

# All Wales Critical Care Escalation Guidance for the Management of Large Unplanned Increases in Demand

Version 1 July 2023

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## 1. Background

All Wales critical care escalation guidance for the management of large unplanned increases in demand was published in January 2017. It built on guidance first issued by the Welsh Government during the pandemic and winter flu outbreaks in 2009 and 2010 respectively, and updated interim guidance was issued in December 2014. This updated guidance replaces all previous versions of escalation and emergency planning guidance for critical care services issued by the Welsh Government.

There are periods when critical care services are over-stretched due to a major incident, infectious disease outbreak or other sustained increase in demand. This document provides guidance on how to respond on such occasions to optimise services and maintain equity of care.

## 2. Purpose

The guidance aims to:

- a) Prevent avoidable mortality and morbidity due to patients requiring critical care not accessing timely appropriate level of care / organ support
- b) Maximise capacity in the critical care system in a range of scenarios through a coordinated escalation and de-escalation approach across geographical areas
- c) Avoid *triage by resource* (as opposed to *triage by clinical need*) until all potential escalation options have been exhausted

The purpose of the guidance is to set out the requirements on NHS organisations in developing surge capacity to manage large unplanned increases in demand for critical care. Escalation may be required to respond to a local, regional, or national sustained surge in demand, major incident, or emergency and to manage recovery. The term surge is used to describe pressure on the whole critical care system, rather than referring to day to day peaks within individual units.

The guidance should be read alongside local escalation plans, regional/network plans, and other national guidance, such as; NHS Wales Emergency Planning Core Guidance and Wales Framework for Managing Major Infectious Disease Emergencies.

### 3. Context

Planning for a major incident may be considered separate from planning for sustained surges such as a major infectious disease outbreak, as the incident is likely to be localised and extra resources both from within and outside the network should be available.

Under the Civil Contingencies Act 2004, all acute hospitals are designated as category 1 responders and as such, must have in place a Major Incident Plan to cope with an increased demand for services. Although not all major incidents will involve critical care, it is necessary for critical care services to be able to respond both locally and across the network to a sudden increase in the demand for beds.

Should a major incident occur, it is unlikely that one single hospital would be able to cope with a sudden dramatic increase in demand for beds. Therefore, it is necessary to plan for an increase in capacity within each individual hospital and across the network, including the major trauma centre and trauma network. A plan to deal with these increases in demand may be separate from the plan to deal with major infectious disease outbreaks, as the incident should be localised and extra resources both from within and outside the network should be available.

Disease outbreaks are usually handled at a local level by the public health and local authority infrastructure for the prevention and control of infectious disease outbreaks, in accordance with the Communicable Disease Outbreak Plan for Wales. In a major infectious disease emergency, all resources are likely to be fully stretched and the impact on health and social care is likely to be intense, sustained, and nationwide. The scale of such an emergency will require national co-ordination. Welsh Government will implement the *Pan-Wales Response Plan*, which includes activating the Emergency Co-ordination Centre (Wales) (ECC(W)).

Depending on the severity of any outbreak, the numbers of individuals requiring critical care will vary. Those with underlying health conditions that result in being more susceptible to a serious illness are more likely to require critical care support.

At times, it may be necessary to transfer patients between hospitals for non-clinical reasons. All transfers should be performed according to the Welsh Guidelines for the Transfer of the critically ill Adult (2016), or 6th Edition of the Paediatric Intensive Care Society (PICS) Standards for the Care of Critically Ill Children (2021).

As well as increasing capacity, preventing serious illness in the first place is a vital element in reducing demand for critical care beds. Our policy of offering treatment to all patients in high-risk groups and prioritising these groups for vaccination where available, should mean that fewer people will suffer severe symptoms and require critical care treatment in hospital. Staff immunisation campaigns for all frontline health staff, and infection control measures, also contribute by reducing the risk of staff absence through illness.

## 4. Principles

### Core Principles

- Regional or national responses are likely to be needed when surge capacity required.
- Health boards must be able to demonstrate a functional plan to increase adult level 3 and paediatric level 3 critical care capacity by at least 100%, ensuring plans are realistic and sustainable, demonstrating availability of equipment, consumables and staff to support the plans.
- Health boards must be able to demonstrate functional plans for an increase in level 3 neo-natal capacity in line with neo-natal network escalation plans.
- Escalation policies (surge plans) should be well defined, clearly understood, and well tested.
- Plans must include supporting increased capacity (beds, equipment, workforce and consumables) across hospitals and transport services, to enable a response to an increased demand for critical care.
- Clear thresholds and authorities for triggering, and standing down escalation plans should be established and communicated (see operational checklist).
- Maintaining the optimum level of care/service where possible.
- Staff are not placed under sustained, high levels of strain disproportionately between units or health boards (if ratios of trained critical care staff are stretched these must be supported by other qualified staff).
- Equity of access to care (unless at escalation 3 or above).
- All efforts must be made to maximise the efficient use of critical care - zero tolerance to Delayed Transfers of Care (DToC) from critical care and avoid unnecessary admissions e.g., maximising vaccinations, maintaining critical care outreach (where possible), providing enhanced care areas for patients with single organ failure, providing public health advice. *Patients requiring discharge from a critical care facility must take precedence above all other patient flow requirements.*

- Keep information up to date – e.g., NHS Wales Integrated Unscheduled Care Dashboard to be updated daily as a minimum and as required during surge.
- Regular reporting of escalation status and bed availability - daily status reports should be supported by daily teleconferences between hospital critical care units.
- Difficult clinical decision-making and implementation of policies in relation to triage and futility of patient interventions should only be made after consultation with the wider critical care community.

In situations of major disruption to services, it is highly unlikely that national clinical standards will be maintained. Each health board must plan for care to be delivered outside of critical care, this includes:

- Care to be provided by non-critical care staff, ensuring that prior training and adequate supervision and support is given.
- Sufficient ventilators to double capacity, suitable for invasive ventilation and ensuring these are regularly maintained with staff trained in their use.
- Sufficient equipment (such as monitors, syringe drivers, renal replacement) and relevant consumables.

Health boards should look to flex their own capacity and ensure there are no DTOCs prior to seeking a transfer to a neighbouring health board. Health boards should also be prepared to flex their own capacity to provide mutual aid to other health boards.

### **Mutual Aid Principles**

- Mutual aid is likely to be needed in situations of escalating demand or resource limitations, which require a coordination of assets and external support. Mutual aid agreements may include staff, equipment, transfer of patients where clinically appropriate and safe to do, services and supplies. This may include the equitable scaling back of activity to provide mutual aid that maintains patient safety.
- The basis of these mutual aid principles is equitable access to critical care for all patients in Wales, irrespective of locality or diagnosis. No unit or health board is placed under disproportionate pressure than any other unit when these risks can be mitigated.
- Mutual aid is requested and accessed as part of a shared escalation process across the system; decision making should reflect the scope of the organisations involved and the potential impact on organisations that cover a wide geographical area.

The following principles should form the basis for decision making in the transfer of critically ill patients to ensure sufficient capacity to meet increased demand.

- All patients should have equitable access to critical care if required.
- All local escalation measures have been undertaken and can be demonstrated prior to requesting mutual aid. This may require an executive conversation between health boards.
- Staff are not placed under sustained, high levels of strain disproportionately between units or health boards.
- The proposed destination hospital should be able to meet the care requirements for the individual patient transferred.
- The transfer can take place safely, with minimal risk to the patient.
- Likely justifiable reasons include enabling admission of emergency patients or non-emergency surgery for potentially life-threatening conditions. The decision is made on a case by case basis by the responsible clinical team.
- Decompression of units ensures safe provision across a system of critical care, irrespective of whether this is for emergencies or elective patients requiring critical care.
- Elective activity priorities must be determined with consideration to health board, regional and national situations.
- If sites are not decompressed, it is likely that staffing ratios would be diluted in order to continue to deliver the different pathways on those sites. Alternatively, elective patients would need to be cancelled on a specific hospital or health board.
- Transferring current, stable patients may be more clinically and ethically appropriate than the next patient accepted for critical care. Those patients remaining in high volume units may be exposed to staffing ratios below current GPICSV2 standards. Patients being transferred from a unit in considerable strain may receive better quality care and outcomes following their move to a unit under less pressure.
- These transfers should be undertaken in a planned manner in daylight hours wherever possible, following agreement at the daily capacity call and using resources allocated by the Critical Care Hub Tel: 0300 123 2301.

## **5. Action Required**

Health boards must demonstrate clearly that their arrangements for critical care escalation meet the requirements of this guidance. Each health board requires internal assurance of

plans to respond swiftly to an increase in demand for services, including demands from other health boards. Those plans need to consider this guidance and major incident guidance and include business continuity plans. Plans should be reviewed regularly (at least annually) and have senior executive sign off.

Plans must state how each critical care unit will maximise critical care capacity to at least double baseline including meeting all staffing, equipment, and any other requirements. In addition, health boards must ensure they have a robust plan in place for the resuscitation/ stabilisation of critically ill children. Where necessary, the provision of ongoing paediatric critical care whilst awaiting arrival of the specialised transport service, or where capacity issues mean a PICU bed is unavailable for a prolonged period.

## 6. Operational Checklist

The checklist below highlights expected actions at a unit, health board and network level. It is expected that health boards must provide mutual aid to one another on a regional, national, and potentially cross border basis:

Critcon Level	Critcon Definition	Critical Care Unit	Health Board	Network
<p style="text-align: center;"><b>0</b></p> <p style="text-align: center;"><b>Normal/ Business as Usual</b></p>	<ul style="list-style-type: none"> <li>• Able to meet all critical care demands, without impact on other services.</li> <li>• Staffed &amp; equipped available beds.</li> <li>• Normal levels of non-clinical transfers and other 'overflow' activity.</li> <li>• Elective activity can still be accommodated.</li> </ul>	<ul style="list-style-type: none"> <li>• Daily routine reporting to NHS Wales Integrated Unscheduled Care Dashboard.</li> <li>• Match critical care capacity to demand.</li> <li>• Consistent implementation of best practice.</li> </ul>		
<p style="text-align: center;"><b>1</b></p> <p style="text-align: center;"><b>Low Surge/ Preparatory Usual Winter Pressures</b></p>	<ul style="list-style-type: none"> <li>• Normal staffed capacity full.</li> <li>• Potential discharges to create capacity.</li> <li>• Elective activity unable to be accommodated.</li> <li>• Significant expansion of bed capacity supported by redeployment of staff</li> </ul>	<ul style="list-style-type: none"> <li>• Daily routine reporting to NHS Wales Integrated Unscheduled Care Dashboard.</li> <li>• Escalate capacity issues to executive level with health board including use of locum/agency staff and redeployment.</li> </ul>	<ul style="list-style-type: none"> <li>• Make physical preparation for critical care expansion.</li> <li>• Prioritisation and reduction of elective work.</li> <li>• Put arrangements in place to ensure zero tolerance for DTOCs from critical care.</li> </ul>	

	<p>and equipment from other areas.</p>	<ul style="list-style-type: none"> <li>• Open all possible critical care beds by redeploying all available staff.</li> <li>• Consider redirection of elective patients to PACU post operatively.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and redeploy staff to support critical care units including locum, bank or agency staff.</li> <li>• Identify regional mutual aid systems and patient flow.</li> <li>• Ensure resilience in data collection arrangements.</li> <li>• Ensure good awareness of and engagement with capacity reporting mechanisms including CRITCON.</li> </ul>	
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<p><b>2</b></p> <p><b>Medium/ Sustained Surge Unprecedented</b></p>	<ul style="list-style-type: none"> <li>• Staffed capacity full using surge capacity outside of critical care.</li> <li>• System at full stretch both in terms of capacity and staffing, with staff working outside usual roles, but adherence to usual clinical practice wherever possible.</li> <li>• Other resources may be becoming limited e.g., renal replacement, ventilator capacity, oxygen.</li> <li>• No identified discharges.</li> </ul>	<ul style="list-style-type: none"> <li>• Routine reporting to NHS Wales Integrated Unscheduled Care Dashboard at least <b>twice a day</b>.</li> </ul>	<ul style="list-style-type: none"> <li>• Whole hospital/health board response.</li> <li>• All elective activity cancelled and careful consideration of urgent planned surgery requiring critical care on a case-by-case basis.</li> <li>• Patients requiring discharge from a critical care facility must take precedence above all other patient flow requirements.</li> <li>• Mutual aid in place across health board/region.</li> </ul>	<ul style="list-style-type: none"> <li>• Convene daily critical care SITREP meetings.</li> <li>• Escalate any issues to national conference call.</li> <li>• Help facilitate regional mutual aid.</li> </ul>
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	<ul style="list-style-type: none"> <li>Looking to transfer out to create capacity.</li> </ul>		<ul style="list-style-type: none"> <li>Escalate and ensure awareness of 'hotspots'.</li> <li>Ensure good governance and support for staff working flexibly.</li> </ul>	
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<b>3</b>  <b>High/ Super Surge</b>	<ul style="list-style-type: none"> <li>All surge capacity full.</li> <li>Curtailing elective/urgent activity across a wider area.</li> <li>Some resources starting to be overwhelmed.</li> <li>Full use of stretched staffing and cross skilling.</li> <li>Delivery of best available care but not usual care for the majority of patients.</li> <li>NIV/CPAP capacity full.</li> <li>Ventilated admissions will require transfer out.</li> <li>Mutual aid and transfers of patients required.</li> </ul>	<ul style="list-style-type: none"> <li>Routine reporting to NHS Wales Integrated Unscheduled Care Dashboard at least once <b>every shift</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Health board/regional response.</li> <li>Need to facilitate active decompression of hot units.</li> <li>Mutual aid in place across region/nation.</li> <li>Maximum co-ordinated effort across Wales to prevent any individual unit or health board progressing to Critcon 4 including seeking cross border mutual aid where feasible.</li> </ul>	<ul style="list-style-type: none"> <li>Convene daily critical care SITREP meetings.</li> <li>Escalate any issues to national conference call.</li> <li>Help facilitate regional/national mutual aid.</li> <li>Escalate any requests for cross border mutual aid to NHS England.</li> </ul>
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<b>4</b>  <b>Emergency/ Triage Risk</b>	<ul style="list-style-type: none"> <li>Services overwhelmed, admission and delivery of critical care resource is limited.</li> </ul>	<ul style="list-style-type: none"> <li>Routine reporting to NHS Wales Integrated Unscheduled Care Dashboard at least once <b>every shift</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Full engagement by executive team with unit, network and Welsh Government.</li> </ul>	<ul style="list-style-type: none"> <li>Convene daily critical care SITREP meetings.</li> </ul>
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	<ul style="list-style-type: none"> <li>• All mutual aid and transfer options exhausted.</li> <li>• Focus on minimising loss of life.</li> <li>• This stage should never be reached at an individual unit unless regionally and nationally declared.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete Critcon 4 declaration.</li> <li>• Consider use of decision support tool.</li> </ul>	<ul style="list-style-type: none"> <li>• Escalate to Chief Executives, Network and Welsh Government.</li> <li>• Kept under regular review at least every 12 hours.</li> </ul>	<ul style="list-style-type: none"> <li>• Escalate any issues to national conference call.</li> <li>• Help facilitate regional/national mutual aid.</li> <li>• Escalate any requests for cross border mutual aid to NHS England.</li> </ul>
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## **7. Impact on Elective Activity**

To maximise critical care capacity outside of 'normal business', mutual aid should be considered. It may be necessary for a health board to uniformly suspend elective surgery which will require critical care services post-operatively. Such temporary suspension of elective activity will be implemented (as clinically appropriate) on the following phased basis:

- a) Step 1 – temporary cancellation of all elective nonlife-threatening surgery (except for major oncology, cardiothoracic, vascular and neurosurgery), where it is expected the patient will require critical care service support in the immediate post-operative period.
- b) Step 2 – as step 1, but also the temporary cancellation of all elective non-life threatening *neuro, vascular and cardiothoracic surgery*, where it is expected the patient will require critical care service support in the immediate post-operative period.
- c) Step 3 – as step 1 and 2, but also the temporary cancellation of all *elective surgery including major oncology, cardiothoracic, vascular and neurosurgery* where it is expected the patient will require critical care service support post-operatively.

## **8. Caring for Patients of all Ages with Complex Respiratory Care Problems**

### **Extra Corporeal Membrane Oxygenation:**

Severe respiratory failure with a potentially reversible cause may need referral to an ECMO centre via their online referral system. This is a form of life support that maintains physiological stability whilst the acute lung injury recovers. The respiratory ECMO service referral pathway comprises of provision of advice to referring clinicians, specialist retrieval and treatment with extracorporeal life support. Referrals from Welsh critical care units for consideration of ECMO for severe respiratory failure that is refractory to conventional ventilation strategies are commissioned by WHSCC from providers in England. Any patient that is deemed suitable for repatriation after decannulation from ECMO, needs to be transferred back within 48 hours to the referring Welsh unit, or to a unit closer to home.

## **9. Managing Critical Care Capacity Data**

### **Adult Critical Care Capacity Data**

Adult Critical Care Units should have systems in place to monitor capacity and this should be updated on the NHS Wales Integrated Unscheduled Care Dashboard. Where there is no change in the capacity available, critical care units should acknowledge this within the system

at least daily. Further details about capacity data, including the Escalation Capacity SITREP and Critcon escalation levels can be found in Appendix 1. Units should ensure all escalation procedures in the operational checklist have been observed if there is an escalation in status.

### **Normal/ Business as Usual Capacity Data**

Adult Critical Care Bed Capacity is usually collected using the NHS Wales Integrated Unscheduled Care Dashboard. This information should include:

- a data submission showing the number of Adult Critical Care Beds available throughout the day. Typically, this information is submitted Via Wardwatcher/MedICUs (automatic feed)
- a data submission showing the number of Delayed Transfers of Care (DTCs), over 4 hours and over 24 hours. Typically, this information is submitted daily, seven days a week (manual input)
- a data submission showing the number of CRTICON status (see definitions below). Typically, this information is submitted daily, seven days a week and more often if status changes during the course of the day (manual input)

### **Escalation Capacity Data**

During times of escalated capacity arrangements, outside of 'normal business', it may be necessary to report on a more frequent basis or introduce an additional data SITREP to assist with/inform NHS arrangements.

### **Paediatric / neonatal Capacity Data**

Paediatric and neonatal data will be reported to Badgernet. If escalation or surge, a daily paediatric sitrep may be initiated.

## **10. Paediatric Provision**

### **Paediatric Intensive Care**

If services for children are overstretched before adult services, plans must be agreed with PICU in Cardiff (or via WaTCH) and the Northwest (via NWTs) to manage such situations, in line with local paediatric critical care capacity surge plans. PICU in Cardiff have reciprocal arrangements in place with Bristol. PICU should have the facility to double the level 3 and above (ventilated) capacity with level 1 patients cared for on general paediatric wards under

the joint management of paediatric consultants and anaesthetists with PICU support. Tertiary Paediatric Services are primarily provided by Alder Hey Children's Hospital, Liverpool for North Wales, however where needed, also by Manchester Children's Hospital. Plans should be in place to escalate services to double level 2 and above (ventilated) capacity if required.

Once all available (expanded) PICU capacity is full, and, where clinically appropriate and safe, this may require older children being cared for in locally agreed health board areas, with inpatient paediatric services, including paediatric medicine and paediatric anaesthetic experience, on site. Deciding which children should be cared for locally and which transferred to PICU should be agreed on a patient-by-patient basis with PICU. Health boards should have plans in place for the resuscitation/stabilisation of critically ill children. Where necessary, the provision of ongoing paediatric critical care whilst awaiting the arrival of the specialised transport service or where capacity issues mean a PICU bed is unavailable for a prolonged period should be available.

### **Neonatal Critical Care**

Neo-natal Critical Care (NICU) capacity should also be developed to cope with potential demand, and guidance can be obtained from the neo-natal network. Health boards should ensure they identify and have the appropriate numbers of skilled staff to care for the expected increased number of ill, low birthweight and preterm infants. Integral to this is up-skilling/training nurses and midwives to provide the right care under an agreed governance framework.

Care of ill pregnant women should be timely and aim to reduce maternal complications and preterm birth. Pregnant women who require critical care or whose baby is likely to require NICU Level 3 care should be cared for and delivered in a maternity unit with on-site access to adult critical care and Level 3 NICU facilities.

In the event of an infectious disease outbreak, priority should be to ensure vaccination of all pregnant women where an appropriate vaccination is available.

## Appendix 1

### All Wales COVID – 19 Pandemic CRITCON Levels

Please declare CRITCON level AND staffing level A, B, C

DEFINITION	STATUS
<p><b>Normal – ‘Business as usual’</b></p> <p>Able to meet all critical care needs. Staffed &amp; equipped available beds. Elective activity can still be accommodated.</p>	CRITCON 0
<p><b>Low surge – ‘Usual winter pressures’</b></p> <p>Full staffed capacity, potential patients can be discharged to create capacity. Elective activity unable to be accommodated.</p>	CRITCON 1
<p><b>Medium surge – ‘unprecedented’</b></p> <p>Full staffed capacity. Using surge capacity beds outside critical care areas (theatres, endoscopy, recovery) No identified discharges. Looking to transfer out to create capacity.</p>	CRITCON 2
<p><b>High Surge – ‘Full Stretch’</b></p> <p>Full staffed capacity. All surge beds full. All ward CPAP/NIV beds full. Expanding critical care capacity to ward beds. Mutual aid required and high transfers of patients required.</p>	CRITCON 3
<p><b>Triage – ‘Emergency’</b></p> <p>Resources overwhelmed. All mutual aid and transfer options exhausted. Possibility of triage by resource. This must <b>only</b> be implemented on national directive from WG and in accordance with national guidance.</p>	CRITCON 4
<b>Staffing Declaration</b>	
Adequately staffed for unit demands.	A
Staffing 1:2 ICU nurse to L3. Remains 1:1 including non-ICU staff	B
Staffing below requirements for patient mix. No supernumerary nurse in charge. Staffing ratio reduced with no support staff available.	C

## Appendix 2

### Adult Levels of Care

<p><b>Level 0 – Ward Care</b></p>	<p>Patients whose needs can be met through normal ward care in an acute hospital.</p> <p>Patients who have recently been relocated from a higher level of care, but their needs can be met on an acute ward with additional advice and support from the critical care outreach team.</p> <p>Patients who can be managed on the ward but remain at risk of clinical deterioration.</p>
<p><b>Level 1 – Enhanced Care</b></p>	<p>Patients requiring more detailed observations or interventions, including basic support for a single organ system and those 'stepping down' from higher levels of care.</p> <p>Patients requiring interventions to prevent further deterioration or rehabilitation needs which cannot be met on a normal ward.</p> <p>Patients who require on going interventions (other than routine follow up) from critical care outreach teams to intervene in deterioration or to support escalation of care.</p> <p>Patients needing a greater degree of observation and monitoring that cannot be safely provided on a ward, judged on the basis of clinical circumstances and ward resources.</p> <p>Patients who would benefit from Enhanced Perioperative Care.</p>
<p><b>Level 2 – Critical Care</b></p>	<p>Patients requiring increasing levels of observations or interventions (beyond level 1) including basic support for two or more organ systems and those 'stepping down' from higher levels of care.</p> <p>Patients requiring interventions to prevent further deterioration or rehabilitation needs, beyond that of level 1.</p> <p>Patients needing two or more basic organ system monitoring and support.</p> <p>Patients needing one organ systems monitored and supported at an advanced level (other than advanced respiratory support).</p> <p>Patients needing long term advanced respiratory support.</p> <p>Patients who require level 1 care for organ support but require enhanced nursing for other reasons, in particular maintaining their safety if severely agitated.</p> <p>Patients needing extended post-operative care, outside that which can be provided in enhanced care units: extended postoperative observation is required either because of the nature of the procedure and/or the patient's condition and co-morbidities.</p> <p>Patients with major uncorrected physiological abnormalities, whose needs cannot be met elsewhere.</p> <p>Patients requiring nursing and therapies input more frequently than available in level 1 areas.</p>
<p><b>Level 3 – Critical Care</b></p>	<p>Patients needing advanced respiratory monitoring and support alone.</p> <p>Patients requiring monitoring and support for two or more organ systems at an advanced level.</p> <p>Patients with chronic impairment of one or more organ systems sufficient to restrict daily activities (co-morbidity) and who require support for an acute reversible failure of another organ system.</p> <p>Patients who experience delirium and agitation in addition to requiring level 2 care.</p> <p>Complex patients requiring support for multiple organ failures, this may not necessarily include advanced respiratory support.</p>

### Paediatric Levels of Care

Level	Description	Nursing Ratio
Level 1	<p>Basic Critical Care</p> <p>Airway:</p> <ul style="list-style-type: none"> <li>• Upper airway obstruction requiring nebulised adrenaline</li> </ul> <p>Breathing:</p> <ul style="list-style-type: none"> <li>• Apnoea – recurrent</li> <li>• Oxygen or nasal high flow therapy plus continuous pulse oximetry and ECG</li> </ul> <p>Monitoring</p> <p>Circulation:</p> <ul style="list-style-type: none"> <li>• Arrhythmia requiring IV anti-arrhythmic therapy</li> </ul> <p>Diagnosis:</p> <ul style="list-style-type: none"> <li>• Severe asthma (IV bronchodilator / continuous nebulisers)</li> <li>• Diabetic ketoacidosis requiring continuous insulin infusion</li> </ul> <p>Other:</p> <ul style="list-style-type: none"> <li>• Reduced level of consciousness (GCS 12 or below) and hourly (or more frequent) GCS</li> </ul> <p>Monitoring</p>	Nurse to patient ratio of 0.5:1
Level 2	<p>Intermediate Critical Care</p> <p>Airway:</p> <ul style="list-style-type: none"> <li>• Nasopharyngeal airway</li> <li>• Care of tracheostomy (first seven days of episode only)</li> </ul> <p>Breathing:</p> <ul style="list-style-type: none"> <li>• Non-invasive ventilation (including CPAP and BiPAP)</li> <li>• Long-term ventilation via a tracheostomy</li> </ul> <p>Circulation:</p> <ul style="list-style-type: none"> <li>• &gt;80 ml/kg volume boluses</li> <li>• Vasoactive infusion (including inotropes and prostaglandin)</li> <li>• Temporary external pacing</li> <li>• Cardiopulmonary resuscitation in the last 24 hours</li> </ul> <p>Diagnosis:</p>	Nurse to patient ratio of 1:1

	<ul style="list-style-type: none"> <li>• Acute renal failure requiring dialysis or haemofiltration</li> <li>• Status epilepticus requiring treatment with continuous IV infusion</li> </ul> <p>Monitoring:</p> <ul style="list-style-type: none"> <li>• Invasive arterial monitoring</li> <li>• Central venous pressure monitoring</li> <li>• Intracranial monitoring / external ventricular drain</li> </ul> <p>Other:</p> <ul style="list-style-type: none"> <li>• Exchange transfusion</li> <li>• Intravenous thrombolysis</li> <li>• Extracorporeal liver support (MARS)</li> <li>• Plasmafiltration</li> <li>• Epidural infusion</li> </ul>	
Level 3	<p>Advanced Critical Care</p> <p><b>Advanced 1</b></p> <ul style="list-style-type: none"> <li>• Invasive Mechanical Ventilation (IMV)</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Non-invasive ventilation / CPAP</li> </ul> <p>PLUS one or more of:</p> <ul style="list-style-type: none"> <li>• Vasoactive infusion CPR in last 24 hrs</li> <li>• &gt;80ml/kg volume boluses Intravenous thrombolysis</li> <li>• Haemofiltration Burns &gt;20% BSA</li> <li>• Haemodialysis iNO / Surfactant</li> <li>• Peritoneal dialysis Exchange transfusion</li> <li>• Plasmafiltration ICP monitoring</li> <li>• Extracorporeal liver Support (MARS)</li> </ul> <p><b>Advanced 2</b></p> <ul style="list-style-type: none"> <li>• Invasive Mechanical Ventilation</li> </ul> <p>PLUS one or more of:</p> <ul style="list-style-type: none"> <li>• Vasoactive infusion</li> <li>• ICP monitoring</li> <li>• Burns 20-49% BSA</li> <li>• Intravenous thrombolysis</li> <li>• CPR in last 24 hrs</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Advanced Respiratory Support (ARS) (Jet ventilation or High</li> </ul>	Nurse to patient ratio of 1.5:1

	<ul style="list-style-type: none"> <li>• Frequency Oscillatory Ventilation (HFOV))</li> </ul> <p><b>Advanced 3</b></p> <ul style="list-style-type: none"> <li>• Invasive Mechanical Ventilation or</li> <li>• Advanced Respiratory Support (Jet Ventilation or HFOV)</li> </ul> <p>PLUS one or more of:</p> <ul style="list-style-type: none"> <li>• Haemofiltration</li> <li>• Haemodialysis</li> <li>• Peritoneal dialysis</li> <li>• Burns 50-79% BSA</li> <li>• Extracorporeal liver Support (MARS)</li> <li>• Exchange transfusion</li> <li>• iNO</li> <li>• Surfactant</li> <li>• Plasmafiltration</li> </ul> <p><b>Advanced 4</b></p> <ul style="list-style-type: none"> <li>• Invasive Mechanical Ventilation or</li> <li>• Advanced Respiratory Support (Jet Ventilation or HFOV)</li> </ul> <p>PLUS one or more of:</p> <ul style="list-style-type: none"> <li>• Burns &gt;79% BSA</li> <li>• &gt;80 ml/kg volume boluses</li> </ul> <p><b>Advanced 5</b></p> <ul style="list-style-type: none"> <li>• Extracorporeal membrane oxygenation (ECMO)</li> <li>• Extracorporeal Life Support (ECLS) including Ventricular Assist Device (VAD)</li> <li>• Aortic balloon pump</li> </ul>	
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5th Edition of the Paediatric Intensive Care Society (PICS) Standards for the Care of Critically Ill Children (2021)

<https://pccsociety.uk/wp-content/uploads/2021/10/PCCS-Standards-2021.pdf>

## Neonatal Levels of Care

<b>Level</b>	<b>Description</b>
<b>Level 1</b>	<p>Level 1 units provide special care. Special care is provided for babies who require additional care delivered by the neonatal service but do not require either Intensive or high dependency care and requires any of the following:</p> <ul style="list-style-type: none"> <li>• oxygen by nasal cannula</li> <li>• feeding by nasogastric, jejunal tube or gastrostomy</li> <li>• continuous physiological monitoring (excluding apnoea monitors only)</li> <li>• care of a stoma</li> <li>• presence of IV cannula</li> <li>• baby receiving phototherapy</li> <li>• special observation of physiological variables at least 4 hourly</li> </ul>
<b>Level 2</b>	<p>Level 2 units provide High Dependency Care (HDC) for babies who require highly skilled staff but where the ratio of nurse to patient is less than intensive care. Any day where a baby does not fulfil the criteria for intensive care where any of the following apply:</p> <ul style="list-style-type: none"> <li>• Any day where a baby receives any form of non-invasive respiratory support (e.g., nasal CPAP, SIPAP, BIPAP, HHFNC)</li> <li>• Any day receiving any of the following: <ul style="list-style-type: none"> <li>• parenteral nutrition</li> <li>• continuous infusion of drugs (except prostaglandin &amp;/or insulin)</li> <li>• presence of a central venous or long line (PICC)</li> <li>• presence of a tracheostomy</li> <li>• presence of a urethral or suprapubic catheter</li> </ul> </li> </ul>
<b>Level 3</b>	<p>Level 3 units provide care provided for babies who are the most unwell or unstable and have the greatest needs in relation to staff skills and staff to patient ratios. Any day where a baby receives:</p> <ul style="list-style-type: none"> <li>• any form of mechanical respiratory support via a tracheal tube</li> <li>• <b>BOTH</b> non-invasive ventilation (e.g., nasal CPAP, SIPAP, BIPAP, vapo-therm) and PN</li> <li>• Day of surgery (including laser therapy for ROP)</li> <li>• Day of death</li> </ul> <p>Any day receiving any of the following:</p> <ul style="list-style-type: none"> <li>• Presence of an umbilical arterial line</li> <li>• Presence of an umbilical venous line</li> <li>• Presence of a peripheral arterial line</li> <li>• Insulin infusion</li> <li>• Presence of a chest drain</li> </ul>

	<ul style="list-style-type: none"><li>• Exchange transfusion</li><li>• Therapeutic hypothermia</li><li>• Prostaglandin infusion</li><li>• Presence of repleg tube</li><li>• Presence of epidural catheter</li><li>• Presence of silo for gastroschisis</li><li>• Presence of external ventricular drain</li><li>• Dialysis (any type)</li></ul>
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Service Standards for hospitals providing neo-natal care 2022- [Service and Quality Standards for Provision of Neonatal Care in the UK | British Association of Perinatal Medicine \(bapm.org\)](#)

## Appendix 3

### Links to Relevant Documents

Quality Statement for the critically ill

<https://gov.wales/care-critically-ill-quality-statement-html>

Designed for Life: Guidelines for Transferring the Critically ill adult

<https://executive.nhs.wales/networks-and-planning/critical-care/clinical-hub/transfer-of-the-critically-ill-course/>

Guidelines for the Provision of Intensive Care Services v2 (GPICS) – section 6.4 surge and business continuity planning

<https://www.ficm.ac.uk/sites/ficm/files/documents/2021-10/gpics-v2.pdf>

Paediatric Intensive Care Society (PICU) quality standards for the care of critically ill children

<http://picsociety.uk/about-pics/pics-standards/>

NHS England – Critical Care Services management of surge documents for adult and paediatric services

<https://www.england.nhs.uk/commissioning/ccs/>

NHS England – Management of surge and escalation in critical care services: standard operating procedure for adult respiratory extra corporeal membrane oxygenation

<https://www.england.nhs.uk/publication/management-of-surge-and-escalation-in-critical-care-services-standard-operating-procedure-for-adult-respiratory-extra-corporeal-membrane-oxygenation/>

NHS England - Management of surge and escalation in critical care services: standard operating procedure for paediatric respiratory extra corporeal membrane oxygenation

<https://www.england.nhs.uk/publication/management-of-surge-and-escalation-in-critical-care-services-standard-operating-procedure-for-paediatric-respiratory-extra-corporeal-membrane-oxygenation/>

Communicable Disease Outbreak Plan for Wales

<https://phw.nhs.wales/topics/latest-information-on-novel-coronavirus-covid-19/the-communicable-disease-outbreak-plan-for-wales/>

Wales Framework for Managing Major Infectious Disease Emergencies

<https://phw.nhs.wales/topics/the-communicable-disease-outbreak-plan-for-wales>

