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<td><strong>SUMMARY</strong></td>
<td>This procedure outlines the best practice principles for the management of critical care beds to ensure the timely and appropriate access to critical care beds and discharge of those patients. Early access to critical care services has been evidenced to have a positive impact on survival rates and reduce lengths of stay.</td>
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1. **POLICY STATEMENT**
   Patient flow within critical care settings is complex and includes:
   - Appropriate emergency and elective access – admission guidelines and processes
   - Discharge and transfer processes - to ensure continuity of care and a supported transition
   - Bed management (e.g. ICU to HDU; critical care to ward areas)
   - Intra and inter District bed management (e.g. inter hospital referral and transfer guidelines)
   - A workforce with the competency range to provide the service, and a level of staffing appropriate to patient needs
   - Excellent communication strategies and pathways
   - Understanding the population and services that represent the patient flows
   - Managing variance and workforce issues (as outlined in appendix III)

2. **BACKGROUND**
   This procedure outlines principles for the management of critical care beds to ensure timely and appropriate access to critical care beds and discharge of those patients. Early access to critical care services has been evidenced to have a positive impact on survival rates and reduce lengths of stay.

   This procedure covers SESLHD and is applicable to Intensive Care and High Dependency Units. Increasingly there are competing demands for critical care beds. These competing priorities may impede flow in and out of critical care areas - limiting the ability to respond.

   Intensive care and high dependency care beds are managed at a local level to meet facility clinical priorities and District demand. However it is essential to acknowledge that intensive care beds are also a statewide resource and as such should be made accessible for interhospital transfers for definitive tertiary care when required.

3. **RESPONSIBILITIES**
   It is important to clarify the following:
   - Critical care services are managed locally but service the needs of the facility, Local Health District and NSW State. Local governance is through the General Manager, Clinical Group Managers/Co-Directors and Clinical Directors.
   - The ICU Specialist on-duty/on-call is accountable for the triage, admission and discharge of all patients to and from the ICU.
   - Operationally, day to day, the senior clinician and senior nurse (coordinator) are responsible for making decisions around capacity and demand; and making clinical decisions that affect patient flow. The local management of critical care areas should include regular reviews of patient dependency, skill mix, and capacity and demand factors to ensure the service can be provided safely and in a timely manner.
   - Patient Flow Managers are responsible in assisting critical care areas in managing their patient flow in and out. The relationship and communication between ICU, wards
and Emergency Departments is critical for success. Efficient patient flow is a hospital-wide responsibility.

- Ward-based clinical teams have responsibility for assisting and managing patient flow at a ward level, and ensuring timely clinical review and decision-making to ensure capacity at a ward level is available for other patients requiring that level of care.

4. DEFINITIONS

- Intensive Care Unit – a specially staffed and equipped, separate and self-contained section of the hospital for the management of patients with life-threatening or potentially life-threatening, and reversible or potentially reversible organ failure.
- High Dependency Unit – a specially staffed and equipped section of an intensive care complex which provides a level of care intermediate between intensive care and ward care.
- Intensive Care Patient – requires continuous monitoring, point of care diagnostics and complex supportive therapy. The standard registered nurse to patient ratio for these patients is 1:1 (exclusive of a nursing coordinator).
- High Dependency Patient – requires physiological monitoring, close observation and frequent medical review. The standard registered nurse to patient ratio for these patients in 1:2 (exclusive of a nursing coordinator).
- ICU/HDU Exit Block – a limitation of patient outflow due to the lack of access to ward beds or other accommodation/disposition. Currently defined as time in excess of six hours Australian Council Healthcare Standards (ACHS) from decision to discharge to actual transfer. ICU exit block occurs when a patient is well enough to be discharged but there is no ward bed available.
- This is a multi-factorial issue, requiring a whole of hospital approach to avoid delay and cancellation of complex surgical patients who may require postoperative ICU or HDU care.
- ICU exit block can result in “after hours” patient discharges to the general wards (defined as discharges between 1800 and 0600 hours) to free up a critical care bed to admit another critically ill patient. As clinical staffing and support services on the wards are at a minimum after hours, this practice is associated with increased risk of death or readmission to the ICU.
- Capacity and Demand – a hospital wide approach to admissions and discharge processes that allows both forward planning and operational expertise around bed management decisions. Critical care services should be appraised regularly of the hospital-wide capacity and demand factors and should be able to flex up and down on the critical care capacity accordingly.
- Occupancy – The level of bed utilisation.
- Category 1 Surgical cases: patient’s requiring admission within 30 days for a condition that has the potential to deteriorate quickly to the point of becoming an emergency
5. GUIDING PRINCIPLES

Each facility is to ensure the following principles and procedures are adopted and variance monitoring and reporting occurs through Patient Flow Units to both the General Managers and the Clinical Stream Executive Officers.

- Access delay (for emergencies and planned elective cases) to critical care services can result in delays to treating patients in the right place, right time, with the appropriate personnel and equipment. This can result from critical care exit block.

- Critical care areas provide clinical services for the critically ill and/or most complex patients in the health system, and as such should be regarded as ‘protected’ services. The assessment and triage of critically ill patients from whatever source is the responsibility of those trained to perform such a task namely, the Intensive Care Specialist.

- Critical care services are a District and State-wide resource. Critical care beds and workforce are funded to accommodate intensive care and high dependency patients. Utilising these resources for non-critical care patients (i.e. due to exit block to the ward) is not cost efficient and may delay/prevent subsequent emergency admissions.

- Unnecessary inter-hospital transfer of critically ill patients should be minimised to mitigate risk to patients, distress to families and cost. Therefore, internal patient flow mechanisms (including surge plans) and internal escalation methods for resolutions of issues should be agreed and available at all facilities – as recommended by the NSW Health Policy Directive PD2010_021 Critical Care Tertiary Referral Networks & Transfer of Care (Adults).

- If a facility is on ‘default’ to potentially receive other intra-District or intra-State admissions, then the Intensive Care team should inform the Patient Flow Unit and bed managers so that capacity and demand factors can be re-assessed to assist with creating capacity.

- Literature indicates there are negative psychological impacts for patients (and their carers) who are in critical care environments; consequently transfer to ward care should happen as soon as appropriate. The literature also indicates that there is a risk of ward-based medical and nursing staff losing skills in caring for patients with high acuity needs, and that exit from critical care to ward-level care should happen as soon as possible to ensure this skill base is maintained.

- Surgical patients who are a priority category 1 are resource intensive in terms of the assessment, planning, clinical urgency and scheduling of services for these patients. A small number of these patients will also need access to critical care services as part of their care pathway. These patients should be a planning priority and not be cancelled. Issues such as exit block creating a lack of critical care capacity should be avoided when scheduling the planned surgical workload.
Ideally patients for discharge (from ICU/HGU) should be transferred before midday or at a minimum during business hours (i.e. before 17:00 hours) to allow for adequate clinical handover and review at ward level.

6. PROCEDURE

- Critical care services should be considered in the facility-wide admission and discharge capacity and demand calculations. On an on-going basis, the critical care team should update the facility Patient Flow Manager on current and predictive capacity and demand for those services routinely throughout the day.

- Predictive critical care bed management. The Critical Care Team should communicate all planned admissions and discharges with the Patient Flow Manager in advance (1400 assessment for the following day), so that forward planning of capacity can be realised and supported. Any short-falls can then be proactively managed early with the correct stakeholders for resolution and decision-making with potential alternative management pathways being explored and available. See appendix II.

- To ensure efficient and safe transfer of critical care patients, Patient Flow Managers should aim to allocate at least one ward bed each morning for an intensive care or high dependency transfer. To optimise critical care patient flow this allocation should occur early in the day (i.e. bed to be available for an ICU/HGU patient transfer by 10 am). If the ICU/HGU is unable to transfer a patient within one hour of the bed becoming available this should be communicated to the Patient Flow Manager.

- Planned Surgical Patients. All theatre cases that are booked into a critical care area post operatively should have the bed predictively assigned. That is, predicting capacity will become available at the time the patient requires the bed through normal capacity or through the departure of another patient (in the absence of any other emergency taking priority).

Other key strategies include moving exit blocked patients, sourcing additional nursing staff, and the use of other critical care areas. This should occur at 1400hrs the day before surgery with critical care capacity and demand planning so that any issues can be escalated and problem-solved. Ideally, all patients who are category 1 should not be cancelled on the day of surgery and surge plans or other alternative methods for coping with the demand should be explored and expedited.

Operating Theatre may have to consider altering theatre list order if a critical care bed cannot be confirmed to ensure procedure lists are not cancelled. However, when there are several surgical teams aligned for one patient procedure (and therefore it is not possible to change the theatre schedule) then the procedure should be allowed to begin if an ICU bed is becoming available (but not currently vacant at the time of the patient going to theatre). Bed Managers should be made aware of category 1 patients and any anticipated difficulties as soon as the scheduling process is confirmed by the admission team.
• When patients no longer warrant critical care services and have been cleared for discharge from the critical care area they should be moved to the next most appropriate environment as soon as possible, and before the six hour timeframe (the Australian Council of Healthcare Standards - exit block standard). If there is a delay in moving a patient from the critical care area, this should be communicated to allow the critical care team to manage any demand for the service and to allow for escalation. There are some patients exiting from critical care services that may require other needs to be met and this may take longer to coordinate (e.g. isolation requirements).

• It is at the discretion of the Intensive Care Management team (specifically the consultant medical officer on call and the nurse-in-charge) as to whether a patient remains in the service location due to their higher level nursing needs (as opposed to higher level technical or medical needs) – which might be deemed appropriate in some clinical instances and justify an extended stay in that area. In this case the patient is not discharged from the service but should remain visible as an option for discharge from the Critical Care area in the following 12 to 24 hours. However, specialising patients, who have high nursing needs, on the ward is also a suitable alternative or moving them to a step-down special care environment. The ICU Liaison Nurse role may have a beneficial part to play in the transitional care of these patients.

• Escalation plans and contingency plans for capacity and demand mis-match within critical care areas should be available in each facility and should be triggered by the Intensive Care team. This escalation should recognise the ultimate clinical responsibility and clinical decision making that occurs for the patients in the critical care environment and all communications regarding bed management practices should be consistent with clinical decision making. The escalation and contingency plans should also include mechanisms that support the role of tertiary ICUs being able to fulfil their Network and State-wide role; winter activity planning; Influenza escalation; other similar serious events, incidents or disasters.

• Monitoring. Critical Care teams should systematically monitor and report delays in admission, delays in exiting from the service, cancellation of planned patients (for example from theatres) within their local management governance arrangements: followed by root cause analysis and remedial action planning involving the Patient Flow Unit and appropriate management personnel. This may include those patients for whom it was difficult to discharge to ward care due to a lack of isolation capacity at ward level (see appendix IV). Management personnel and / or Patient Flow Units should escalate significant issues internally and externally to the Clinical Stream Executive Officers for information or action planning.
7. REFERENCES

- NSW Health Policy Directive PD2010_021 - Critical Care Tertiary Referral Networks & Transfer of Care (Adults)


8. REVISION AND APPROVAL

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<tr>
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<th>Revision No.</th>
<th>Author and Approval</th>
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<td>0</td>
<td>Brendan Docherty, Clinical Stream Manager – Critical Care &amp; Cardiac Services and approved by Dr Steven Katz, Director Critical Care Clinical Stream and Susan Browbank, Acting Director Clinical Operations. Approved by Area Clinical Council Committee 25 July 2007 and Area Executive Committee 31 July 2007.</td>
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<td>1</td>
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Appendix I – Proposed Surgical Flow for Category 1 ICU admissions

Flow Chart for the Management of Category One Patients Requiring ICU Bed

A Category 1 patient requires admission in 30 days for a condition that has the potential to deteriorate quickly to the point of becoming an emergency.

The need for a probable bed in ICU to be identified by the AMO on the Recommendation for Admission (RFA) form - or by the pre-assessment anaesthetic staff as indicated. Urgency Category One Nominated by AMO planned admission date nominated by AMO.

Admission staff receives RFA. Note need for ICU bed. Note requested Admission date.

AMO has capacity to admit on the day requested. Advise ICU and bed manager of ICU request.

YES

BOOK PATIENT AND ALLOCATE DATE

NOTIFY PATIENT FLOW MANAGER OF REQUIREMENT FOR ICU BED

NO

Escalate to Wait List Manager for discussion with AMO or delegate (e.g. Registrar) re difficulty with meeting date requested.

Date Identified

Unable to identify date within 30 days

Escalate to Surgical Manager
## Appendix II - Hospital Intensive Care Unit Escalation Plan (NSW DOH)

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<th>Level</th>
<th>Description</th>
<th>Response</th>
<th>Responsibility</th>
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<tr>
<td>Green</td>
<td>Normal Operating Activity 2 tertiary beds available Ward beds available for discharge District ICU beds available</td>
<td>Nil required</td>
<td>Nurse In-charge</td>
</tr>
<tr>
<td>Orange</td>
<td>&lt;1 tertiary ICU bed available with no immediate discharges Plus No District ICU beds available OR Unable to source nursing staff to support opening more ICU beds</td>
<td>INTERNAL RESPONSE Notify Nurse Manager ICU Notify Duty Intensivist Notify Patient Flow Unit Clear any exit blocked patients Source additional nursing staff Consider potential alternative transfer arrangements</td>
<td>Nurse In-charge</td>
</tr>
<tr>
<td>Red</td>
<td>No tertiary ICU beds available with no immediate discharges No district ICU beds available with no immediate discharges No nursing staff to available to support opening flex beds No ward beds available</td>
<td>INTERNAL RESPONSE Notify Nurse Manager ICU Notify Duty Intensivist Notify Patient Flow Unit Notify Facility Manager FLEX STRATEGIES Patients referred to other centres Open flex beds(^1) Re-negotiate elective admissions Alternative critical care holding Area to be used e.g.: recovery</td>
<td>Duty Intensivist + NUM + PFU</td>
</tr>
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\(^1\) Flex beds
Appendix III – Managing Variance & the Workforce in Critical Care

Planning and providing critical care services based solely on averages and past utilisation only is not best practice. Potential risks include:-

- Under-estimation of number of necessary beds and other resource needs
- Less than adequate understanding of activities and processes
- Changes in demand or arrival patterns (eg seasonal or weather variances)
- Changes in patient case-mix (eg new Consultant staff)
- Various critical care environments in which this happens (e.g. ICU only, or combined ICU/HDU or Critical Care (bed pool with level of dependency variable).

Predicting activity using past activity plus assumptions regarding seasonality, population growth, increasing elderly patients, new technology and interventions is a local imperative to assist with patient flow and understanding and managing the variance.

There is a need to emphasise robust flexibility and a degree of redundancy that can flex and respond immediately to changes in demand. A ‘Hot Bed’ is an example which facilitates rapid access and assessment but needs to be supported with nursing positions to operationalise this approach and respond to variation in activity.

It is important to accept some available critical care capacity and aligned services (including nursing staff) to improve access and equity of entry to the critical care services overall – potentially resulting in shorter lengths of stay in the critical care area and improved outcomes for patients including decreased adverse risk.

Patient flow from entry to exit is a hospital-wide responsibility to ensure efficiency. Hospital teams have to ensure that they have the correct clinical review procedures in place that assists in capacity and demand management and this includes weekend reviews, early and timely ward rounds and effective and predictive discharge planning.

In summary, effective patient flow is underpinned by the following considerations:-

- The service required by the local facility
- The contribution to the District and State-wide service
- Operational frameworks and clinical governance structures that support good data collection and analysis; a quality evidence-based service; and clinicians and managers working to support patient focused services
- The workforce necessary to operate at a capacity of 85-100%, which is ring-fenced to allow flexibility and responsiveness
- A local and District wide approach to education, training, recruitment and retention of critical care staff
Appendix IV – Infection control

- Infection control is an ongoing concern for critical care – with some units having limited isolation capacity. Reducing the risk posed by MRSA (and other resistant organisms) should be managed proactively – for example, MRSA positive patients in an open critical care environments should be prioritised to be moved to the appropriate isolation area as soon as possible.
- The ICU is a high risk cross infection environment due to the nature of the critically ill patient and interventions being undertaken in that environment. Risk minimisation strategies include transfer of patients to appropriate clinical areas as soon as possible. This includes ‘clean’ surgical cases to ensure they do not acquire a MRO from another critical care patient in the same geographic location (i.e. due to exit block).