

Levels of Care – Adult Critical Care

Background

The British Columbia Critical Care Working Group (BC CCWG) has discussed acuity and complexity levels of adult critical care over the last decade, to facilitate collective understanding. Formalizing definitions will allow improved planning, as it relates to access, forecasting and staffing. This document aims to describe the levels of care required for critically ill patients according to their clinical needs, regardless of patient location. The ensuing descriptions align with other jurisdictions and literature ^{1,2}. While acuity and complexity should be considered when analyzing patient care needs, those terms are combined here for simplicity and are referred to as ‘Levels of Adult Critical Care.’

Definition of Critical Care

Critical care provides specialized care for patients who have complex, life threatening medical problems requiring urgent and intensive treatment using life support technologies and interprofessional collaboration among clinicians. ³

Levels of Adult Critical Care

Levels	Patient Care Descriptions
Level 3	Patients require intensive and continuous monitoring (VS once or more hourly) with technological support for two or more systems, such as advanced ventilation (invasive or non-invasive), PA Catheter, MSC (including ECMO, IABP, Impella and RVAD or LVAD), CRRT, or acute specialized neurological monitoring and treatment. Patients may have multisystem failure with co- morbidities, fluctuating vasopressor dependence, acute delirium, or have experienced major trauma or surgery and require specialized interdisciplinary involvement, including complex wound management.
Level 2	Patients require continuous monitoring (e.g., Q1-2hr VS) with technological support for one or more systems and monitoring of another, which may involve chronic failure. Patients may require ventilation (invasive or non-invasive) and / or IHD in combination with treatment. Patients may have experienced major trauma or surgery but have stable vasopressor requirement, resolving delirium, stable complex wound management, or require extended and frequent post operative monitoring.
Level 1	Patients require higher levels of monitoring or interventions than available on an inpatient ward. Patients require focused observation (e.g., Q2-4hr VS), with one system risk / monitoring. Patients may require awake proning and /or NIV to prevent deterioration, when expected resolution is within 24 hours. Patients may require a home ventilator and have an established respiratory rehabilitation plan. Patients may require telemetry and /or rehabilitation initiation, post-operative monitoring, or stable wound management with a care plan.
Level 0	Patients that could be safely cared for on an inpatient ward. Typically, patients that have recovered from their critical illness and are awaiting transfer to a lower level of care. This level is a quality indicator to identify and track patients not requiring CC resources despite occupancy in a CC area.

Potential Patient Examples

Levels	Potential Patient Examples
Level 3	• Requires multiple advanced therapies including ventilation, has multiple co-morbidities, which may include frailty or morbid obesity (Body Mass Index greater than 40). • May be hypotensive with unstable vasopressor requirements requiring dose adjustments more frequently than once or twice in a 30-minute period. • May also require CRRT and /or other life saving technologies listed. • May also be agitated with acute hyperactive delirium and /or pain not yet controlled. • May require complex wound management, such as burns, infected wounds, or open chest/abdomen, requiring extensive and lengthy dressing changes, especially those with co-morbidities such as uncontrolled diabetes, or those with unidentified infectious sources and possibly fever.
Level 2	• May be an intubated or non-intubated, a trauma or pre / post-operative patient at high risk of deterioration, ◦ but vasopressor selection and dose are stable. ◦ who may also be frail, morbidly obese, and / or have other multiple comorbidities. ◦ who may also be receiving IHD, either related to their admission or as an outpatient prior to admission. ◦ who may also require complex wound management, but exudate is controlled and antibiotic suitable for the pathogen is identified and ordered. • May have hyperactive delirium and is starting to stabilize with medication and / or non-pharmacological measures and pain is starting to reduce with treatment.
Level 1	• May be stepping down from Level 2 critical care and needs are greater than can be met on a ward. • May require focused physiological monitoring after surgery. • May require stable vasopressor support and is not deteriorating. E.g., post-op patient with low blood pressure secondary to an epidural. • May require telemetry monitoring. • May have a wound care plan, exudate is controlled, antibiotic is targeted to identified pathogen, afebrile. • May be on home ventilator or require NIV for single organ failure. • Delirium is resolved, and pain is controlled.

References

1. Intensive Care Society (2024). Levels of Adult Critical Care – Second Ed. Consensus Statement. Obtained from <https://ics.ac.uk/asset/OC68F8B6%2DD1ED%2D4B87%2D8A828592EFDD8021/>
2. Intensive Care Society (2022). Guidelines for the Provision of Intensive Care Services. Version 2.1. Obtained from <https://ficm.ac.uk/sites/ficm/files/documents/2022-07/GPICS%20V2.1%20%282%29.pdf>
3. Alberta Health Services (2019). Critical Care in Alberta. Obtained from <https://www.albertahealthservices.ca/assets/about/scn/ahs-scn-cc-critical-care-in-alberta.pdf>



Appendix A – Adult Critical Care – Levels of Care Examples

The table below is not meant to be exhaustive, but to provide examples to contextualize a patient's acuity level.

Level 0 = any patient with ward/placement orders and is not anticipated to require ongoing CC Outreach support

	Level 1	Level 2	Level 3
Response	Consistent response to therapies.	Maintains a steady state with some response to therapy.	Labile or unresponsive to therapies.
Systems	One at risk, requiring monitoring.	One requiring technological support; one or more requiring monitoring.	Two or more requiring technological support.
	If supporting more systems than stated for each column, bump up to next level. If cardiac and respiratory systems are supported, and no others, count as 1 unless advanced (L3) support is needed for both, then count as 2.		
VS	VS Q2-4 H (Exception: vasoactive infusion)	VS Q1-2 H	VS once or more hourly
LOC	RASS -1 to +1 (Or patient's baseline or new baseline)	RASS -2 to +2	RASS -5 to +4
Ventilation	Improving / stable ventilation - invasive or non-invasive, high flow O ₂ , home ventilation, home CPAP / BiPap, cuffless, cuff down, or corked tracheostomy, with a respiratory rehabilitation plan/physiotherapy	Stable ventilation - weaning from invasive or non-invasive, pending extubation, first 24H post extubation (if vented longer than 24H), long-term ventilation - new tracheostomy, change, capping or PMV trials - high flow oxygen and/or FiO ₂ greater than 50% - intubated for airway protection but not ventilated - suctioning more frequently than hourly	Acute, advanced ventilation - invasive or non-invasive, requiring frequent and/or escalating adjustments
Technologies and treatments	Telemetry, frequent post-operative assessment, epidural, PCA, IHD, awake proning, non- transduced EVD	An arterial line, IHD, complex wound care including NPWT, transduced EVD or spinal drain, TPE, temporary pacing with no underlying rhythm or poorly tolerated heart block	Unstable spine precautions or acute drains, acute specialized neurological monitoring and treatment, CRRT, MTP, TM, TVP, MCS (e.g. ECMO, IABP, Impella and RVAD or LVAD), PA catheter, prone, acute / complex wound care including NPWT, burn therapy, open abdomen/chest
Infusions	Single low dose vasopressor, for procedures or continuous, requiring dose adjustments no more than once or twice in a 12H period. E.g., Low dose = Norepinephrine less than or equal to 5 mcg / min 0.05mcg / kg / min	Single or multiple mid-to-high dose vasoactive and/or rhythm controlling infusions, but stable, requiring one dose adjustment per hour or less often. Other titrating infusion (e.g., analgesics, insulin, sedatives). E.g., Mid to high dose = Norepinephrine less than or equal to 15 mcg / min 0.15mcg / kg / min	Multiple high-dose vasoactive and/or rhythm controlling infusions requiring dose adjustments more frequently than Q1H Other titrating infusion (e.g., analgesics, insulin, sedatives, any NMBA). E.g., High dose = Norepinephrine greater than 15 mcg / min 0.15mcg / kg / min



Glossary of Terms

BIPAP	Bilevel Positive Airway Pressure
CC	Critical Care
CPAP	Continuous Positive Airway Pressure
CRRT	Continuous Renal Replacement Therapy
ECMO	Extracorporeal Membrane Oxygenation
EVD	External Ventricular Drain
FiO2	Fraction of inspired oxygen
H	Hour
IABP	Intra-aortic Balloon Pump
ICP	Intracranial Pressure
IHD	Intermittent Hemodialysis
LVAD	Left Ventricular Assist Device
MCS	Mechanical Circulatory Support
MTP	Massive Transfusion Protocol
NIV	Non-invasive ventilation
NMBA	Neuromuscular Blocking Agent
NPWT	Negative Pressure Wound Therapy
PA	Pulmonary Artery
PCA	Patient Controlled Analgesia
PMV	Passy Muir Valve
Q	Every
RVAD	Right Ventricular Assist Device
RASS	Richmond Agitation and Sedation Scale
TPE	Therapeutic Plasma Exchange
TM	Temperature Management
TVP	Transvenous Pacing
VS	Vital Signs