# COVID-19 Critical Intelligence Unit

## Evidence check

29 September 2021

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 This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.

## Workforce reconfiguration

## **Evidence check questions**

- 1. What is the evidence regarding temporary workforce reconfigurations such as splitting of teams and establishing social distancing protocols within teams to minimise staff exposure to COVID-19?
- 2. What is the evidence regarding temporary workforce reconfigurations to maintain or increase workforce surge capacity during the COVID-19 pandemic?

## In brief

- Workforce reconfigurations during the COVID-19 pandemic such as splitting teams, creating smaller 'sub teams' and establishing social distancing protocols within teams have been described for a range of specialties including general surgery, oncology, radiology, cardiology, emergency departments and dialysis units. Workforce reconfiguration during periods of heightened COVID-19 prevalence is associated with reduced infection rates in the healthcare workforce.
- A wide range of institutional or departmental workforce reconfiguration strategies are described in the peer-reviewed literature (Table 1). Many of these strategies were developed and adopted rapidly during COVID-19 surge periods.
- The most commonly used workforce reconfiguration strategies included redeploying specialty staff
  or research-only clinical staff into COVID-19-specific or critical care workforce, both internally within
  hospitals and externally; and redistributing excess workforce from non-critical areas or areas with
  reduced work demand to critical areas or areas in need.. There are no studies to evaluate the
  impact of staff working outside their normal scope of practice.
- In Australia, a Critical Care Pandemic Staffing Working Party made 60 recommendations to inform multidisciplinary workforce capacity expansion planning in critical care.<sup>1</sup> They range from servicelevel recommendations for maintaining the critical care workforce, expanding the critical care workforce, rostering and allocation, nursing-specific recommendations for staffing the ICU, workforce support, environmental management, models of care and de-escalation.<sup>1</sup>
- The World Health Organization recommends that generalist health workers, workers from other health settings, and recent medical graduates be redeployed to settings facing skills shortages.<sup>2</sup>





## Limitations

Evidence is based on single case experiences.

## **Background**

Healthcare workers are at heightened risk of COVID-19 infection. One way to minimise infection among staff is through workforce reconfigurations to limit exposure.

## Methods (Appendix 1)

PubMed and Google searches were run on 1 September and 6 September 2021.

## **Results**

Table 1: Strategies for workforce reconfiguration to minimise staff exposure and preserve the healthcare workforce

Category	Strategies	
Peer-reviewed sources		
Leadership	<ul> <li>Establishing an institutional or departmental command team, taskforce or leadership team with a broad representation of expertise, skills and ideas.<sup>3-5</sup></li> </ul>	
	<ul> <li>Involving senior clinical staff (i.e. medical registrar or consultant) in leading and helping deliver the changes.<sup>6, 7</sup></li> </ul>	
Split teams	Subdividing teams that can be rostered on different work schedules to minimise crossovers between staff and minimise the impact of staff exposure to COVID-19.8-14 Strategies include:	
	<ul> <li>Establishing functionally independent teams<sup>8, 15</sup></li> </ul>	
	<ul> <li>Ensuring staff within each team had the right skill-mix with various levels of training<sup>6, 8, 9, 16</sup></li> </ul>	
	<ul> <li>Having on-call teams to replace active teams if members become ill or need to quarantine.<sup>9</sup></li> </ul>	
	<ul> <li>Creating separate areas and teams for managing confirmed or suspected COVID-19 patients and non-COVID patients.<sup>17</sup></li> </ul>	
Work schedule	<ul> <li>Restricting patient care activities of a staff to a single site only and halting inter-hospital and cross-institutional rotations of medical staff, to prevent cross-contamination between sites.<sup>18, 19</sup></li> </ul>	
	Two or more teams working on alternate blocks of times and shifts to minimise the staff crossover. Examples include:	
	<ul> <li>3 to 5-day block or 12-hour shift rotation, with each block alternating between day and night shifts or other shift schedules<sup>920</sup></li> </ul>	
	<ul> <li>'3-3-3' which has three days and three nights with a 'cooling off period' of three days in between<sup>21</sup></li> </ul>	





Category	Strategies
Peer-reviewed sources	
	<ul> <li>One week on, one week off.<sup>22-24</sup></li> </ul>
Physical separation	<ul> <li>Creating segregated physical spaces for COVID-19-positive and negative patients<sup>17</sup></li> <li>Inter-team social distancing<sup>25</sup></li> <li>Isolating workstations for different teams <sup>8, 22, 26</sup></li> <li>Restricting bedside consults to only necessary cases<sup>26</sup></li> <li>Designating one team member to have patient contact, while others remained in the hallway or joined in the rounds virtually<sup>22</sup></li> <li>Replacing in-person handovers with virtual handovers<sup>8, 22, 26</sup></li> <li>Virtual communication both within and between teams<sup>8, 14, 18, 26</sup></li> <li>Limiting interaction across wards<sup>27</sup></li> <li>Redesigning community visits as 'doorstep' visits where the clinician remains outside the home.<sup>28</sup></li> </ul>
Virtual care	<ul> <li>Placing clinical care, pharmacy, allied health, administrative or other non-clinical staff for whom it is viable to provide telehealth consultations or work remotely at home to reduce risk of infection in the hospital<sup>7, 8, 28-31</sup></li> <li>Using virtual care modalities in patient screening, remote patient monitoring, and providing remote clinical and decision support for clinicians <sup>32, 33</sup></li> <li>Distance learning for trainees.<sup>34</sup></li> </ul>
Reserve pool	<ul> <li>Identifying and establishing a reserve pool for staff with core competencies, or relevant training required for maintaining basic services<sup>3, 5, 6, 16, 18</sup></li> <li>Identifying excess workforce created by a decrease in patient volumes in some specialty areas and enlisting them into a reserve pool<sup>35</sup></li> <li>Fast-track training for temporary healthcare-support workers to supplement workforce.<sup>36</sup></li> </ul>
Redeployment and redistribution	<ul> <li>Redeploying other specialty staff or research-only clinical staff into COVID-19-specific or critical care workforce, both internally within hospitals and externally<sup>4, 6, 8, 16, 20, 26, 31, 35, 37, 38</sup></li> <li>Redistributing excess workforce in non-critical areas or areas with reduced work demand to critical areas or areas in need<sup>17, 21</sup></li> <li>Providing appropriate training or induction to redeployed staff <sup>4, 5, 16, 35, 39</sup></li> <li>Mobilising student volunteers and other contractors into public health workforce, including<sup>4, 40, 41</sup>:         <ul> <li>Epidemiological investigation and contact tracing</li> </ul> </li> </ul>





Category	Strategies	
Peer-reviewed sources		
	<ul> <li>Providing training on proper personal protective equipment (PPE) use in residential care facilities</li> <li>Compiling lists of local resources</li> <li>Disseminating information</li> <li>Facilitate mass testing and informing patients of results</li> <li>Removing high-risk staff, such as pregnant women, elderly staff or staff with decompensated chronic disease, from roles that involve close contacts with confirmed or suspected COVID-19 patients.<sup>31, 42, 43</sup></li> </ul>	
Service organisation	<ul> <li>Only essential workers on site at the clinic or hospital<sup>18</sup></li> <li>Limiting or postponing elective cases<sup>7, 18, 26, 34, 35, 38</sup></li> <li>Reducing non-essential services<sup>42</sup></li> <li>Combining services (i.e. surgical services provided by different divisions) where patient volume is decreased due to COVID-19 pandemic<sup>18</sup></li> <li>Assigning non-patient facing duties to physicians who are in quarantine or mildly ill to off-load burden at the hospital<sup>3</sup></li> <li>Decreasing documentation or other administrative requirements<sup>42</sup></li> <li>Providing emotional and wellness support for frontline staff<sup>3, 42</sup></li> <li>Utilising community resources<sup>42</sup></li> <li>Anticipating childcare issues for staff<sup>3</sup></li> <li>Providing accommodation for front-line staff to prevent transmission within families.<sup>18</sup></li> </ul>	

## **Table 2 Grey literature**

Source	Summary
Grey literature	
Health workforce	Policymakers and managers should:
management in the context of the COVID-19 pandemic response: Interim guidance	<ul> <li>assign generalist health workers, those repurposed from other health delivery settings, and recent medical graduates to settings facing skills shortages, under appropriate supervision to appropriate roles that reflect their knowledge, skills and experience</li> </ul>
	<ul> <li>identify high-impact clinical interventions amenable to safe role delegation and expansion of scope of practice</li> </ul>
World Health Organization December, 2020 <sup>2</sup>	<ul> <li>identify the available health worker skills mix that is best suited to address clinical care needs, in areas where resources are limited,</li> </ul>





Source	Summary	
Grey literature		
	Figure 1. Optimizing the skills mix in an ICU setting  Tiered ICU staffing strategy for COVID-19 pandemic  Trained or experienced intensive care unit physician  Physician of related speciality area  Advanced practice nurses and non-ICU advanced practice providers  ICU Nurses  Non-ICU Nurses  Source: Adapted from Society of Critical Care Medicine (44).	
Strategies to mitigate healthcare personnel staffing shortages  Centers for Disease Control and Prevention, March 2021 <sup>44</sup>	<ul> <li>When staffing shortages are anticipated, healthcare facilities and employers, in collaboration with human resources and occupational health services, should use contingency capacity strategies to plan and prepare for mitigating this problem. These include:         <ul> <li>adjusting staff schedules, hiring additional healthcare personnel, and rotating healthcare personnel to positions that support patient care activities</li> <li>cancelling all non-essential procedures and visits. Shift health workers who work in these areas to support other patient care activities in the facility. Facilities will need to ensure these health workers have received appropriate orientation and training to work in areas that are new to them.</li> </ul> </li> </ul>	
Redeploying your secondary care medical workforce safely National Health Service (NHS), England, July 2021 <sup>45</sup>	<ul> <li>A wide range of clinicians have returned to clinical practice to support demand</li> <li>All redeployed staff should be appropriately supervised when delivering clinical care.</li> </ul>	
Public Health Workforce Surge Guidelines NSW Health, February 2014 <sup>46</sup>	<ul> <li>Activities that may need additional support during a public health surge include:         <ul> <li>case and contact finding</li> <li>case and contact management</li> <li>infection prevention and control</li> <li>immunisation (e.g. coordinating a mass clinic)</li> </ul> </li> </ul>	





Source	Summary
Grey literature	
	Surge personnel may be engaged from within or outside NSW Health.

## **Appendix**

## Original search 19 May 2020

PubMed and EPPI websites were searched on 19 May 2020. Additional studies were added that were screened for eligibility during daily evidence check searches. Searches included COVID-19 and past disease outbreaks. Search terms have been included in the appendix.

#### **PubMed**

- ((workforce[Title/Abstract] AND structure[Title/Abstract]) OR ("healthcare team\*"[Title/Abstract]))
   OR ("hospital[Title/Abstract] AND structure"[Title/Abstract]) AND (COVID-19[Title/Abstract])) OR
   (Coronavirus [Title/Abstract])) OR (Coronavirus [MeSH Terms])) OR (sars-cov-2[Title/Abstract]))
- 2. ((workforce[Title/Abstract] AND structure[Title/Abstract]) OR ("healthcare team\*"[Title/Abstract])) OR ("hospital[Title/Abstract] AND structure"[Title/Abstract]) AND "pandemics"[MeSH Terms] OR pandemic\*[title/abstract])

#### **EPPI**

Workforce OR healthcare team AND nosocomial OR infection

#### **Updated search 2 September 2021**

#### **PubMed**

("workforce"[MeSH Terms] OR "workforce\*"[Title/Abstract] OR "healthcare team\*"[Title/Abstract] OR "medical team"[Title/Abstract]) AND ("reconfigur\*"[Title/Abstract] OR "restructur\*"[Title/Abstract] OR "desynchronis\*"[Title/Abstract] OR "staffing"[Title/Abstract] OR "rotat\*"[Title/Abstract] OR "redesign\*"[Title/Abstract] OR (("sub"[Title/Abstract] OR "split"[Title/Abstract] OR "fixed"[Title/Abstract]) AND "team\*"[Title/Abstract]) AND ("COVID-19"[Title/Abstract] OR "COVID-19"[MeSH Terms] OR "sars cov 2"[Title/Abstract] OR "Severe Acute Respiratory Syndrome Coronavirus 2"[Title/Abstract] OR "2019 NCOV"[Title/Abstract] OR "Covid19"[Title/Abstract] OR "COVID-19"[Title/Abstract] OR "Severe Acute Respiratory Syndrome Coronavirus 2"[Supplementary Concept]) AND 2020/01/01:3000/12/31[Date - Publication]

148 hits on 2 September 2021

#### Google

COVID-19 AND workforce OR staffing AND reconfiguration OR surge

#### Inclusion and exclusion criteria





Inclusion	Exclusion
<ul> <li>Population: healthcare workforce</li> <li>Intervention: reconfiguration, restructuring, staffing or rostering changes, changes to teams</li> <li>Comparator: not applicable</li> <li>Outcome: the process of the reconfiguration</li> <li>In English</li> </ul>	Do not meet PICO criteria

Search dates	Updates
19 May 2020	Original search
2 September 2021	Evidence check question was revised to include evidence relating to workforce capacity management strategies
	Search re-run
	New relevant publications added to table
	In-brief updated to reflect new evidence.

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