CCSO Critical Care Services Ontario

Ontario's Adult Critical Care Scorecard Guide

Scorecard Guide – November 2024 Version 1.0

Version Control

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Version 1.0	
For more information contact	Critical Care Services Ontario (CCSO) Email: ccsodataanalytics@ccso.ca

Information for Hospital and System Stakeholders

About Critical Care Services Ontario

Established in 2005, Critical Care Services Ontario (CCSO) led the implementation of Ontario's first Critical Care Strategy and now centrally coordinates and develops integrated system solutions for critical care (Adult, Paediatric and Neonatal) and specialty programs aligned with critical care (Neurosurgery, Trauma and Burns, and the Life or Limb Policy). CCSO's work is the result of an ongoing collaboration between critical care providers, hospital administrators, partners from the Ministry of Health, Ontario Health, and other health system leaders.

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Please note: This guide will continue to be updated to reflect any changes made to the Scorecard. Therefore, please refer to the date and version number on the title page to ensure you are using the current version.

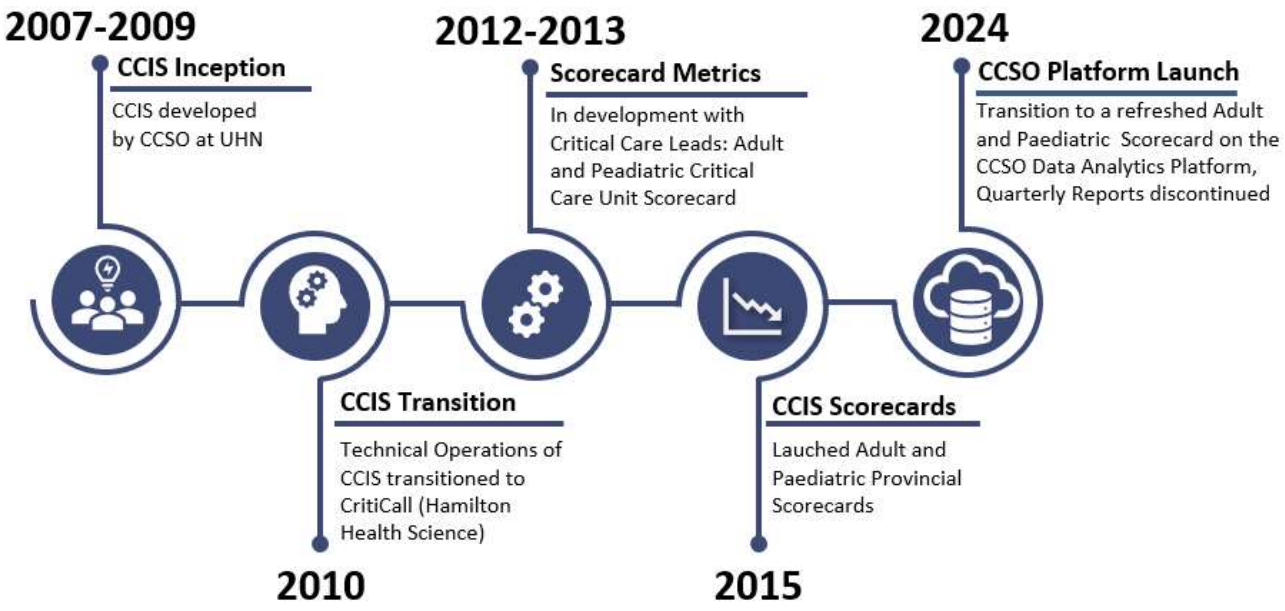
For further information, please contact Critical Care Services Ontario (CCSO):

Email: ccsodataanalytics@ccso.ca

1. Introduction

The Adult Critical Care Scorecard contains indicators and targets to help guide Ontario's critical care units with quality and performance improvement initiatives. The Adult Critical Care Scorecard is accessible via the CCSO Data Analytics Platform (referred to herein as the "CCSO Platform")', which enables access to interactive dashboards for CCSO Program areas, with key indicators and advanced data visualization features for hospital and system leaders. Most of the indicators on the scorecard are populated with data entered in the Critical Care Information System (CCIS). The Scorecard is populated with data reported in a standardized way to help monitor performance and facilitate conversations around utilizing data to plan and drive improvements and decision-making. The Adult Scorecard includes provincial, unit, and data quality indicator pages.

Figure 1: History of Adult Critical Care Scorecard Development



1.1 Scorecard Target Audience

The Adult Critical Care Scorecard is intended for use by critical care chiefs, critical care directors, medical directors, critical care managers, and hospital Vice Presidents (VPs) with critical care oversight of any hospital critical care environment. Hospital quality improvement teams and system leaders such as the Critical Care Clinical Leaders, senior administrators in the Ontario Health (OH) Regions, OH Sub-regions and the Ministry of Health (MOH) will also find the Scorecards of value.

1.2 Reporting Periods and Release Dates

The Reporting Period for the Adult Scorecard is as follows:

- Q1 = April 1st to June 30th
- Q2 = July 1st to September 30th
- Q3 = October 1st to December 31st

- Q4 = January 1st to March 31st

The Adult Scorecard is scheduled for release on the CCSO Platform on a quarterly basis in the month following the preceding quarter. For example, the Scorecard for Q1, which includes data from April 1st to June 30th, will be released on the CCSO Platform in the month of July.

Users who are subscribed to the Adult Scorecard on the CCSO Platform will receive an email notification each quarter when the Scorecard is refreshed.

1.3 Performance Measures and Data Sources

The majority of the performance measures (indicators) on the Scorecard are populated with data entered in the Critical Care Information System (CCIS) by Ontario's critical care units/hospitals.

The data for one indicator is provided by CritiCall Ontario from Case Facilitation Data:

- Life or Limb Confirmed Cases – time to arrival within 4 hours (%) - (Sending and Receiving)

If there are any questions regarding the scorecard or the indicators please contact CCSO at ccsodataanalytics@ccso.ca.

1.4 Peer Groups

Peer groups were developed to make it easier to compare the performance of one unit with that of other units with a similar profile. The process for developing the Adult Critical Care Unit peer grouping included engagement with stakeholders and considered factors such as unit designation by level or care, and severity of illness of patients managed in the units. The peer groupings are intended to be used by units to compare their performance and progress against their assigned peer group's target performance measure.

Please see Appendix C for the peer groups and a summary of the criteria used to define each peer group.

2. Adult Critical Care Scorecard Overview

This *Adult Critical Care Scorecard Guide* is intended to help users understand and navigate the contents of the Adult Critical Care Scorecard generated every quarter. The Adult Scorecard includes a framework for monitoring performance for each of the indicators, with the ability to filter by region, sub-region, level of care, and/or peer group. This guide explains the terms, definitions, layout, and purpose of each and includes sample visuals for clarity of understanding.

Please note that the data presented in this Scorecard guide is for illustration purposes only.

- **Provincial View – Quarterly Summary**
  12 interactive indicators and 4 Big Number indicators (highlight key performance indicators, offering immediate insights into critical data for the viewers), describe performance monitoring in the domains of Access, Quality and System Integration. Each interactive indicator includes 12 historical quarters of data to illustrate the trend in performance and provincial average. Filters can be applied by Region, Sub-Region, Level of Care, and Peer Group.

  Please see Appendix A for a complete list of the 12 indicators, their definitions and formulas.

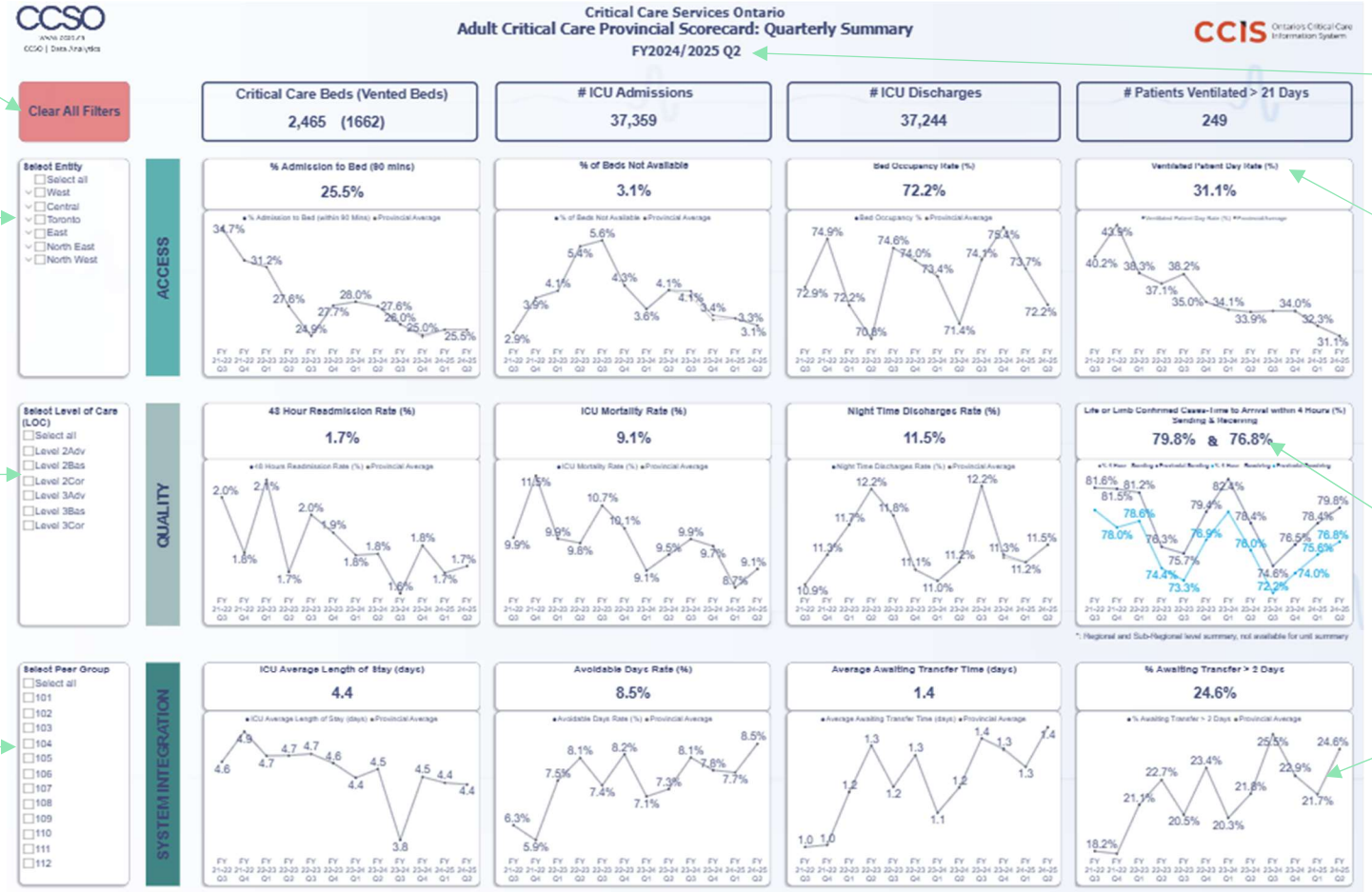
- **Unit View – Quarterly Summary**
  11 interactive indicators and 3 Big Number indicators describe performance monitoring in the domains of Access, Quality and System Integration. Each interactive indicator includes 12 historical quarters of data to illustrate the trend in performance against established targets and across peer groups. This scorecard allows filtering by Peer Group and Unit.

  Please see Appendix A for a complete list of the 11 indicators, their definitions and formulas.
  Appendix B provides a detailed description of target setting and status.

- **Unit Data Quality Information - Quarterly Summary**
  6 interactive indicators selected to illustrate data quality with regards to timely data entry as well as completeness and compliance of data entry for the specified unit. Each interactive indicator includes 12 historical quarters of data to illustrate the trend in performance against established targets and across peer groups. This scorecard allows filtering by Peer Group and Unit.

  Please see Appendix A for a complete list of the 6 indicators and their definitions and formulas.

Figure 1. Adult Critical Care Provincial Scorecard - *Quarterly Summary* Sample



Clear All Filters: Short-cut to clear all

Filters: Filters that can be selected to view specific Region, Sub-Region, Level of Care and/or Peer Group. Selection updates the data presented accordingly.

Reporting Quarter: Indicates which quarter's data is represented in the current performance.

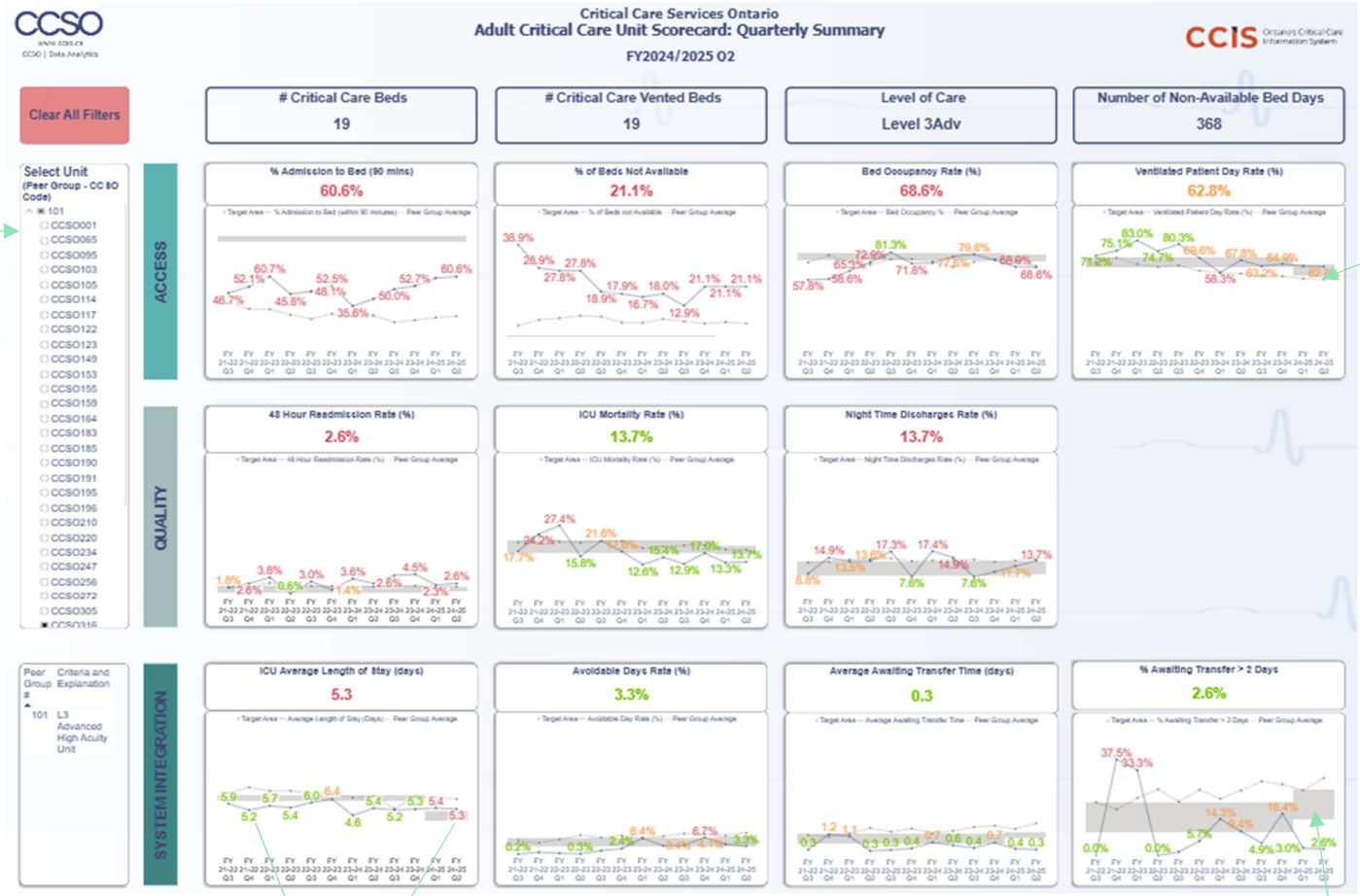
Indicator: Provides a description of the indicator selected on the Scorecard. Each indicator is defined in Appendix A.

Current performance: Describes the indicators performance status for the current quarter.

Trend line: Illustrates the statistical trend of performance of each indicator over time.

Historical Quarters: 12 previous quarters of data are included to compare to the current quarter's performance.

Figure 2. Adult Critical Care Unit Scorecard - *Quarterly Summary* Sample



Filters: CCSO Unit Codes may be selected for filtering and viewing refined trend lines. These codes are provided by CCSO to each corporation to maintain anonymity.

Peer Group Average (dotted line): The average for all units within the selected peer group.

Colour Legend (red/yellow/green): Indicates the desired level of performance for each indicator to assist units in measuring their performance. Indicator performance is colour coded to represent alignment with the assigned performance target. Please see Appendix C for target setting methodology.

Grey Target Area: The range between the value of green and yellow thresholds.

Figure 3. Adult Critical Care Unit Data Quality Scorecard - *Quarterly Summary* Sample

Appendices

Appendix A: Table 1 – Critical Care Scorecard Performance Indicators - Access Domain (Provide Timely Care)

Scorecard Indicator	Indicator Definition	Formula/Calculation
% Admission to Bed (90 mins)	The percent of patients from the ER, who, from the time hospital admission is indicated, are in a critical care bed within 90 minutes.	$\frac{\text{Number of patients admitted from ER who, from the time of a decision is made to admit to a critical bed, are in a bed within 90 minutes}}{\text{Total number of cases from ED per unit}} \times 100$
Night Time Discharges Rate (%)	Rate of night-time inpatient discharges (between 2200 and 0659).	$\frac{\text{Number of Patients Discharged between 2200 and 0659 to a Specified Destination}}{\text{Number of Live Inpatient Discharges in the Unit}} \times 100$ Specified destinations: - 'Unit/Ward' - 'Inpatient - Rehab' - 'Level 2 Unit or Step Down Unit'
% of Beds Not Available	The percent of beds not available to provide care for the people who need them. Reasons for beds not available include: infection control, outpatient, not staff, shortage of equipment, environment.	$\frac{\text{Not Available Bed Days}}{\text{Beds Days in Reporting Period}} \times 100$
Bed Occupancy %	The total occupied beds. Note: Bed numbers in CCIS are changed only upon requests signed by a hospital CEO and Critical Care LHIN Leader and submitted to the CCSO.	$\frac{\text{Total Patient Days}}{\text{Days in Reporting x Beds in Inventory}} \times 100$

Scorecard Indicator	Indicator Definition	Formula/Calculation
Ventilated Patient Day Rate (%)	This is a measure of the proportion of ICU days spent on ventilation. This indicator only includes patients on mechanical invasive ventilation. Ventilated Patient Day Rate is calculated for units even if they do not have Ventilated Beds reported in the Inventory submitted to the MOH.	$\frac{\text{Patient Days with Ventilation}}{\text{Total Patient Days}} \times 100$
# Ventilated Patients > 21 Days1 below[1]	Total number of patients that are mechanically ventilated for more than 21 consecutive days.	Total number of patients that are mechanically ventilated for more than 21 consecutive days.

Appendix A: Table 2 – Critical Care Scorecard Performance Indicators – Quality Domain (Deliver Safe and Effective Care)

Scorecard Indicator	Indicator Definition	Associated Formula
48 Hour Readmission Rate (%)	The percent of patients readmitted to ICU within 48 hours after their initial discharge to non-ICU inpatient locations.	$\frac{\text{Number of Readmissions within 48 hours}}{\text{Number of Live Inpatient Discharges}} \times 100$
ICU Mortality Rate (%)	Rate of deaths of patients under the care of the critical care service.	$\frac{\text{(Unit Discharges-Live Discharges)}}{\text{Unit Discharges}} \times 100$
Life or Limb Confirmed Cases - Time to Arrival within 4 Hours (%) - (Sending/Receiving)[1]	Only Declared and Confirmed Life or Limb Cases which result in a patient transfer, time to arrival indicate the case start time to arrival time in the receiving hospital site.	$\frac{\text{Number of transferred LorL within 4 hours between case start time to patient arrival time in receiving hospital}}{\text{Total Life or Limb Cases (Declared, Confirmed, and Transferred)}}$

[1] Only available in provincial scorecard

Appendix A: Table 3 – Critical Care Scorecard Performance Indicators – System Integration Domain (Optimize Patient Flow)

Scorecard Indicator	Indicator Definition	Associated Formula
ICU Average Length of Stay (days)	Average length of stay for all patients that have been discharged within the indicated period. Length of stay is reported in the month of discharge. The time measured includes ICU patient bed space outside of the ICU and avoidable days (time awaiting transfer out of ICU).	$\frac{\text{Total Length of Stay}}{\text{Number of Unit Discharges}}$
Avoidable Days Rate (%)	The amount of time that patients spend occupying an ICU bed when they no longer require the intensity of care. Wait durations above 4 hours are considered avoidable hours; therefore, avoidable days exclude the first 4 hours of a wait.	$\frac{\text{Total Delayed Days}}{\text{Total Patient Days}} \times 100$
Average Awaiting Transfer Time (days) (waiting > 4 hours)	Average amount of time in days per patient, where the difference between a patient's 'Discharge Date and Time' and their 'Awaiting Transfer Discharge Start Date and Time' is greater than 4 hours and where the 'Awaiting Transfer Discharge Cancellation' is marked as "No". Patient is Awaiting Transfer/Discharge once the patient has been deemed ready for transfer by the MRP.	$\frac{\text{Total Delayed Days}}{\text{Total Delayed Cases}}$
% Awaiting Transfer > 2 Days	Of those patients awaiting transfer for > 4 hours, the percentage of them that are waiting longer than 2 days.	$\frac{\text{Number of awaiting transfer cases had awaiting transfer days longer than 2 hours (after first 4 hours waiting)}}{\text{Unit awaiting transfer cases (after first 4 hours waiting)}}$

Appendix A: Table 4 - Data Quality Scorecard Indicators

Scorecard Indicator	Indicator Definition	Associated Formula
Hours from ICU Admission to CCIS Submission (Median)	Median number of hours between ICU Admission Submission Date/Time and ICU Admission Date/Time for each patient in the unit.	
% of Timely Entries for ICU Admission to CCIS Submission (≤ 2 hours)	Percentage of Timely Entries for ICU Admission to CCIS Submissions. Timely entries are cases where hours between 'ICU Admission Submission Date Time' and 'ICU Admission Date Time' are ≤ 2 hours.	$\frac{\text{Number of hours between 'ICU Admission Submission Date Time' and 'ICU Admission Date Time' are } \leq 2 \text{hours}}{\text{Number of Unique Patient Admissions in the ICU}}$
Hours from ICU Discharge to CCIS Submission (Median)	Median number of hours between ICU Discharge Submission Date/Time and ICU Discharge Date/Time for each patient in the unit.	
% of Timely Entries for ICU Discharges to CCIS Submission (≤ 2 hours)	Percentage of Timely Entries for ICU Discharges to CCIS Submissions. Timely entries are cases where hours between 'ICU Discharge Submission Date Time' and 'ICU Discharge Date Time' are ≤ 2 hours. Expected entries are number of unique patient discharge in the ICU.	$\frac{\text{Number of hours between 'ICU Discharge Submission Date Time' and 'ICU Discharge Date Time' are } \leq 2 \text{ hours}}{\text{Number of Unique Patient Discharges in the ICU}}$
Life Support Intervention (LSI)/Nine Equivalents of	Timely Entries are cases where the intervention date is	$\frac{\text{Number of Timely Entries Submitted Prior to 23:59 of the Following Day}}{\text{Number of Expected Entries}}$

Nursing Manpower Score (NEMS) **% of LSI/NEMS Timely Entries (by 23:59 next day)**	submitted prior to 23:59 of the following day (One entry per day – there may be instances where multiple interventions are submitted per day for a patient. They should be counted once per day.) Expected Entries are the calendar days patients are in the ICU for that time period	
Multiple Organ Dysfunction Syndrome (MODS) **% of MODS Timely Entries (by 23:59 next day)**	Timely Entries are cases where the intervention date is submitted prior to 23:59 of the following day (One entry per day – there may be instances where multiple inventions are submitted per day for a patient. They should be counted once per day.) Except Entries are the calendar days patients are in the ICU for that time period.	$\frac{\text{Number of Timely Entries Submitted Prior to 23:59 of the Following Day}}{\text{Number of Expected Entries}}$

Appendix B: Target Setting Methodology and Status

Target Setting Approach

The target indicates the desired level of performance for each indicator and is intended to assist units in reflecting upon and assessing their performance. Setting targets for quality improvement should act as motivation and challenge providers, staff and the system as a whole to achieve higher levels of performance and to deliver the highest-quality care. Targets need to be aspirational and forward looking.

The target setting approach for the Unit Scorecard included the following considerations:

- Review of literature;
- Review of CCIS data;
- The Institute for HealthCare Improvement's (IHI) philosophy of 'aggressive goal setting and designing for zero'; and
- Feedback from the Critical Care Clinical Leaders.

The 'Journey to Zero' is enabled by three distinct principles briefly outlined below:

Target Setting Methodology

- For **patient safety indicators**, targets are set at the theoretical best. The theoretical best represents the maximum or optimal performance (i.e. 0% or 100%)
- For **access to care indicators**, targets are based on top 25th percentile performance achieved within the Peer Group. Targets will be re-set annually using most recent fiscal year data available in CCIS. The targets for FY24/25 Scorecard are based on FY23/24 data reported in CCIS).
- For **wait times**, targets aligned with the provincial Wait Time Strategy.

Appendix B: Target Setting - Unit Scorecard

Domain	Indicator	Target Achieved	Requires Monitoring	Target Missed
		Satisfactory target performance	Warning signal relative to performance	Target is not being met and action should be taken
ACCESS Provide Timely Care	% Admission to Bed (90 min)	≥ 90%	Between 85% and 90%	< 85%
	% of Beds Not Available	Top 25th percentile performance and above	Between top 25th and 50th percentile performance	Below 50th percentile performance
	Bed Occupancy Rate (%)			
	Ventilated Patient Day Rate (%)			
QUALITY Deliver Safe and Effective Care	48 Hours Readmission Rate (%)			
	ICU Mortality Rate (%)			
	Night Time Discharges Rate (%)			
SYSTEM INTEGRATION Optimize Patient Flow	ICU Average Length of Stay (Days)			
	Avoidable Days Rate (%)			
	Average Awaiting Transfer Time (Days)			
	% Awaiting Transfer > 2 Days			

Appendix B: Target Setting - Data Quality Scorecard

Indicators	Performance Measure	Target Achieved	Requires Monitoring	Target Missed
		Satisfactory target performance	Warning signal relative to performance	Target is not being met and action should be taken
ICU Admission	Hours from ICU Admission to CCIS Submission (Median)	2 hours	Between 2 hours and 4 hours	Longer than 4 hours
	% of Timely Entries for ICU Admissions to CCIS Submission (≤ 2 hours)	100%	Between 100% and 95%	< 95%
ICU Discharge	Hours from ICU Discharge to CCIS Submission (Median)	2 hours	Between 2 hours and 4 hours	Longer than 4 hours
	% of Timely Entries for ICU Discharges to CCIS Submission (≤ 2 hours)	100%	Between 100% and 95%	< 95%
Life Support Intervention (LSI)/Nine Equivalents of Nursing Manpower Score (NEMS)	% of LSI/NEMS Timely Entries (by 23:59 next day)	100%	Between 100% and 95%	< 95%
Multiple Organ Dysfunction Syndrome (MODS)	% of MODS Timely Entries (by 23:59 next day)	100%	Between 100% and 95%	< 95%

Appendix C: Peer Groups and Criteria

Peer Group #	Criteria
Group 101	**Adult Level 3 Advanced High Ventilator Utilization** L3 Advanced High Acuity Unit (with higher Ventilated Patient Day Rate >=57.5%)
Group 102	**Adult Level 3 Advanced Low Ventilator Utilization** L3 Advanced Low Acuity Unit (with lower Ventilated Patient Day Rate < 57.5%)
Group 103	**Adult Level 3 Advanced Cardiovascular Units** L3 Advanced Cardiovascular Unit
Group 104	**Adult Level 3 Basic Burn Units** L3 Basic Unit - Burn Units
Group 105	**Adult Level 3 Basic Conventional Units** L3 Basic Unit - Conventional Units
Group 106	**Adult Level 3 Coronary Units** L3 Coronary Unit
Group 107	**Adult Level 2 Advanced with Level 3** L2 Advanced Unit with a L3 Unit at same hospital site
Group 108	**Adult Level 2 Advanced with no Level 3** L2 Advanced Unit without a L3 Unit at same hospital site
Group 109	**Adult Level 2 Basic with Level 3 - Large** L2 Basic Unit with a L3 Unit at same hospital site and unit bed number >4
Group 110	**Adult Level 2 Basic with Level 3 - Small** L2 Basic Unit with a L3 Unit at same hospital site and unit bed number <=4
Group 111	**Adult Level 2 Basic with no Level 3** L2 Basic Unit without a L3 Unit at same hospital site
Group 112	**Adult Level 2 Coronary** L2 Coronary Unit