

# NSW adult intensive care services pandemic response planning

This document provides the framework to support the provision of intensive care during an escalating pandemic. It should be used to inform local policies and procedures which should be current and reviewed regularly.

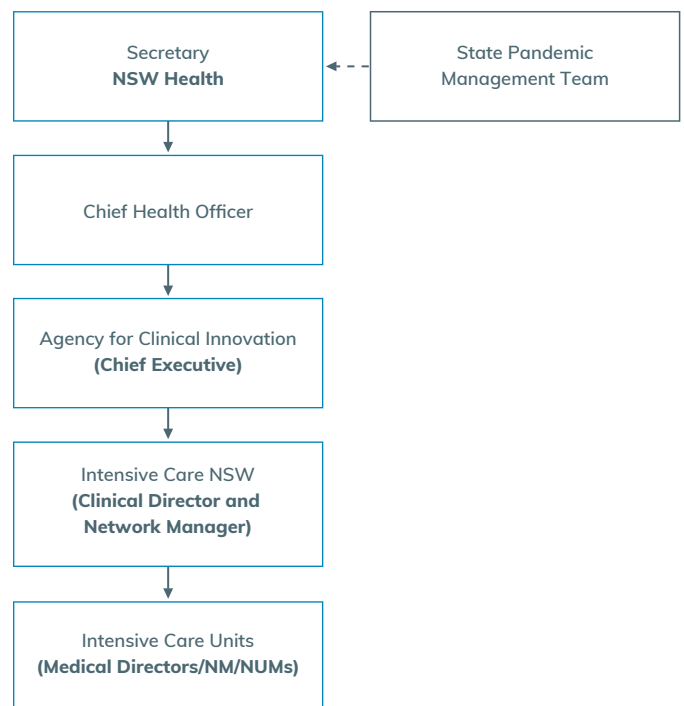
## Purpose

The purpose of this guide is to provide direction to local health districts for the delivery of intensive care services during a respiratory pandemic. This document supports the NSW Health Influenza Pandemic Plan, the NSW Human Influenza Pandemic Plan and The NSW Health Services Functional Area Supporting Plan (NSW HEALTHPLAN).<sup>1-3</sup>

Intensive care units (ICUs) have a key role to play in the organised response to a respiratory pandemic in NSW. Demand for intensive care services during a pandemic is likely to exceed normal supply. Conservative models of a large scale influenza pandemic predict more than 170% utilisation of ICU resources.<sup>4</sup> Each facility should have its own plan to ensure that intensive care services are able to surge effectively and that equitable access is maintained.

The procedures described in this document apply to intensive care units (ICUs) within NSW public hospitals. This document outlines the required response with regard to: communication and coordination, increasing ICU bed capacity, optimising health infrastructure and logistics, employing an ICU Pandemic Short Term Escalation Plan (STEP) and triaging of critical care services.

## Dissemination of information to NSW intensive care services



## NSW Health system response

Governance, communication, coordination and patient flow are essential elements of NSW Health adult intensive care services pandemic response planning.

System response	Key objectives
<p><b>NSW Health governance</b></p> <p>The Secretary of Health, as Incident Controller, will have overarching responsibility for NSW Health's response to a pandemic and will establish an incident management team to oversee the response across the health system.</p>	<p>Core members of the State Pandemic Management Team include:</p> <ul style="list-style-type: none"> <li>• Secretary of Health (Chair)</li> <li>• Chief Health Officer/Deputy Secretary Population and Public Health</li> <li>• State HSFAC</li> <li>• Deputy Secretary – Patient Experience and System Performance Division</li> <li>• Deputy Secretary – Governance Workforce and Corporate</li> <li>• Deputy Secretary – Strategy and Resources</li> <li>• Director – Public Affairs, Ministry of Health</li> <li>• Chief Executive – Agency for Clinical Innovation</li> <li>• Chief Executive – Clinical Excellence Commission</li> <li>• Chief Executive – HealthShare NSW</li> <li>• Chief Executive – NSW Health Pathology</li> <li>• Chief Executive representation from metropolitan and regional NSW local health districts.<sup>1,5</sup></li> </ul>
<p><b>Communication and coordination</b></p> <p>During a pandemic a communication framework, with clearly defined channels to ensure timely and accurate information and communication between pandemic response authorities and all intensive care service providers will /be utilised.</p>	<p>The Ministry of Health (Ministry) will engage and obtain strategic advice from the Secretary of Health, Agency for Clinical Innovation (ACI), and the Sydney Children's Hospitals Network (SCHN) on the prioritisation and delivery of intensive care services for adults and children during a pandemic.</p> <p>A teleconference, as required, involving the Ministry, ACI, ICU directors and nurse managers (NM)/nurse unit managers (NUM) will take place, updating on current pandemic and ICU status if required. This will be coordinated by a delegate from the Ministry. Checklists are available for the units to use (Appendix 1 and 2). ICNSW/ACI will ensure an accurate and up to date list of contacts for all the units. A group of ICU clinicians may be formed to provide an opportunity for sharing of ideas, strategies, local solutions and concerns with respect to respiratory pandemic preparedness. It may also be an opportunity for intensive care clinicians to raise concerns to ICNSW, who will provide feedback to the appropriate branch of Ministry of Health for consideration and action where required. This forum may be in the form of a weekly teleconference that is chaired by the ICNSW Clinical Director.</p>
<p><b>Monitoring ICU activity and capacity</b></p> <p>The information within the Patient Flow Portal (PFP) and Electronic patient Journey Board (EPJB) must be updated by staff in the ICUs as changes occur and checked every four hours as a minimum to ensure it is current and correct.</p>	<p>Specific information requiring update include:</p> <ul style="list-style-type: none"> <li>• ICU Pandemic (STEP) level (Appendix 3)</li> <li>• Bed availability by Nursing Dependency (Nur Dep)</li> <li>• COVID-19 beds</li> <li>• Negative pressure rooms in use</li> <li>• Respiratory support status (Resp)</li> <li>• Dialysis status</li> <li>• Name and contact details of ICU consultant on duty.<sup>6</sup></li> </ul>

## Role and responsibilities related to intensive care services<sup>3</sup>

NSW Ministry of Health, NSW Agency for Clinical Innovation, local health districts (LHDs) and intensive care units within NSW public hospitals have defined roles and responsibilities for adult intensive care services pandemic response planning.

Organisation	Roles and responsibilities
<b>Ministry of Health (Ministry) – Chief Health Officer</b>	<ul style="list-style-type: none"> <li>• Liaises with the Secretary and the Minister for Health to provide advice regarding critical care management activities.</li> <li>• Consults with the State HSFAC to provide specialist advice and support.</li> <li>• Provides input into the development and delivery of key health information messages during health emergencies.</li> <li>• Coordinates the national health sector response to a pandemic, technical aspects of which are adopted by NSW for national consistency.</li> </ul>
<b>Agency for Clinical Innovation (ACI)</b>	<ul style="list-style-type: none"> <li>• Fosters communication across all key stakeholders including NSW Health, expert groups, clinicians and consumers at state, national and international levels</li> <li>• Collates information relevant to provision of intensive care services and reports to Chief Health Officer.</li> <li>• Facilitates dissemination of information to LHDs and updates related to policy updates.</li> </ul>
<b>Local health districts (LHDs)</b>	<ul style="list-style-type: none"> <li>• Develops control and coordinates management infrastructures and arrangements for respiratory pandemic health emergencies.</li> <li>• Prepares and maintains arrangements for surge staff capacity.</li> <li>• Coordinates targeted local communication and supporting communication of state-wide messages.</li> <li>• Coordinating consistent content of local health facility pandemic plans.</li> </ul>
<b>Intensive care units</b>	<ul style="list-style-type: none"> <li>• Maintain up to date local pandemic response policy.</li> <li>• Maintain communication with key stakeholders (ICNCW, Ministry, LHDs, hospital executive), including updating the Patient Flow Portal (PFP).</li> </ul>

## Intensive care services surge capacity planning

The capacity of the NSW Health system to provide adult intensive care services in times of peak demand is an essential component of pandemic response planning.

System component	System capabilities and response
<b>ICU pandemic STEP</b>	<p>During a pandemic the incident controller will request all NSW intensive care units use the ICU Pandemic STEP and update the level as changes occur, or at least every four hours, in the Patient Flow Portal.</p> <p>The purpose of the NSW Pandemic ICU STEP is to provide a framework that defines the impact of the pandemic on daily operations and the triggers to move to the next escalation phase. It enables facilities to employ strategies to manage critically ill patients during each phase of the pandemic.</p> <p>The principles of the escalation plan are to:</p> <ul style="list-style-type: none"> <li>• ensure the application of the STEP across NSW during the pandemic is consistent</li> <li>• communicate facility escalation phases to the State Health Emergency Operations Centre (SHEOC)</li> <li>• assume facilities have developed and operationalised ICU surge plans for the pandemic</li> <li>• ensure LHD critical care networking arrangements are confirmed and reinforced</li> <li>• facilitate the escalation of additional resource requirements through LHD channels. LHDs are to escalate to SHEOC if they are unable to manage the requests</li> <li>• ensure resources are distributed efficiently by the SHEOC in response to facility demand.</li> </ul> <p>The incident controller will advise when ICUs are to stand down the use of the ICU Pandemic STEP.</p>
<b>ICU bed capacity</b>	<p>Currently NSW adult intensive care services are provided by:</p> <ul style="list-style-type: none"> <li>• 39 public general/combined ICUs with a proportion of units also accommodating quaternary service beds for severe burns, acute spinal injury, organ transplantation and ECMO (provided by 9 adult and 3 paediatric ICUs).*</li> <li>• 22 private ICUs with 8 providing specialist cardiothoracic intensive care beds and 1 providing specialist neurosurgery intensive care beds.</li> <li>• 2 private high dependency units (HDUs).</li> </ul> <p>* Total number of commissioned adult ICU beds as of July 2021 – 592 (level 4/5/6).</p>
<b>Increasing ICU bed capacity</b>	<p>Additional ICU bed capacity will be achieved by enacting local pandemic/disaster plans and considering the following:</p> <ul style="list-style-type: none"> <li>• Opening additional beds in existing non-commissioned physical intensive care bed spaces.</li> <li>• Deferring elective surgery requiring postoperative ICU care.</li> <li>• Progressively converting appropriately monitored beds to intensive care e.g. coronary care units (CCU), operating theatres (OT) recovery, close observation units (COUs).</li> <li>• Using available private hospital ICU capacity.</li> <li>• Reviewing the need for accepting referral of patients for ICU from other facilities within NSW.</li> <li>• Suspending elective referrals of patients requiring ICU from outside of NSW when capacity in other states for an equivalent service is available.</li> <li>• Facilitating networking of patients around LHD ICU resources to ensure the sickest patient is at the most appropriate ICU. This can be facilitated by transfer to the most appropriate hospital with bed capacity as directed by the LHD.</li> <li>• Facilitating end of life discussions and decisions in those appropriate ICU patients assessed as not reaching a meaningful recovery.</li> <li>• Planning for surge capacity staffing will need to cover at least the next 72 hours, with monitoring for staff fatigue and stress and include hospital or LHD strategies to mitigate these. Staffing in the middle of the respiratory pandemic will need to consider a team orientated approach if lesser experienced staff are used in the ICU to support more skilled staff.<sup>7</sup></li> </ul>

System component	System capabilities and response
<b>Health infrastructure and logistics</b>	<p>Each facility must take an inventory of the following resources to inform their local critical care surge response.</p> <ul style="list-style-type: none"> <li>• Available ICU beds and additional non-commissioned ICU bed spaces.</li> <li>• Potential suitable bed spaces in non-intensive care areas which may be used for intensive care patients, e.g. recovery, perioperative units, respiratory units, and CCUs.</li> <li>• Negative pressured isolation rooms.</li> <li>• Non-pressurised isolation rooms.</li> <li>• Check with engineering regarding air conditioning flows in negative pressure rooms and single rooms.</li> <li>• Equipment and consumables required to set-up and sustain a typical ICU bed space.</li> <li>• Standard ICU ventilators.</li> <li>• Other ventilation devices including transport ventilators and those located outside the ICU, e.g. OT, emergency department (ED).</li> <li>• Portable monitoring devices including portable oxygen saturation monitors, inside the ICU and in other clinical areas.</li> <li>• Availability of personal protective equipment (PPE).<sup>7</sup></li> </ul>
<b>Intensive care workforce</b>	<p>The Public Health Workforce Surge Guidelines (GL2014_003) have been developed to assist LHDs in understanding when and how to identify, recruit and utilise surge staff in the event of a pandemic.<sup>8</sup> These guidelines for surging staff in response to an event that exceed the existing capacity should be used in conjunction with local ICU pandemic/disaster policies, with consideration to:</p> <ul style="list-style-type: none"> <li>• types of staff required</li> <li>• potential pools of surge staff</li> <li>• training needs of surge staff</li> <li>• logistics and staff wellbeing.<sup>9</sup></li> </ul>
<b>Triaging intensive care</b>	<p>During a pandemic it will be important that consistent decisions are made regarding both admission to ICU and continuing care when a meaningful recovery is unlikely. Triage will be enacted at the same level across the state to promote equity of access of patients to intensive care. It is important that the triage principles to maximise access to ICU are used for all potential admissions, not just infection-related admissions.<sup>9</sup></p> <p>The process of triaging intensive care resources includes both the process of allocating resources and the process of withdrawal of resources, for all patients that may require intensive care during a respiratory pandemic. Complex ethical and clinical treatment issues can occur, it may be necessary at some point to begin prioritising limited critical care resources to those with a need for treatment and those who are most likely to survive. Such prioritisation decisions would need to take account all patients' probability of survival, as well as the availability of limited critical care resources.</p> <p>A NSW guideline for pandemic resource-based decision making for ICU triage has been designed to ensure that NSW ICU services and LHDs are supported to provide consistent care in a way that suits current epidemiological and clinical conditions. This guideline has been developed by intensive care clinical experts and ethicists in consultation with NSW COVID-19 Critical Intelligence Unit (CIU) and the NSW Health Ethics Advisory Panel (HEAP). It includes establishment of triage governance committees (TGC) and appointment of triage officers (TO), activation of pandemic resource-based decision making and use of allocation frameworks and tools.<sup>10</sup></p>

## Appendix 1

### ICU preparedness checklist

Action	Completed
Increasing ICU bed capacity plan/surge capacity plan	
Staffing/workforce strategy plan	
Health infrastructure and logistics plan	
Discussion of local escalation plan with intensivist, nurse manager and LHD disaster controller	
Communication of plan with ACI/ Ministry including 4/24 update of PFP	

## Appendix 2

### ICU system capacity checklist

ICU	Level of ICU	Total beds	Available beds	Single rooms available	Negative pressure rooms available	Ventilators available	Total number of patients	Level 3	Level 2	Level 1



## NSW ICU PANDEMIC SHORT TERM ESCALATION PLAN (STEP)

The purpose of the NSW Pandemic ICU STEP is to provide a framework that defines the impact of the pandemic on daily operations and the triggers to move to the next escalation level. It enables facilities to employ strategies to manage critically ill patients during each phase of the pandemic.

The principles of this escalation plan are to:

- ensure consistency in application of the STEP across NSW during the pandemic
- provide a tool to accurately communicate facility escalation levels to the SHEOC
- assume facilities have developed and operationalised ICU surge plans for the pandemic
- ensure LHD critical care networking arrangements are confirmed and reinforced
- facilitate escalation of additional resource requirements through LHD channels. LHDs are to escalate requests to SHEOC if unable to manage request
- ensure resources are distributed efficiently by the SHEOC in response to facility demand

Level	Impact	Recommended strategies	Triggers to step to next level
0	Minimal impact on daily operations	<ul style="list-style-type: none"> <li>• ICU surge plans (bed spaces, equipment) developed and recorded in PFP<sup>1</sup></li> <li>• Critical care networking arrangements confirmed<sup>2</sup></li> <li>• ICU workforce surge plan developed to identify additional workforce for surge levels 1-3<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• ICU approaches maximal operational capacity <b>And/or</b></li> <li>• Insufficient critical care staff to meet current demand</li> </ul>
1	Moderate impact on daily operations ICU approaching maximal operational capacity <sup>4</sup>	<ul style="list-style-type: none"> <li>• Care delivery for ICU2 patients in other areas<sup>5</sup></li> <li>• Escalate additional resource needs<sup>6</sup></li> <li>• Transfer of critically ill patients to other facilities as appropriate<sup>2</sup></li> <li>• Activate Level 1 ICU workforce strategies<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• ICU demand exceeds maximal operational capacity <b>And/or</b></li> <li>• Insufficient critical care staff to meet current demand</li> </ul>
2	Severe impact on daily operations Overall demand for critical care exceeding ICU operational capacity	<ul style="list-style-type: none"> <li>• Care delivery for ICU1 and ICU2 patients in additional areas<sup>7</sup></li> <li>• Escalate additional resource needs<sup>6</sup></li> <li>• Transfer of critically ill patients to other facilities as appropriate<sup>2</sup></li> <li>• Activate Level 2 ICU workforce strategies<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• ICU demand significantly exceeds operational capacity <b>And/or</b></li> <li>• Insufficient staff to meet current demand with non-standard critical care staffing model</li> </ul>
3	Overwhelming impact on daily operations Demand for critical care services significantly exceeds organisation-wide capacity	<ul style="list-style-type: none"> <li>• Activate NSW Pandemic Resource-based decision making<sup>8</sup></li> <li>• Care delivery for ICU1 and ICU2 patients in alternative areas<sup>9</sup></li> <li>• Escalate additional resource needs<sup>6</sup></li> <li>• Activate Level 3 ICU workforce strategies<sup>3</sup></li> </ul>	



# NSW ICU PANDEMIC SHORT TERM ESCALATION PLAN (STEP)

1. ICU surge beds and ventilator numbers to be updated a minimum of daily in PFP.
2. NSW Critical Care Tertiary Referral Networks and Transfer of Care (ADULTS) PD2018\_011.
3. Adult intensive care workforce report in COVID-19 pandemic.
4. ICU definition may include standard physical ICU beds and designated ICU surge beds in other areas such as CCU, COU, Recovery and Operating Theatre under direction of Intensive Care Consultant.
5. Other identified areas to manage ICU2 patients such as CCU, COU, Recovery, Operating theatres under the direction of Intensive Care Consultant. Consider areas co-located to ICU as a first option to improve workflow. Consider using private facilities as per surge plans.
6. ICU to escalate resource requirements through LHD channels. LHD to escalate to SHEOC as required.
7. Additional areas to manage ICU1 and ICU2 patients may include other identified surge wards and clinical areas under the direction of Intensive Care Consultant. Consider using private facilities as per surge plans.
8. Guidelines for intensive care decision making in a pandemic, activated at the direction of the Ministry of Health Incident Controller.
9. Mobilise critical care delivery in areas without pre-existing critical care infrastructure (non-clinical buildings/temporary hospitals/marquees).

<b>Glossary</b>	<b>COVID+</b>	Patient confirmed positive for COVID-19
	<b>COU</b>	Close Observation Unit
	<b>ICU1 patient</b>	Patient requiring 1:1 nursing care- 1 nurse allocated to care for 1 patient
	<b>ICU2 patient</b>	Patient requiring 1:2 nursing care- 1 nurse allocated to care for 2 patients
	<b>LHD</b>	Local Health District / Specialty Health Network
	<b>Operational capacity</b>	Capacity to manage intensive care patients with adequate bed space, equipment and staff
	<b>PFP</b>	Patient Flow Portal
	<b>SHEOC</b>	State Health Emergency Operations Centre

**Assumption:** ICU patients that are medically cleared for discharge are transferred to the ward within 6 hours

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## Glossary

<b>COVID+</b>	Patient confirmed positive for COVID-19
<b>COU</b>	Close observation unit
<b>ICU1 patient</b>	Patient requiring 1:1 nursing care - 1 nurse allocated to care for 1 patient
<b>ICU2 patient</b>	Patient requiring 1:2 nursing care - 1 nurse allocated to care for 2 patients
<b>Operational</b>	Capacity to manage intensive <b>capacity</b> patients with adequate bed space and staff
<b>PFP</b>	Patient Flow Portal
<b>SHEOC</b>	State Health Emergency Operations Centre

**Assumption:** ICU patients that are medically cleared for discharge are transferred to the ward within 6 hours

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