

# Ideal public health infrastructure required before reopening Hawaii's local and tourist<sup>1</sup> industries

	People	Process	Technology	Policy
<b>Screening</b>	<p><u>Where would screening occur (i.e., any enclosed space)?</u></p> <ol style="list-style-type: none"> <li>1) Private businesses</li> <li>2) Ports of entry (air &amp; sea)</li> <li>3) Tourist related (e.g., hotels, attractions, etc.)</li> <li>4) Schools</li> <li>5) Government</li> <li>6) Health care</li> <li>7) Residential complexes</li> </ol> <p><u>Who performs the screening?</u></p> <ol style="list-style-type: none"> <li>1) Business/Government would primarily use their own employees, particularly if they have personnel already dedicated (e.g., TSA/Customs at airports)</li> <li>2) For businesses that are unable to screen on their own, they could use a Dedicated State/Private supported team (e.g., Red Cross or new entity) <ol style="list-style-type: none"> <li>a) Mobilized only during outbreaks/pandemics</li> <li>b) Consists of volunteers/paid</li> </ol> </li> <li>3) For places that might create operational challenges to screening (e.g., Taxi, bus, etc.) <ol style="list-style-type: none"> <li>a) Create designated screening places (e.g., certain bus stops) which could be performed by dedicated team in #2</li> </ol> </li> </ol> <p><u>Resources (location dependent)</u> Each point of entry would need the following people (prefer one entry point; varies by volume)</p> <ol style="list-style-type: none"> <li>1) Directing people to/from screening (1-2 people)</li> <li>2) Actual screening (estimate 2 min per screen so 1-2 people)</li> <li>3) Help with questions (1-2 people)</li> <li>4) Counsel about any positive screens (1-2 people)</li> <li>5) Manager (1 person)</li> </ol>	<ol style="list-style-type: none"> <li>1) Upon entering any enclosed space <ol style="list-style-type: none"> <li>a) Hand sanitation</li> <li>b) Everybody is screened via questions and fever checked if not already screened that day <ol style="list-style-type: none"> <li>i) Symptomatic/fever <ol style="list-style-type: none"> <li>(1) No entry</li> <li>(2) Referral for testing</li> <li>(3) Post screening confirmation</li> </ol> </li> <li>ii) All others <ol style="list-style-type: none"> <li>(1) Face masks required at all times</li> <li>(2) Post screening confirmation</li> </ol> </li> </ol> </li> <li>c) Specific to health care settings <ol style="list-style-type: none"> <li>i) Can modify to be more restrictive</li> <li>ii) Consider "shoulder to toes" body suit for all visitors to minimize contamination from personal clothes</li> </ol> </li> <li>d) Points of entry into state (air &amp; sea) <ol style="list-style-type: none"> <li>i) Same screening as above but completed as soon as get off/on the plane or boat</li> </ol> </li> </ol> <ol style="list-style-type: none"> <li>2) Transportation <ol style="list-style-type: none"> <li>a) Fever check only if person was not already screened that day</li> <li>b) Face mask required</li> <li>c) Hand sanitation</li> <li>d) Taxi/Ride shares: <ol style="list-style-type: none"> <li>i) Cleaning required after dropping off passengers</li> <li>ii) Passengers only allowed to sit in back seat and either the car has a plexiglass divider between front/back seats or back windows need to stay open</li> </ol> </li> <li>e) Buses/Mass Transit: <ol style="list-style-type: none"> <li>i) Sanitation wipes for each passenger to clean where they sit/stand</li> <li>ii) Sit/Stand to ensure social distancing</li> </ol> </li> </ol> </li></ol></li></ol>	<ol style="list-style-type: none"> <li>1) Symptom Screening <ol style="list-style-type: none"> <li>a) Standardized symptom questionnaire</li> <li>b) Phone app</li> </ol> </li> <li>2) Temperature Screening <ol style="list-style-type: none"> <li>a) Digital ear thermometer</li> <li>b) Thermometer linked to phone app to enable data sharing</li> </ol> </li> <li>3) Post screening confirmation <ol style="list-style-type: none"> <li>a) Green sticker for no symptoms/fever (Singapore)</li> <li>b) Phone app that would track time of screening and ability to share results with other app users (Singapore; China)</li> </ol> </li> </ol> <p>Note: The ideal method of tracking symptoms, fever and visualization of any screening (i.e., stickers) would be through a single phone app to allow for data sharing, tracking and provide notification if a person was in "close contact" with a known positive case prior (e.g., 7 days) to symptoms (e.g., use of Bluetooth or GPS location)</p>	

<b>Testing</b>	<ol style="list-style-type: none"> <li>1) Department of Health</li> <li>2) Health Care Facilities</li> <li>3) Private labs</li> <li>4) Community health care providers</li> </ol>	<p><b>Key:</b> Low threshold for testing due to lack of vaccine or treatment to identify cases, those with prior exposure but asymptomatic and those that developed natural immunity</p> <p><b>Assumption:</b> Hawaii has the ability to test all patients deemed eligible for one.</p> <p><b>Excluded from this process:</b> For patients in facilities, facility/statewide specific testing protocols (perhaps developed the Health Care Association of Hawaii) would be used and therefore would not follow the below criteria.</p> <p><u>Testing process for residents/tourists in the community</u></p> <ol style="list-style-type: none"> <li>1) People who should have a RT-PCR test performed <ol style="list-style-type: none"> <li>a) (Hawaii DOH criteria) Fever and/or symptoms of acute respiratory distress (e.g., cough)</li> <li>b) Asymptomatic plus clinical judgement (e.g., high-risk individuals<sup>2</sup>) and epidemiologic considerations</li> <li>c) Close contact with exposure up to 7 days prior to symptom development in a confirmed positive case [<a href="#">CDC MMWR (1-3 days)</a>; <a href="#">NEJM (1-5 days)</a>; <a href="#">NEJM (5 days)</a>; <a href="#">Lancet (4 days)</a>; <a href="#">CDC MMWR (7 days)</a>]</li> <li>d) Patients with influenza-like illness who are tested for flu (may adjust after control of outbreak)</li> </ol> </li> <li>2) People who should have a Serology IgG/IgM performed that identifies recent or past infection (<u>availability should increase over the next few weeks</u>) <ol style="list-style-type: none"> <li>a) Asymptomatic but <b>recent travel history</b> from a country/state with community widespread</li> </ol> </li> </ol> <p>Point-of-Care testing should be considered in the following situations</p> <ol style="list-style-type: none"> <li>1) <b>Prior to boarding an airplane</b></li> <li>2) Health care workers</li> <li>3) Other essential workers needing to return to work</li> </ol>	<ol style="list-style-type: none"> <li>1) Serology IgG/IgM <ol style="list-style-type: none"> <li>a) State</li> <li>b) Private lab (if available) to allow for multiple tests to performed at same time</li> <li>c) Point-of-Care (see below)</li> </ol> </li> <li>2) RT-PCR test <ol style="list-style-type: none"> <li>a) Point-of-Care (see below)</li> <li>b) Private labs for all others</li> </ol> </li> <li>3) Antibody testing for immunity (when available) <ol style="list-style-type: none"> <li>a) Private labs</li> <li>b) State</li> </ol> </li> </ol> <p><u>Rapid tests currently or potentially available (as of 4-5-2020)</u></p> <ol style="list-style-type: none"> <li>1) Currently available <ol style="list-style-type: none"> <li>a) RT-PCR test <ol style="list-style-type: none"> <li>i) <a href="#">Cepheid</a> (45 minutes; Approved March 20, 2020; first point-of-care approved by FDA)</li> <li>ii) <a href="#">Mesa</a> (30 minutes; Approved March 23, 2020)</li> <li>iii) <a href="#">Abbot</a> (5 to 15 minutes; Approved March 27, 2020)</li> </ol> </li> <li>b) Serology test for IgG/IgM <ol style="list-style-type: none"> <li>i) (Not Point-of-care) <a href="#">Cellestx</a> (20 minutes; Approved April 1, 2020)</li> <li>ii) <a href="#">Becton Dickson</a> (15 minutes; Approved April 2, 2020)</li> </ol> </li> </ol> </li> </ol>	
<b>Tracking</b>	<ol style="list-style-type: none"> <li>1) Dedicated team for contact tracing (Department of Health) plus other ad hoc workers if need to scale up (e.g., Red Cross, National Guard)</li> <li>2) Collaboration with private industry (<a href="#">Boston</a>)</li> </ol> <p>Resources (<a href="#">CDC</a>; PDF 9-11) that may need to scale up/down and could be decreased via technology</p> <ol style="list-style-type: none"> <li>1) (One) Lead Epidemiologist – oversee</li> </ol>	<ol style="list-style-type: none"> <li>1) Standard contract tracing procedures for those who test positive (<a href="#">CDC</a>) <ol style="list-style-type: none"> <li>a) Identify and interview any new case</li> <li>b) Find and interview any close contacts and continue to monitor for 14 days</li> <li>c) Follow-up by tracking team to ensure close contacts are tested, if appropriate</li> </ol> </li> <li>2) <b>For all tourists to Hawaii</b> <ol style="list-style-type: none"> <li>a) Give information card/pamphlet indicating what to do when get symptoms</li> <li>b) Require daily tracking and reporting of symptoms</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1) iPad/Phone app for contact tracing (e.g., Speridian, <a href="#">TraceTogether</a>, <a href="#">South Korea</a>)</li> <li>2) iPad/Phone app to assist with symptom tracking (<a href="#">Harvard</a>)</li> <li>3) Ideally, would have one iPad/Phone app to replace <b>Agricultural Form (for those who travel)</b> as well as integrate contact tracing, symptom tracking, provide timely updates from the COVID-19 Command Center and test results <b>reporting for tourists</b> and Hawaii residents</li> </ol>	

	<p>all Field Supervisors and should be dedicated full-time during outbreak</p> <ol style="list-style-type: none"> <li>2) (One for every 5 to 10 Tracers) Field Supervisor – Epidemiologist or health care worker trained in contact tracing</li> <li>3) (One) Data Manager</li> <li>4) (≥ Two per team) Tracer Team – visiting/contact all contact-persons daily</li> <li>5) (≥ Two per team) Ready Team – on call 24 hours to conduct initial investigation of any potential new cases</li> <li>6) (≥ Two per team) Investigative Team – interview all people who may have been in contact with new case.</li> </ol>	<p>for 14 days</p> <ol style="list-style-type: none"> <li>c) Follow-up by tracking team to ensure testing is completed, if appropriate</li> <li>3) Implementation of a local surveillance system in ED/Hospitals similar to the CDC influenza-like surveillance system to monitor for outbreaks (<a href="#">Duke Center for Health Policy</a>)</li> </ol>		
<b>Quarantine</b>	<ol style="list-style-type: none"> <li>1) Public health nurses plus other ad hoc workers (e.g., Red Cross, National Guard)</li> <li>2) Enforcement by police</li> </ol> <p><u>Resources:</u> Would use same team that is tracking patients above.</p>	<ol style="list-style-type: none"> <li>1) Those who test positive <ol style="list-style-type: none"> <li>a) Resident/<b>tourist</b> quarantine at a designated location other than home/hotel</li> </ol> </li> <li>2) Asymptomatic who had close contact for 14 days (<a href="#">Singapore</a>) <ol style="list-style-type: none"> <li>a) Wear masks, social distancing, etc.</li> <li>b) Quarantine location <ol style="list-style-type: none"> <li>i) Resident → home, unless unable to safely quarantine (e.g., one bathroom, living with high-risk individuals)</li> <li>ii) <b>Tourist → hotel, unless unable to safely quarantine</b></li> <li>iii) If unable to safely quarantine at home (residents)/<b>hotel (tourists)</b> → need to stay at designated location</li> </ol> </li> </ol> </li> <li>3) Penalty (fines/imprisonment) if violate quarantine</li> </ol> <p><u>Monitoring compliance with quarantine (<a href="#">Singapore</a>)</u></p> <ul style="list-style-type: none"> <li>• Hard copy explaining 14-day quarantine</li> <li>• Text messages sent at random times of the day and person needs to give location with GPS on mobile phone (via WhatsApp)</li> <li>• Random phone calls and house visits from authorities</li> <li>• If get a phone call, need to take a photo of surroundings</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic wristband linked to phone app (<a href="#">Hong Kong</a>)</li> <li>• Phone app (e.g., <a href="#">WhatsApp</a>) to provide GPS location (Singapore, <a href="#">South Korea</a>)</li> </ul>	

<sup>1</sup>Note: Items highlighted in YELLOW affect or may need adjustment (e.g., translators) for the tourist industry

<sup>2</sup>High-risk definition: Hawaii DOH - 65 years or older, living in congregate settings (e.g., long-term care homes), chronic conditions, immunocompromised, critically ill patients