

## Considerations for Integrating Infection Prevention and Control into National Pandemic Preparedness and Response Planning for Coronavirus 2019 (COVID-19)

The Centers for Disease Control and Prevention (CDC) is working closely with international partners to respond to the COVID-19 pandemic. CDC provides technical assistance to help countries increase their ability to prevent, detect, and respond to health threats, including COVID-19.

**This document is provided by CDC for use in non-US healthcare settings.**

This document provides operational considerations and resources for ministries of health and other public health authorities to use to improve the adoption and implementation of key infection prevention and control (IPC) activities in healthcare settings during the COVID-19 pandemic. The document focuses on national level activities, but also includes activities that can be implemented at the healthcare facility (HCF) level, with the goal of reducing the introduction and spread of COVID-19 to patients, visitors, and healthcare workers (HCWs) and ensuring that essential healthcare services are maintained.

IPC Actions	Justification	Considerations and Resources for Implementation
<b>Coordination</b>		
<p>Establish an IPC coordination body within broader COVID-19 response coordination structures to develop, revise, adapt, and disseminate policies, guidelines, trainings, and other IPC-related information across all levels of the healthcare system (e.g., national, sub-national, and facility).</p>	<p>HCFs need timely access to current IPC recommendations and training to prevent and reduce healthcare transmission of COVID-19. Additionally, international guidance needs to be adopted and adapted to the national and local context.</p>	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Develop terms of reference (TORs) for IPC coordination body and roles and responsibilities of members.</li> <li>• Include members from multiple sectors (e.g., government, non-governmental organizations, private sector, academia, IPC professional associations, HCFs).</li> <li>• Create an IPC communication structure to cascade and disseminate information across all levels of the healthcare system.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• World Health Organization (WHO), COVID-19 strategic preparedness and response plan for the new coronavirus: <a href="https://www.who.int/docs/default-source/coronaviruse/srp-04022020.pdf">https://www.who.int/docs/default-source/coronaviruse/srp-04022020.pdf</a><sup>1</sup></li> <li>• WHO, COVID-19 operational planning guidelines to support country preparedness: <a href="https://www.who.int/docs/default-source/coronaviruse/covid-19-sprp-unct-guidelines.pdf?sfvrsn=81ff43d8_4">https://www.who.int/docs/default-source/coronaviruse/covid-19-sprp-unct-guidelines.pdf?sfvrsn=81ff43d8_4</a><sup>2</sup></li> </ul>

<p>Develop an information sharing platform to communicate across all levels of the healthcare system.</p>	<p>HCFs need real-time access to current IPC recommendations to prevent healthcare transmission of COVID-19.</p>	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Post updated IPC guidance on the ministry of health or other government websites.</li> <li>• Disseminate information through: <ul style="list-style-type: none"> <li>○ Webinars and other live streaming platforms</li> <li>○ Collaboration with IPC or relevant clinical professional societies</li> <li>○ Email listserv that includes all HCFs</li> <li>○ Social media platforms</li> <li>○ Group messaging applications</li> </ul> </li> </ul>
<p>As part of the overall COVID-19 pandemic preparedness plan, develop an IPC plan to reduce COVID-19 healthcare transmission.</p>	<p>Due to the increased demand on the healthcare system during the COVID-19 pandemic, HCFs need to respond quickly with appropriate IPC measures to prevent infection among patients and healthcare workers.</p>	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Consult any existing pandemic preparedness plans and modify as needed for COVID-19.</li> <li>• Have clear surge capacity plans for triage with rapid identification and separation of patients with suspected or confirmed COVID-19.</li> <li>• Develop guidance for managing HCWs exposed to COVID-19 and identifying and managing ill HCWs.</li> <li>• Implement sick leave policies for HCWs that are flexible and non-punitive.</li> <li>• Incorporate current national IPC guidelines, if existent, in the IPC plan to reduce healthcare transmission of COVID-19.</li> <li>• Provide telemedicine services to reduce the number of patients presenting for care and the need for personal protective equipment (PPE).</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• WHO, COVID-19 Strategic preparedness and response plan for the new coronavirus: <a href="https://www.who.int/docs/default-source/coronaviruse/srp-04022020.pdf">https://www.who.int/docs/default-source/coronaviruse/srp-04022020.pdf</a><sup>1</sup></li> <li>• ECDC, Preparedness for COVID-19: <a href="https://www.ecdc.europa.eu/en/covid-19/preparedness-and-response">https://www.ecdc.europa.eu/en/covid-19/preparedness-and-response</a><sup>3</sup></li> <li>• WHO, Operational considerations for case management of COVID-19 in health facility and community: Interim guidance: <a href="https://apps.who.int/iris/bitstream/handle/10665/331492/WHO-2019-nCoV-HCF_operations-2020.1-eng.pdf">https://apps.who.int/iris/bitstream/handle/10665/331492/WHO-2019-nCoV-HCF_operations-2020.1-eng.pdf</a><sup>4</sup></li> </ul>

		<ul style="list-style-type: none"> <li>• WHO, IPC of epidemics and pandemic prone ARI in healthcare: <a href="https://www.who.int/csr/bioriskreduction/infection_control/publication/en/">https://www.who.int/csr/bioriskreduction/infection_control/publication/en/</a><sup>5</sup></li> <li>• CDC, Strategic IPC activities for containment and prevention of COVID-19 cases at healthcare facilities in non-US settings: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/ipc-healthcare-facilities-non-us.html?deliveryName=USCDC_2018-DM24744">https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/ipc-healthcare-facilities-non-us.html?deliveryName=USCDC_2018-DM24744</a><sup>6</sup></li> <li>• CDC, Operational considerations for the identification of HCWs and in-patients with suspected COVID-19 in non-US healthcare settings: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/guidance-identify-hcw-patients.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/guidance-identify-hcw-patients.html</a><sup>7</sup></li> <li>• CDC, Interim operational considerations for public health management of HCWs exposed to or infected with COVID-19: non-US healthcare settings: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/public-health-management-hcw-exposed.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/public-health-management-hcw-exposed.html</a><sup>8</sup></li> <li>• CDC, Management of visitors to HCF in the context of COVID-19: Non-US healthcare settings: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/hcf-visitors.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/hcf-visitors.html</a><sup>9</sup></li> <li>• CDC, Strategies to optimize the supply of PPE and equipment: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/healthcare-supply-ppe.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/healthcare-supply-ppe.html</a><sup>10</sup></li> <li>• CDC, Interim IPC recommendations for patients with suspected or confirmed COVID-19 in healthcare settings: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Finfection-control%2Fcontrol-recommendations.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Finfection-control%2Fcontrol-recommendations.html</a><sup>11</sup></li> <li>• WHO, COVID-19 technical guidance: IPC/WASH: <a href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control">https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control</a><sup>12</sup></li> </ul>
<b>Healthcare Workforce</b>		
Identify alternative healthcare workforce members.	If large numbers of HCWs become infected with COVID-19 and/or a surge in patients with severe	<i>Considerations</i>

	infection requiring hospitalization occurs, additional HCWs will be needed.	<ul style="list-style-type: none"> <li>• Identify inactive HCWs who can surge in the event of an HCW shortage (e.g., retired, private or military HCWs, HCWs not working in clinical settings, volunteers).</li> <li>• Identify active HCWs who can be repurposed/redeployed to COVID-19 wards from other sectors of the hospital where patient volume is low due to pandemic (e.g., staff in outpatient departments and pediatrics).</li> <li>• Develop a database of alternate/on-call HCWs during a pandemic or emergency.</li> <li>• Provide training opportunities and resources for incoming HCWs.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• WHO, Health workforce estimator: <a href="https://euro.sharefile.com/share/view/s1df028894aa49abb/fob92ed8-23cb-4b24-a746-524bb6a27843">https://euro.sharefile.com/share/view/s1df028894aa49abb/fob92ed8-23cb-4b24-a746-524bb6a27843</a><sup>13</sup></li> </ul>
Train and engage healthcare workforce.	Real-time training and workforce engagement during global emergencies are critical for effective preparedness and response.	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Train and/or provide refresher trainings on standard precautions, transmission-based precautions (e.g., contact and droplet precautions) and donning/doffing PPE.</li> <li>• Engage employees through food donations or provided sleeping arrangements.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• WHO, COVID-19 training: Online training: <a href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019/training/online-training">https://www.who.int/emergencies/diseases/novel-coronavirus-2019/training/online-training</a><sup>14</sup></li> <li>• CDC, Training for healthcare professionals: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/training.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/training.html</a><sup>15</sup></li> </ul>
<b>Supplies</b>		
Establish a national stockpile of medical supplies and equipment, including PPE and other consumables, and develop triggers and plans for deployment of stockpiled supplies.	The purpose of a national stockpile is to ensure the availability of potentially life-saving pharmaceuticals and medical supplies for use in a public health emergency severe enough to cause local supplies to run out. The stockpile ensures the right medicines,	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Establish a national stockpile operated by the national government.</li> <li>• Provide national-level coordination for procurement and appropriate distribution of PPE and other IPC consumables (e.g., soap, cleaning supplies) to prevent shortages.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• USA HHS, Strategic National Stockpile:</li> </ul>

	<p>patient care equipment, and IPC supplies get to those who need them most during an emergency. During a COVID-19 pandemic, essential IPC supplies, such as PPE and other IPC consumables, are likely to be in short supply, and thus need to be allocated based on local epidemiology, and screening and treatment center locations.</p>	<p><a href="https://www.phe.gov/about/sns/Pages/default.aspx">https://www.phe.gov/about/sns/Pages/default.aspx</a><sup>16</sup></p> <ul style="list-style-type: none"> <li>• WHO, COVID-19 technical guidance: Essential resource planning: <a href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/covid-19-critical-items">https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/covid-19-critical-items</a><sup>17</sup></li> </ul>
<p>Anticipate supply shortages and coordinate with vendors and HCFs about availability and prioritization of supplies.</p>	<p>During a COVID-19 pandemic, essential IPC supplies such as PPE and alcohol-based hand rub (ABHR) are likely to be in short supply. National governments should work with vendors and local governments to allocate resources to HCFs based on local epidemiology, and screening and treatment center locations and ramp up local production of ABHR.</p>	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Map location of all hospitals and COVID-19 screening and treatment locations against national, sub-national, and local epidemiology data to identify priority facilities for supplies.</li> <li>• Produce ABHR locally.</li> <li>• Consider opportunities for local production of PPE.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• CDC, Strategies to optimize the supply of PPE and equipment: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/healthcare-supply-ppe-index.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/healthcare-supply-ppe-index.html</a><sup>10</sup></li> <li>• WHO, Rational use of PPE for COVID-19 and considerations during severe shortages: Interim guidance, April 6 2020: <a href="https://apps.who.int/iris/handle/10665/331695">https://apps.who.int/iris/handle/10665/331695</a><sup>18</sup></li> <li>• WHO, ABHR Guide to Local Production: <a href="https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf">https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf</a><sup>19</sup></li> </ul>
<p>Provide contingency plans to respond to limited resources or stockouts.</p>	<p>As essential IPC supplies become scarce or unavailable, it is critical to follow guidance to ensure HCWs have the necessary equipment to protect themselves and patients from becoming infected with COVID-19.</p>	<p><i>Considerations:</i></p> <ul style="list-style-type: none"> <li>• Prioritize testing according to WHO or national guidance. By limiting testing to a subset of patients, PPE use by HCWs collecting specimens will be reduced.</li> <li>• Prioritize distribution of limited PPE and IPC consumables to COVID-19 respiratory evaluation and/or treatment centers and HCFs receiving high numbers of suspected and confirmed cases.</li> </ul> <p><i>Resources</i></p>

		<ul style="list-style-type: none"> <li>• WHO, Rational use of PPE for COVID-19 and considerations during severe shortages: Interim guidance, April 6 2020 <a href="https://apps.who.int/iris/handle/10665/331695">https://apps.who.int/iris/handle/10665/331695</a><sup>18</sup></li> <li>• CDC, Strategies to optimize the supply of PPE and equipment: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/healthcare-supply-ppe-index.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/healthcare-supply-ppe-index.html</a><sup>10</sup></li> <li>• WHO, Laboratory testing strategy recommendations for COVID-19: Interim guidance: <a href="https://apps.who.int/iris/bitstream/handle/10665/331509/WHO-COVID-19-lab_testing-2020.1-eng.pdf">https://apps.who.int/iris/bitstream/handle/10665/331509/WHO-COVID-19-lab_testing-2020.1-eng.pdf</a><sup>20</sup></li> </ul>
<b>Triage and Treatment</b>		
<p>Identify dedicated COVID-19 evaluation centers and establish linkages to treatment for patients meeting criteria.</p>	<p>Dedicated locations are needed for evaluating patients with symptoms of COVID-19, separate from existing HCFs. This will prevent patients with suspected COVID-19 from entering HCFs and should reduce healthcare transmission.</p>	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Identify alternative sites for evaluation centers, including locations in close proximity to existing HCFs.</li> <li>• Consider building temporary structures to serve as evaluation centers (e.g., large pop-up tents).</li> <li>• Establish first point of care screening sites (e.g., fever clinics).</li> <li>• Establish drive-through testing.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• CDC, Standard operating procedure (SOP) for triage of suspected COVID-19 patients in non-US healthcare settings: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/sop-triage-prevent-transmission.html?deliveryName=USCDC_2018-DM24744">https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/sop-triage-prevent-transmission.html?deliveryName=USCDC_2018-DM24744</a><sup>21</sup></li> <li>• WHO, Severe acute respiratory infections (SARI) treatment center: Practical manual: <a href="https://www.who.int/publications-detail/severe-acute-respiratory-infections-treatment-centre">https://www.who.int/publications-detail/severe-acute-respiratory-infections-treatment-centre</a><sup>22</sup></li> <li>• WHO, SARI treatment facility design training: <a href="https://openwho.org/courses/SARI-facilities">https://openwho.org/courses/SARI-facilities</a><sup>23</sup></li> </ul>
<p>Advise regional and district governments to use telemedicine capabilities to screen patients with suspected COVID-19 and connect them with any national telemedicine resources.</p>	<p>Telemedicine appointments will reduce the number of patients with suspected COVID-19 from entering HCFs, limit potential healthcare transmission, and preserve limited PPE.</p>	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>• Set up a national COVID-19 hotline.</li> <li>• Support regional and district governments to set up telemedicine capabilities to screen and refer suspected cases to screening sites.</li> <li>• Set up telemedicine screening at the HCF level.</li> <li>• Engage university hospitals to support telemedicine capabilities.</li> </ul>

		<p><i>Resources</i></p> <ul style="list-style-type: none"> <li>WHO, Telemedicine: Opportunities and developments in Member States: <a href="https://www.who.int/goe/publications/goe_telemedicine_2010.pdf">https://www.who.int/goe/publications/goe_telemedicine_2010.pdf</a><sup>24</sup></li> </ul>
Provide guidance and allocation of resources for development of isolation or cohorting space for COVID-19 patients within healthcare facilities.	Dedicated treatment locations or areas will reduce healthcare transmission of COVID-19 to the general patient population and prevent HCFs from becoming overburdened. It will also save PPE because it will allow for extended use of PPE if patients with COVID-19 are cohorted.	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>Map all hospitals including private, public and military.</li> <li>Identify hospitals with single rooms available for providing care to patients with COVID-19.</li> <li>Identify hospitals with additional capacity to treat patients with COVID-19 (e.g., intensive care capacity, availability of airborne infection isolation rooms).</li> <li>Plan for ability to cohort HCWs as well as patients to limit the spread of disease.</li> <li>Identify potential treatment sites for patients with severe disease (e.g., rooms, wards, units, hospitals, mobile units/tents).</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>WHO, SARI treatment center: Practical manual: <a href="https://www.who.int/publications-detail/severe-acute-respiratory-infections-treatment-centre">https://www.who.int/publications-detail/severe-acute-respiratory-infections-treatment-centre</a><sup>22</sup></li> <li>WHO, SARI treatment facility design training: <a href="https://openwho.org/courses/SARI-facilities">https://openwho.org/courses/SARI-facilities</a><sup>23</sup></li> </ul>
<b>Healthcare Facility Operations</b>		
Develop service restriction plans in case of staff shortages or increased demand.	HCFs experiencing large numbers of HCW infections and/or an increase in patients due to COVID-19 should limit services to essential services (e.g., emergency department, intensive care unit).	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>Cancel elective and non-emergency surgeries.</li> <li>Develop referral/deferral plans for non-urgent care (e.g., wellness visits, screenings, routine vision and dental check-ups)</li> <li>Develop a roster of people who can surge in for all categories of staff.</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>CDC, Strategies to Mitigate Healthcare Personnel Staffing Shortages: <a href="https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html">https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html</a><sup>25</sup></li> </ul>
<b>Public Health Messaging/Risk Communication</b>		
Develop public messages describing when patients should come to HCFs to receive care if they exhibit COVID-19 symptoms.	Limiting patients with suspected COVID-19 from using the emergency department will reduce the spread of the virus within HCFs and avail	<p><i>Considerations</i></p> <ul style="list-style-type: none"> <li>Use text messaging, social media, television and radio spots, billboards, posters and factsheets.</li> </ul>

	resources for critical/emergency cases.	<ul style="list-style-type: none"> <li>• Use images and graphics to communicate messages.</li> <li>• Use clear communication (plain language).</li> <li>• Support regional/district governments to establish a 24/7 COVID-19 hotline where individuals can call to get information about where they can get screened and seek care.</li> <li>• Provide messaging during telemedicine appointments.</li> <li>• Provide messaging on appropriate use and handling of nonmedical masks for countries with policies on mask use in the community</li> </ul> <p><i>Resources</i></p> <ul style="list-style-type: none"> <li>• WHO, Risk communication: <a href="https://www.who.int/emergencies/risk-communications">https://www.who.int/emergencies/risk-communications</a><sup>26</sup></li> <li>• CDC, Crisis &amp; emergency risk communication (CERC): <a href="https://emergency.cdc.gov/cerc/">https://emergency.cdc.gov/cerc/</a><sup>27</sup></li> <li>• WHO, Advice on the use of masks in the context of COVID-19: <a href="https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak">https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak</a><sup>28</sup></li> </ul>
Develop public messages about restricting visitors from entering HCFs.	Limiting visitors from entering HCFs will reduce the risk of infection in HCF and preserve critical PPE supplies.	
Develop public messages about visitors wearing masks when it is required by the country, based on WHO's advice on mask use in the community.	Countries with widespread community transmission may be recommending universal use of non-medical mask in the community.	
Develop public messages about the proper use of masks and the need to reserve PPE (i.e. medical masks) for HCWs.	These messages will inform the community about the appropriate types of masks to wear.	
Develop public messages to advertise alternative screening and treatment centers.	These messages will direct people to alternative centers in order to reduce overcrowding of EDs and risk of transmission.	

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