Guiding Principles to Optimise Intensive Care Capacity

A Whole of Hospital Approach to Improving Patient Flow
The Agency for Clinical Innovation (ACI) works with clinicians, consumers and managers to design and promote better healthcare for NSW. It does this through:

- **service redesign and evaluation** – applying redesign methodology to assist healthcare providers and consumers to review and improve the quality, effectiveness and efficiency of services
- **specialist advice on healthcare innovation** – advising on the development, evaluation and adoption of healthcare innovations from optimal use through to disinvestment
- **initiatives including guidelines and models of care** – developing a range of evidence-based healthcare improvement initiatives to benefit the NSW health system
- **implementation support** – working with ACI Networks, consumers and healthcare providers to assist delivery of healthcare innovations into practice across metropolitan and rural NSW
- **knowledge sharing** – partnering with healthcare providers to support collaboration, learning capability and knowledge sharing on healthcare innovation and improvement
- **continuous capability building** – working with healthcare providers to build capability in redesign, project management and change management through the Centre for Healthcare Redesign.

ACI Clinical Networks, Taskforces and Institutes provide a unique forum for people to collaborate across clinical specialties and regional and service boundaries to develop successful healthcare innovations.

A key priority for the ACI is identifying unwarranted variation in clinical practice. ACI teams work in partnership with healthcare providers to develop mechanisms aimed at reducing unwarranted variation and improving clinical practice and patient care.

aci.health.nsw.gov.au
Acknowledgements

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Glossary of acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACI</td>
<td>Agency for Clinical Innovation</td>
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<tr>
<td>COU</td>
<td>Close Observation Unit</td>
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<td>ePJB</td>
<td>Electronic Patient Journey Board</td>
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<td>eRIC</td>
<td>Electronic Record for Intensive Care</td>
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<td>eMR</td>
<td>Electronic Medical Record</td>
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<td>ETP</td>
<td>Emergency Treatment Performance</td>
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<td>EDD</td>
<td>Estimated Day of Discharge</td>
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<td>ICU</td>
<td>Intensive Care Unit</td>
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<td>ICS</td>
<td>Intensive Care Service</td>
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<td>MDT</td>
<td>Multidisciplinary Team</td>
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<td>MO</td>
<td>Medical Officer</td>
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<td>MoH</td>
<td>Ministry of Health</td>
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<td>NEST</td>
<td>National Elective Surgery Targets</td>
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<td>NUM</td>
<td>Nursing Unit Manager</td>
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<td>NM</td>
<td>Nurse Manager</td>
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<td>PD</td>
<td>Policy Directive</td>
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<td>PFP</td>
<td>Patient Flow Portal</td>
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<td>RN</td>
<td>Registered Nurse</td>
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Executive summary

Ensuring the right care, for the right patient, in the right place

Intensive care services are a precious resource that should be provided in a safe and efficient way. Intensive care unit (ICU) exit block is a significant problem affecting many units across NSW, impacting the care of critically ill patients (13, 14). Delays in transfers from intensive care reduce ICU capacity and prevent patients accessing the next stage of their healthcare journey, impacting whole of hospital patient flow.

Evidence shows that ICU exit block is associated with poorer patient outcomes and suboptimal patient and staff experience (2, 3, 8, 15). Exit block results in increased after hours discharge from ICU and prolongs both intensive care and overall hospital length of stay (3). Reduced intensive care capacity leads to reduced ability to admit critically ill patients from the emergency department, operating theatres, wards and other hospitals within the Local Health District (LHD) network. It adversely affects overall hospital performance, including Emergency Treatment Performance (ETP) and National Elective Surgery targets (NEST), and patient outcomes (1).

In 2017, 40% of intensive care patients in NSW experienced exit block of over six hours, delaying their ability to continue to the next phase of their recovery to optimise outcomes and minimise unnecessary risks (3, 4, 6, 15, 16). Delayed patient transfers over 6 hours from ICUs in NSW were associated with 33 fewer available ICU beds at an annual cost of $77.42 million (14).

The Intensive Care NSW Guiding Principles to Optimise Intensive Care Capacity aim to assist in the reduction of ICU exit block and improve facility patient flow. They are based on current best practice and were informed by a literature review and findings from a NSW ICU exit block research redesign project. As Intensive Care NSW continues to partner with facilities across the state to reduce ICU exit block, this document may be amended in response to lessons arising through wider testing and implementation of solutions and include any additional successful strategies identified.

The guiding principles align with the Whole of Health Program and with the Ministry of Health Patient Flow Systems Framework (10). The principles include nine key elements, including both whole of hospital and ICU specific strategies, to ensure patients have access to the right care in the right place. Together, these groups aim to improve patient flow facility-wide and optimise intensive care capacity.

“Many factors impact on patient flow and reducing ICU discharge delays requires a collaborative, multifactorial approach which adapts to changing organisational policy on patient flow through ICU and the hospital, not just the discharge process in ICU” (1).
Figure 1: Guiding principles for optimising intensive care capacity

**Whole of hospital strategies**

1. Streamlining facility patient flow processes
2. Optimising access to intensive care capacity
3. Resourcing to achieve effective patient flow
4. Agreed prioritisation for patient discharge from intensive care
5. Ensuring the right care for the right patient in the right place

**ICU Specific strategies**

6. Adequate planning for ICU discharge
7. Timely medical clearance for discharge from ICU
8. Standardising ICU rounding to inform discharge processes
9. Efficient preparation of patient for ICU discharge

Implementation of strategies outlined in the *Guiding Principles to Optimise Intensive Care Capacity* aim to reduce ICU exit block and improve patient flow across the facility, improving the experience for staff, patients and their families.

This document will provide guidance for staff working in intensive care services and across acute facilities to identify opportunities for improvement based on local needs. It further provides considerations and suggested solutions for development, both internal to ICU and across the whole facility. This document is intended for use by ICU and Patient Flow teams, managers and change agents within facilities and LHDs, to support improvements in this area and undertake sustainable changes and ongoing quality improvement practices to optimise hospital and intensive care capacity.

“Optimal patient flow is associated with the provision of safe, high quality care, patient satisfaction, improved access and reduced costs.” (11)
Who this guide is for

The guiding principles have been developed to guide those staff with an interest in reducing ICU exit block, optimising intensive care capacity and improving facility patient flow, and who are undertaking quality improvement practices in these areas. Staff may include those within intensive care units and those across the wider facility, including hospital patient flow, emergency departments, perioperative services, wards, environmental and supporting services and hospital administration.

How to use this guide

The Guiding Principles to Optimise Intensive Care Capacity are intended to guide implementation of strategies that will support safe and efficient use of valuable intensive care resources, whilst increasing compliance with NSW Ministry of Health policies and guidelines related to patient flow. Implementation of these strategies has the potential to improve the delivery and experience of care to patients, their carers and families across NSW.

The guiding principles are inclusive of a description, considerations for effective implementation and examples. They also include mapping to relevant elements of the Ministry of Health Patient Flow System Framework that will assist guiding prioritisation of improvement areas.

When used in conjunction with the Intensive Care NSW Guiding Principles to Optimise Intensive Care Capacity alignment survey\(^1\) and implementation guide\(^2\), the principles will assist staff to:

- undertake a thorough diagnostic process to understand current practices and identify potential opportunities for improvement, specifically related to local processes both within the ICU and across the facility (including patient flow). This may include patient and staff surveys, and a review of local service activity data
- identify prioritised improvement areas for local context, its patients, staff and executive.
- identify and develop solutions for the prioritised opportunities for improvement, including clarity of and defined scope, resource requirements, timeframes and any potential risks and challenges to implementation and how they may be managed.
- develop an implementation plan for each solution
- implement sustainable change through:
  - use of ongoing monitoring measures and consistent feedback mechanisms to key stakeholders
  - evaluation
  - sharing achievements and outcomes.

\(^1\) Currently under development.
Background

Current situation
There is extraordinary demand on acute and intensive care beds in NSW hospitals. ICU exit block has been identified as a significant problem impacting the care of critically ill patients in NSW. Using an ICU bed for a patient who no longer requires it represents an inefficient use of resources and risks creating delays in admitting other critically unwell patients.

There are 44 adult intensive care services (ICS) located in NSW, comprising 763 adult intensive care beds. Of these, 10 ICS are categorised as level six, 17 are level five and there are 17 level four ICUs. In 2017, a total of 58,179 patients were admitted to ICU with 40% of these patients experiencing exit block. There is an increasing demand for ICSs, with NSW ICUs operating at an average occupancy of over 85% in 2017 and many operating well over 90% occupancy in peak winter periods.

Whilst variability exists in patient flow and ICU processes across NSW, there are a number of common themes contributing to ICU exit block. A literature review and outcomes of a redesign research project conducted in NSW, demonstrated contributing factors both internal to ICU and across whole of hospital processes. Inefficiencies exist in areas such as ICU discharge planning and patient preparation, whilst across the entire facility variability exists in facility patient flow processes and their ability to meet the demand and optimise capacity.

Common themes contributing to ICU exit block
- Suboptimal planning for ICU discharge
- Complex ICU discharge processes
- Inconsistent ICU medical clearance for discharge
- Inefficient ICU discharge preparation
- Inefficient patient flow processes
- Lack of predictive management for ICU demand and capacity
- Inadequate resources to support efficient hospital patient flow
- Low priority allocated for ICU patient discharges
- Unavailability of ward specialty and COU beds
- Inefficient hospital discharge processes

The effects of ICU exit block

Patients should be discharged from ICU when specialty care is no longer needed (11). They need to be able to move to the next stage of their recovery to optimise outcomes and minimise unnecessary risks (1-3, 7).

“Our resus … those five beds are currently full. Three of those patients are requiring ICU because they don't currently have the capacity to take them. These patients have come in overnight and they've sat in our department for up to eight hours, nine hours”

ICU Exit Block Pilot Research Project – Staff interview 2018
Keeping patients who no longer need to be in ICU blocks access for critically ill patients who require access to intensive care services (11). The inability to access intensive care beds can affect the timely transfer of patients from the emergency department, operating theatres and the ward, as well as those from referral hospitals seeking specialty or higher level care.

Intensive care services are a precious and expensive resource and need to be used effectively. Unnecessary use of intensive care resources can waste health dollars and consume scarce resources particularly at peak demand periods (7, 11). A health economics analysis conducted in 2018 determined the cost of care for a critically ill patient in the ICU in NSW has risen significantly. The annual cost of an ICU bed has increased from a previously unpublished estimate of $1.4 million to $2.3 million in 2017 (14). In 2017 the average duration of a patient experiencing ICU exit-block in NSW was estimated at 10.4 hours, with an associated average cost valued at $2,764 (14, 16).

OT staff spoke of having to inform patients their surgery was cancelled:

“By the time you get to four or five o'clock and you haven't had anything to eat all day and you've organised your life, only to find out your surgery's cancelled … you might not be booked again for another three weeks”

ICU Exit Block Pilot Research Project – Staff interview 2018
Methods used to develop the guiding principles

The guiding principles have been developed to highlight strategies to reduce ICU exit block and optimise utilisation of intensive care resources, improving the experience of patients, their families and staff. The principles align with the Ministry of Health Patient Flow Systems Framework and the seven key elements, which have been developed to enable a system wide approach to identify and resolve delays within the current system to create capacity (10).

A number of diagnostic processes were used to identify themes contributing to ICU exit block, and informed the development of the guiding principles. These included a review of current literature and relevant healthcare standards, in partnership with a comprehensive diagnostic process that was undertaken in the Reducing Exit Block Pilot Research project. In addition a health economic analysis was conducted to determine the costs and cost benefits of the Pilot Research project.

Literature review
A literature review was undertaken to provide a summary of recent and relevant evidence to identify themes contributing to ICU exit block and key findings to support determination of strategies that may be effective at reducing ICU exit block and improving patient flow as part of the Reducing ICU Exit Block project.

The initial search was undertaken using Mesh headings followed by a review of relevant grey and associated literature to ensure broad coverage. The Ministry of Health also commissioned a literature review regarding patient flow and this has also been reviewed to inform the Literature Review summary. Papers included a mix of experimental, observational mixed method designs and discussion papers. The available literature has been considered together and key findings grouped into themes to inform the Reducing ICU exit block pilot project. The Literature Review provides a summary of the key articles relevant to the study regarding ICU exit block, and aligning with the theory that patient flow requires a whole of hospital approach.

Health care standards review
A review of relevant intensive care service and patient flow healthcare standards was conducted and used to inform and support the Guiding Principles, and provide examples of practice to achieve these in the hospital setting.

Reducing Exit Block Pilot Research Project
The ACI partnered with four ICUs across NSW in 2018 to participate in a pilot research project to identify and test strategies to reduce ICU exit block and improve patient flow. The diagnostic phase of the pilot research project involved structured staff and patient interviews, staff surveys, process mapping of the ICU discharge process, and an analysis of hospital and ICU data/outcomes. The themes identified from the diagnostic phase were paired with a review of available evidence which showed a number of common themes contributing to exit block.

The diagnostic findings of the pilot research project, together with a literature review informed the development of these principles. Formal evaluation of the ICU exit block pilot research project is scheduled for 2019/20.

Health economics analysis
A health economic analysis of the costs and cost benefits of the project was undertaken by health economists at the Hunter Medical Research Institute in 2018.
Patient flow systems framework
“The patients are our main focus and we must ensure they have access to the right care, at the right time, and in the right place, with minimum waiting times” (10).

Figure 2: Key elements

- Demand & Capacity Planning - Organising your service to build capacity
- Variation Management - Smoothing the peaks and troughs to distribute the load
- Demand Escalation - Act early to preserve capacity
- Standardised Practice - Promote best practice to lock in expected outcomes
- Care Coordination - Navigating patients through the health system to prevent delays
- Governance - Transparent accountable leadership
- Quality - Structuring systems around an expected outcome

The guiding principles also incorporate best practice according to relevant quality and professional standards which are outlined Table 1.

Table 1: Relevant professional standards

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<thead>
<tr>
<th>Quality/professional standard</th>
<th>Entity</th>
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<tr>
<td>National Safety and Quality Health Service Standards Second Edition 2017 (Standards 1, 3, 5, 6) (17)</td>
<td>Australian Commission on Safety and Quality in Healthcare</td>
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<tr>
<td>Patient Flow Systems Framework (10)</td>
<td>Ministry of Health</td>
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<tr>
<td>Minimum standards for intensive care units (18)</td>
<td>College of Intensive Care Medicine of Australia and New Zealand</td>
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<tr>
<td>In safe hands: a guide to the 10 functions (19, 20)</td>
<td>Clinical Excellence Commission</td>
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<tr>
<td>Clinical handover-standard key principles (PD2009_060) (21)</td>
<td>NSW Health</td>
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<tr>
<td>Care coordination: planning from admission to transfer of care in NSW public hospitals (PD2011_015) (22)</td>
<td>NSW Health</td>
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<tr>
<td>NSW Health Guide to the Role Delineation of Health Services. NSW Ministry of Health, 2018 (23)</td>
<td>Ministry of Health</td>
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Why do we want to reduce ICU exit block?

A patient’s perspective
ICU exit block is prevalent in many units across NSW and has been shown to result in suboptimal patient outcomes. Delayed discharges impact the effective utilisation of intensive care services, and can prevent critically ill patients accessing the ICU. Patients ready for discharge from ICU require timely progression to the next stage of their healthcare journey to optimise their recovery.

Evidence shows that ICU exit block is associated with:
- poorer patient outcomes (1-6)
- reduced ICU capacity to admit critically ill patients, with an impact on whole of hospital patient flow (1)
- poorer patient journey and experience (8)
- poorer staff experience (7, 9)
- increased costs.

Delaying discharge and keeping patients in the ICU unnecessarily can subject them to risks such as exposure to multi-resistant organisms and delay recovery (1, 7). Patients remaining in the intensive care environment can experience negative effects such as sleep deprivation and psychological disturbances, which may impact their recovery (1, 3). The Reducing ICU Exit Block Pilot Research Project found that patients wanted to leave the ICU once they were considered well enough to start the next stage of their recovery and leave the noisy and busy ICU environment. Evidence supports this finding with reports of poor patient experience associated with lack of sleep, difficulty with mobility and visitor access (8).

ICU exit block can lead to an increase in after-hours discharges from ICU to the wards (3). In 2017 28% (16, 24) patients in NSW ICUs were discharged after hours, placing patients at greater risk of adverse outcomes (4). The impact of ICU exit block on patient outcomes includes the increased risk of mortality (4, 5) and impacts the quality of transfer of care and communication with patients and their families (25-27); this was also confirmed through patient interviews in the Reducing ICU Exit Block Pilot Research Project.

“…because the nurses are out there and it’s not as private as the ward is.”
ICU Exit Block Pilot Research Project – Patient interview 2018

“They still treat me as if I need the full 24 hour care type thing.”
ICU Exit Block Pilot Research Project – Patient interview 2018

“I feel I’m taking space for someone else to use that’s sicker.”
ICU Exit Block Pilot Research Project – Patient interview 2018
A clinician’s perspective

Intensive care clinicians are highly skilled in caring for critically ill patients. When patients are over the critical stage of their illness, there is an expectation that they are transferred to the appropriate area to continue their recovery under the care of their inpatient teams. When this does not occur in a timely manner, patients may receive suboptimal care. It can lead to an inability to admit patients who are in need of intensive care which is frustrating for the clinicians (7). Overall, this can lead to job dissatisfaction, and increase burden on staff needing to focus on patient flow rather than clinical aspects of care and ultimately in burnout (12).

“I find our patients stay a lot longer in our unit when they’re cleared … they’re cleared for days, and they’re here a long time which is quite frustrating because when you’re on a night shift and you try and accept patients, you’re limited because you’ve got all these cleared patients in the unit.”
ICU Exit Block Pilot Research Project
– Staff interview 2018

A system perspective

In 2017 delayed patient transfers (over 6 hours) from NSW ICUs equated to lost availability of 33 ICU beds across the state. In 2017, 40% ICU patients experienced exit block (waiting > 6 hours) across NSW (ref) contributing to a loss of approximately $77.42 million per annum. Exit block causes an increased ICU and overall hospital length of stay, with a resultant rise in healthcare costs (1).

Exit block contributes to a reduction in intensive care capacity preventing access to ICU beds for patients requiring critical care and can affect the timely transfer of patients from the emergency department, operating theatres, wards and other hospitals within the Local Health District network or other referral sites. ICU exit block can adversely affect overall hospital performance, including Emergency Treatment Performance and Elective Surgery targets, hospital length of stay and patient outcomes (2, 7). This results in a delay in optimal intensive care management for critically ill patients outside of the ICU with adverse effects on hospital length of stay and patient outcomes (3).

ICU exit block is a system wide problem and requires a whole of hospital approach to remedy (7, 28). Improvement in facility patient flow and discharge processes are key components in reducing ICU exit block. Ensuring more timely ICU discharge reduces costs, improves intensive care capacity and improves the experience and outcomes for patients and their families.
## Guiding principles to optimise intensive care capacity

The following guiding principles incorporate best practice and align with the Ministry of Health Patient Flow Systems Framework.

### Whole of hospital strategies

<table>
<thead>
<tr>
<th>Principle 1: Streamlining facility patient flow processes</th>
<th>Patient Flow Systems Framework elements</th>
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</table>
| Description: An efficient process is used to coordinate and communicate patient flow processes across the hospital (including bed requests, allocation and readiness) (28, 29). | Care Coordination  
Standardised Practice  
Quality |
| Considerations: A streamlined, real time electronic system is used by all staff to effectively communicate bed demand and capacity across the facility with all relevant parties (7, 28, 30-33). | |
| Examples: The Patient Flow Portal (PFP) and electronic Patient Journey Board (ePJB), is used to identify, book, allocate and communicate patient and bed readiness to all hospital staff involved in patient flow (7, 10, 28, 30-33). | |
| Key roles to involve in this change: Patient Flow managers, Department NM/NUMs, nursing staff, ward clerks | |

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<tr>
<th>Principle 2: Optimising access to intensive care capacity</th>
<th>Patient Flow Systems Framework elements</th>
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| Description: Intensive care maintains capacity to admit patients at all times in response to demand, without the requirement to discharge patients after hours (44). | Variation Management  
Demand & Capacity Planning  
Demand Escalation |
| Considerations:  
- Real time accurate data on patient flow, capacity and demand is available and used by hospital staff to manage demand and capacity in ICU and across the hospital (7, 10, 28, 30).  
- Escalation processes are utilised to respond to circumstances when demand is predicted to, or exceeds capacity to admit to ICU (30, 34).  
- Equity of access for both surgical and emergency patients requiring admission to Intensive Care services is considered. | |
| Examples:  
- Facility policies/procedures are utilised to incorporate the effective optimisation of ICU capacity.  
- A data driven predictive tool is used routinely to schedule elective surgery around forecast emergency demand for ICU services (7, 10, 35).  
- The Short Term Escalation Plan (STEP) contained in the PFP is used to demonstrate ICU capacity (36).  
- The ICU has a surge plan to manage high occupancy and over capacity to meet demand (18, 30). | |
| Key roles to involve in this change: Facility Executive, Patient Flow Managers, OT NM/NUMs, ICU Director/ Intensivist, ICU NM/NUM, ED NM/NUM, Ward NUMs | |
### Principle 3: Resourcing to achieve effective patient flow

**Description:** The allocation and prioritisation of facility (or organisation) resources (such as wardspersons, medical imaging, cleaning services, etc) ensures effective patient flow and discharge processes (8, 30).

**Considerations:** Adequate resources such as medical imaging, pathology, wardspersons, cleaners, ward clerks, skilled nursing, medical and allied health staff to be readily available to support efficient discharge processes throughout the hospital (8, 30).

**Examples:**
- Adequate cleaners to be available using an effective prioritisation system to perform bed/room cleans (8, 30, 37).
- Adequate wardspersons to be available using an effective prioritisation system to perform patient transfers (8, 30, 37).
- Rostering adequate number of nurses and medical staff on wards/at facility at times of peak patient flow (matching capacity with demand) (8, 30, 37).
- Processes support availability of imaging and pathology results in a timely manner to facilitate efficient medical decision making and patient hospital admission, transfer or discharge (30, 37).

**Key roles to involve in this change:** General Manager, Director Nursing and Midwifery, Director Medical Services, Divisional Managers, Environmental Services Manager

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<th>Facility Principle 3: Resourcing to achieve effective patient flow</th>
<th>Patient Flow Systems Framework elements</th>
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<tr>
<td><strong>Care Coordination</strong></td>
<td><strong>Standardised Practice</strong></td>
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### Principle 4: Agreed prioritisation for patient discharge from intensive care

**Description:** Prioritisation of bed allocation in the hospital is structured to meet the needs of patient requirements consistently (8).

**Considerations:**
- A whole of hospital approach is used to ensure patients discharged from ICU are given priority for ward beds to optimise patient recovery and ensure efficient hospital discharge (2, 22).
- ICU patients ready for discharge are prioritised appropriately to support ICU capacity to admit critically ill patients (22).

**Examples:**
- A policy governing bed allocation processes and priority to meet ICU patient requirements is in place (22).
- A data driven predictive tool is used routinely to forecast demand for ICU services and inform timely prioritisation of ICU discharges (7, 30, 36).
- When ICU occupancy exceeds 75% (38), ICU is given first priority for available ward beds (39, 40). Optimal ICU efficiency is achieved around 75% occupancy (38, 41, 42).
- An ICU Liaison nurse or an outreach service is used to support timely discharge from ICU and support patients and ward staff (1, 32, 43, 44).

**Key roles to involve in this change:** General Manager, Director Nursing and Midwifery, Director Medical Services, Patient Flow Manager, ICU staff

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<th>Principle 4: Agreed prioritisation for patient discharge from intensive care</th>
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<td><strong>Demand Escalation</strong></td>
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<td>Facility</td>
<td>Principle 5: Ensuring the right care for the right patient in the right place</td>
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**Patient Flow Systems Framework elements**
- Care Coordination
- Standardised Practice
- Demand & Capacity Planning
- Demand Escalation

**Description:** Effective utilisation of ward specialty and Close Observation Unit (COU) beds occurs to ensure service demands met.

**Considerations:** A process exists for senior medical review of all patients before midday in ward specialty and COU beds to make management and discharge decisions (7, 35).

**Examples:**
- Clear admission and discharge criteria, documented in policies/procedures, are followed for specialty clinical areas and/or COU bed utilisation (30, 32, 44, 45).
- Nursing and medical staff with appropriate skills and experience are available to manage patients in specialty clinical areas and/or COUs (28, 34, 45).
- Criteria led discharge (by nurses or registrars) using clinical pathways is employed in specialty clinical areas and/or COU beds to achieve efficient utilisation of services (e.g., criteria led removal of telemetry as per recommended practice described in the Cardiac Monitoring of Adult Cardiac Patients in NSW Public Hospitals Guideline (GL2016_019) (46); LHD or site discharge protocols/guidelines) (28).

**Key roles to involve in this change:** Director Medical Services, Inpatient medical teams, ICU medical team, Ward/COU NUMs, Patient Flow Manager
ICU specific strategies

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<th>ICU</th>
<th>Principle 6: Adequate planning for ICU discharge</th>
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**Description:** Medical, nursing and allied health teams engage in early planning to coordinate efficient ICU discharge to other wards (8, 22, 28, 32, 47).

**Considerations:**
- The ICU medical and inpatient medical teams use an agreed and documented process to coordinate and plan for discharge (7, 8, 47).
- The ICU medical/nursing team, including multidisciplinary team members, review patients daily to determine and communicate the patient's planned estimated day of discharge (EDD) from ICU and clinical criteria for discharge (7, 8, 22, 28, 35).

**Examples:**
- ICU policies/procedures are utilised to incorporate ICU discharge processes that assist effective patient flow (44, 47).
- The medical nursing and allied health team engage in early planning for discharge, regularly documenting and/or revising an EDD for each patient, using the Patient Flow Portal/ePJB (22, 28, 36, 47).
- The patient and family are informed of the ICU EDD and updated on progress of discharge at each round (8, 22, 47).

**Key roles to involve in this change:** ICU medical team, ICU NM/NUM, ICU nursing staff, Inpatient medical team, relevant MDT members
**ICU**

### Principle 7: Timely medical clearance for discharge from ICU

**Description:** A standardised medical clearance process for ICU discharge is used, documented and communicated to all relevant staff both within and external to the ICU as required, in a timely way to enable efficient discharge preparation (30, 32, 48).

**Considerations:**
- The ICU medical team use an agreed definition and documentation of medical clearance and a standardised approach to medically clear patients for discharge from the ICU (47).
- Criteria led clearance for ICU discharge (registrar/nursing) is used for identified appropriate patient groups (7, 28, 32).

**Examples:**
- ICU policies/procedures/guidelines are utilised to incorporate ICU medical clearance processes that assist effective patient flow (8, 30, 32, 44).
- The Patient Flow Portal (PFP)/ePJB is used to capture patients ready for ICU discharge using the Inter Ward Transfer (IWT) function (28, 36).
- An efficient platform such as the ePJB is used to communicate medical clearance and readiness for discharge to the ICU team and the facility patient flow team (36).

**Key roles to involve in this change:** ICU medical team, ICU NM/NUM, ICU nursing staff, relevant MDT members

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### Principle 8: Standardising ICU rounding to inform discharge process

**Description:** A standardised process for ICU rounding, with combined medical, nursing and multidisciplinary attendance, occurs in time to inform hospital-wide patient flow processes/meetings.

**Considerations:**
- The ICU round includes nursing staff and an intensivist to authorise patient discharge from ICU (7, 32).
- The ICU medical/nursing round, including multidisciplinary team members as able, occurs in time to inform the daily hospital patient flow meeting of ICU patients cleared for discharge (22).

**Examples:**
- ICU policies/procedures/guidelines are utilised to incorporate ICU standardised rounding processes that assist effective patient flow.
- The Patient Flow Portal (PFP)/ePJB is used to capture patients ready for ICU discharge using the Inter Ward Transfer (IWT) function (28, 36).

**Key roles to involve in this change:** ICU medical team, ICU NM/NUM, ICU nursing staff, relevant MDT members
**ICU**

**Principle 9: Efficient preparation of patient for ICU discharge**

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<tr>
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**Description:** Once a patient is medically cleared for discharge from ICU, the patient should be prepared for transfer without delay, including preparing and educating the patient, carer and family (47).

**Considerations:**
- The patient should be prepared for transfer without delay. Preparation to consider appropriate insertion and or removal of lines, completion of medical, nursing and allied health discharge summaries, medical record requirements, monitoring cessation, family/carer communication/notification.
- The patient, carer and family should be prepared for transfer from a psychological perspective (49, 50).
- A clinical standard is developed to document the process of medical clearance for discharge from ICU, including medical orders for line insertion/removal documented immediately and actioned without delay (51-56).

**Examples:**
- ICU policies/procedures/guidelines are utilised to incorporate ICU standardised discharge preparation processes that assist effective patient flow (44, 47).
- Registered nurses with extended skills (e.g. CNC/NP) or dedicated teams have capacity to insert intravenous lines to expedite discharge (32).
- An integrated electronic system such as eMR is used between ICU and the hospital medical record system to ensure all relevant information is made available to support the safe transfer of care of the patient (21, 30, 32, 48).
- A patient/carer information brochure is utilised to inform the discharge process (e.g. what to expect, referral to ICU liaison/outreach service) (8).

**Key roles to involve in this change:** ICU medical team, ICU NM[NUM], ICU nursing staff, ward clerk
Key definitions

Close observation unit
A close observation unit is a specially staffed and equipped area of a hospital providing a level of care between intensive care and a general adult ward. A close observation unit (COU) may be established in a hospital with no intensive care service (i.e. a Level 3 COU) or in a hospital with a Level 4, 5 or 6 Intensive Care Service (i.e. a Level 4 COU). These units may have historically been referred to as high dependency units or coronary care units, depending on the scope of services delivered (45).

Many LHDs or hospitals have COU beds to support higher level monitoring and observation of higher acuity patients in specific settings, such as post-surgical units and respiratory failure or non-invasive ventilation units. These COUs do not ordinarily fall under the governance of the Intensive Care Service unless negotiated at a local level (45).

Estimated date of discharge
General definition:
The Estimated date of discharge (EDD) predicts the likely date that a patient will be transferred from hospital back into the community. It provides everyone involved in the patient’s care, including the patient and their family/carer/s, with a projected date to coordinate the patient’s requirements. While for some patients, the EDD may change due to clinical issues; review of best practice confirms that an accurate EDD can be set for most patients. Discussions with the patient and their family/carer/s, GP, community health and service providers should occur early, for effective care planning (36).

Planning transfer of care and use of EDD from Intensive Care:
Specialised areas such as Intensive Care Units (ICU) should use the EDD to indicate when patients are likely to be clinically ready to be transferred to an inpatient ward. This will assist the ICU team, patient flow managers and other relevant inpatient team members to plan for the transfer of the patient to the appropriate ward area, preventing ICU delays in returning patients to non-critical care beds and reduce patients receiving care outside their home ward (22).

Intensive care unit
“An intensive care unit (ICU) is a specially staffed and equipped, separate and self-contained area of a hospital dedicated to the management of patients with life-threatening illnesses, injuries and complications, and monitoring of potentially life-threatening conditions. It provides special expertise and facilities for support of vital functions and uses the skills of medical, nursing and other personnel experienced in the management of these problems” (18).

ICU exit block
ICU exit block is defined as a delay greater than six hours in ICU following medical clearance for discharge (24).
References


5. Tobin AE, Santamaria JD. After-hours discharges from intensive care are associated with increased mortality. MJA. 2006;184(7):334-7.


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45. NSW Agency for Clinical Innovation. Establishment, governance and operation of a close observation unit: Key principles. Chatswood, Australia: NSW Agency for Clinical Innovation,,; 2018.


