: an analysis of countries and regions in Asia Pacific and Europe. *The Lancet*. 2020;396(10261):1525-34.