CCSO Critical Care Services Ontario

Ontario's Critical Care Scorecard Reports

Reports Guide V6 – July 2023

Version Control

Ontario's Critical Care Scorecard Reports	
Version 6.0	
For more information contact	Critical Care Services Ontario (CCSO) Email: info@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 Reports. 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: info@ccso.ca

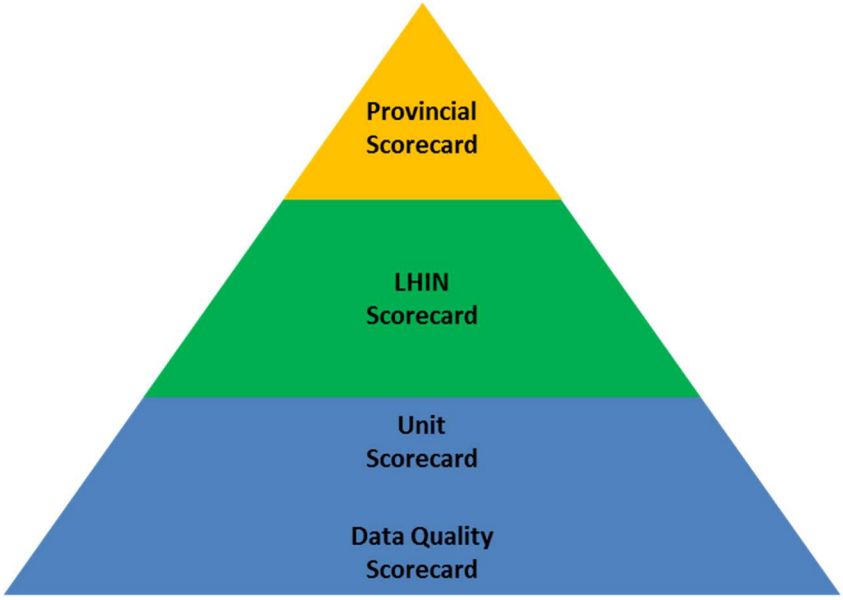
1. Introduction

This *Reports Guide* is intended to help users understand and navigate the content of the Adult Critical Care Scorecard Reports generated every quarter (launched in September 2013). The scorecard reports package includes three types of scorecards: Unit Scorecard, LHIN (Local Health Integration Network) Scorecard, and Provincial Scorecard. The terms, definitions, layout, and purpose of each report is explained in this guide. Sample graphs and charts are also provided for ease of interpretation and understanding.

Please note that Local Health Integration Networks (LHINs) are the former label for the current Ontario Health (OH) Sub-regions. LHIN and sub-region may be used interchangeably throughout this report guide.

This guide should be read in conjunction with the *Critical Care Unit: Balanced Scorecard Toolkit*, published in June 2012.

Critical Care Unit, LHIN, and Provincial Level Scorecard Launch Timeline



Launched in April 2015
Key target audience: Critical Care LHIN Leaders, LHIN offices, hospital CEOs/administrators, MOHLTC

Launched in April 2015
Key target audience: Critical Care LHIN Leaders, LHIN offices, hospital CEOs/administrators, MOHLTC

Launched in September 2013
Key target audience: ICU managers, hospital administrators, front line healthcare providers

Launched in February 2018
Unit level Data Quality Scorecard

Critical Care Unit Scorecard Toolkit

The Critical Care Scorecard Reports demonstrate the next phase of implementation from the rollout of the *Unit Scorecard Toolkit* to Ontario hospitals in June of 2012, which contained indicators and supporting tools to help guide critical care units with their quality and performance improvement initiatives. Feedback from critical care units highlighted the need for units to have the scorecard populated with data collected in a standardized way to help monitor their performance and facilitate conversations around using data to plan and drive improvements and decision-making.

The *Data Quality Score Card* is a new addition to the existing Unit Scorecard reports package. It was developed and introduced during FY2017-2018, was temporarily suspended for technical reasons and was reintroduced in May 2018 along with the Q4 reports package. The Quarterly Summary report is expected to help units monitor the quality of the seven selected performance indicators in terms of timeliness, completeness and compliance.

Key Target Audience

The Unit Scorecard reports can be used by frontline health providers, unit managers, hospital administrators, and medical directors who are directly or indirectly involved with patient care in a critical care environment. Additionally, hospital quality improvement teams and system leaders such as the Critical Care Clinical Leaders (formerly referred to as Critical Care LHIN Leaders), senior administrators in the Ontario Health (OH) Regions, OH Sub-regions, and Ministry of Health (MOH) will find the reports helpful.

Reporting Period

The Scorecard Reports are distributed quarterly by Critical Care Services Ontario (CCSO) seven weeks after the quarter has ended. For example, for Q1 April 1st – June 30th, the reports are disseminated in the third week in August.

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 the units/hospitals. However, data for some indicators are provided by other sources. The LHIN Scorecard includes two indicators provided by CritiCall Ontario: 1) life or limb confirmed cases-time to arrival within 4 hours, and 2) repatriation with no delay rate.

Update: Effective from Q1 FY2023/2024, the following indicators are no longer reported in the adult scorecard:

I. hand hygiene compliance (Unit Scorecard and Provincial Scorecard);
II. nurses with critical care training (Unit Scorecard and Provincial Scorecard); and,
III. conversion rate for deceased organ donation, provided to CCSO by Trillium Gift of Life Network (Provincial Scorecard).

These indicators will remain listed in the scorecard; however, data will not be reported and they will be indicated as not applicable, or n/a, in respective scorecards. In the run charts, previous data points will remain; however, no new data points will be plotted going forward.

If discrepancies are found, please first attempt to reconcile the numbers using the Core Data Export function from CCIS to rule out that the discrepancies were not due to incomplete data entry into CCIS. If the reconciliation of numbers is not possible, please follow up with CCSO.

2. Unit Scorecard Reports Package

Unit Scorecard Reports Package includes **five reports** that provide a framework for monitoring performance for each critical care unit, with the ability to compare at a sub-regional level:

1. **Critical Care Unit Scorecard – Quarterly Summary**
   A table displaying performance of each indicator for the reporting period to illustrate current performance at a glance, for the specified unit.
2. **Critical Care Unit Scorecard – Run Charts**
   Graphs displaying performance of each indicator overtime, for the specified unit.
3. **Critical Care Unit Scorecard – Peer Group Report**
   A table displaying data on all 11 indicators for all units across the province within the designated peer group, to allow units to compare with 'like units' within their assigned peer group.
4. **Critical Care Unit Scorecard – LHIN Report**
   A table displaying data on all 11 indicators for all the units within a sub-region, to allow 'at a glance view' of performance across all units within the specified sub-region.
5. **Critical Care Unit Scorecard – Data Quality Report**
   A table displaying the 7 selected indicators and their data quality with regards to timely data entry, completeness and compliance for the specified unit, for the specified quarter.

Please Note: The data presented in this report guide is for illustration purposes only.

2.1 Unit Scorecard – *Quarterly Summary*

What is it?

The Quarterly Summary provides data for all 11 indicators contained in the Critical Care Unit Scorecard that focus on quality, access and system integration. It is aligned with the Excellent Care for All Act (ECFAA) quality dimensions.[1]

The indicators were selected through a rigorous process of literature review and consultation with partners and care providers in the field, and determined to be relevant and useful to all Level 2 and Level 3 critical care units.

Intended Use

The Quarterly Summary can be used by unit managers/hospital administrators to compare current performance to the previous reporting period, and identify the need for further investigation of results and/or analysis.

The Quarterly Summary tells a story about the achievement and performance of the unit against each measure. It provides a well-rounded view of what is happening and keeps a 'score' of the journey towards meeting the goals/targets.

Please refer to Appendix *A for a complete list of the 11 indicators, their definitions and formulas; and* Appendix B *for a detailed description of target setting, status, quarterly indicators and annual indicators.*

[1]ECFAA (2010). Excellent Care for All Act. Retrieved from: http://www.health.gov.on.ca/en/ms/ecfa/pro/about/

Figure 1. Unit Scorecard - *Quarterly Summary* Sample

Performance Measure: Provides a description of the indicator selected to be included in the unit level scorecard.

Baseline: Describes the starting point of recorded data associated with the indicator from the first completed scorecard. The baseline measure will not change from scorecard to scorecard.

Last Reporting Period: Describes the indicator performance for the previous reporting period to allow comparison with current performance.

Current Performance: Describes the indicator performance for the current reporting period.

Status: The red, yellow and green status provides an 'at-a-glance' view of the indicator's performance/ progress, against the set target, for the reporting period.

Data Source: Indicates where the data is collected from for each of the indicators.

DOMAIN	OBJECTIVE	PERFORMANCE MEASURE	BASELINE	LAST REPORTING PERIOD	CURRENT PERFORMANCE	CHANGE FROM LAST REPORTING PERIOD	TARGET	STATUS	DATA SOURCE
QUALITY	Deliver Safe Care	Antimicrobial Utilization (per 1000 ‰)	997.42	876.13	841.42	↓	782.04	🟡	CCIS
		VAP Rate (per 1000 ‰)	0.63	0.00	0.00	→	0.00	🟢	CCIS
		CLI Rate (per 1000 ‰)	0.00	0.00	0.00	→	0.00	🟢	CCIS
		Incident Rate - Unplanned Extubation (per 1000 ‰)	0.63	2.44	0.00	↓	0.00	🟢	CCIS
		Hand Hygiene Compliance-before patient contact (%)*	n/a	n/a	n/a	–	n/a	–	Hospital Data
	Deliver Effective Care	48 Hour Readmission Rate (%)	3.05	2.35	3.21	↑	0.90	🔴	CCIS
	Enhance Staff Competency	% Nurses with Critical Care Training*	n/a	n/a	n/a	–	n/a	–	Hospital Data
ACCESS	Provide Timely Care	% Admission to Bed (within 90 minutes)	64.80	1.61	2.27	↑	90.00	🔴	CCIS
		% of Beds not Available	0.24	23.53	23.53	→	0.00	🔴	CCIS
		Night-time Discharge Rate (%)	6.71	4.71	7.05	↑	8.02	🟢	CCIS
SYSTEM INTEGRATION	Optimize Patient Flow	ICU Average Length of Stay (days)	4.82	3.74	3.68	↓	6.18	🟢	CCIS
		Avoidable Days Rate (%)	1.35	5.59	3.10	↓	3.25	🟢	CCIS
		# Chronically Ventilated Patients >21 Days	7	2	4	↑	4	🟢	CCIS

Baseline	Antimicrobial Utilization: based on FY2013/2014 data Annual hospital reported indicators (*): based on FY2013/2014 data % Admission to Bed: based on FY2016/2017 data All other indicators: based on FY2012/2013 data Baseline data for new units implemented into CCIS post FY2012/2013 is not incorporated
Change From Last Reporting Period	Signals a change in the indicator from the last reporting period

n/a Not applicable
* Indicators no longer collected (effective Q1 23/24)

→	Indicates no change since the last reporting period
↓	Indicates a decrease in indicator value since the last reporting period
↑	Indicates an increase in indicator value since the last reporting period
-	Indicates data not reported
Target/Status	Please refer to the *Critical Care Unit Scorecard Reports Guide* for target/status setting methodology

Indicators no longer reported: Effective Q1 FY2023/2024, indicators no longer reported will appear as n/a.

Change from Last Reporting Period: Signals a change in the indicator value from the last reporting period. E.g. if the Unplanned Extubation Rate decreased from previous quarter, the arrow will face downwards.

Target: Indicates the desired, expected, and required level of performance for the indicator.

2.2 Unit Scorecard – *Run Charts*

What is it?

Run Charts are graphs that display data about a process or system over time. They are frequently used for monitoring quality improvement initiatives and for predicting future performance.

Intended Use

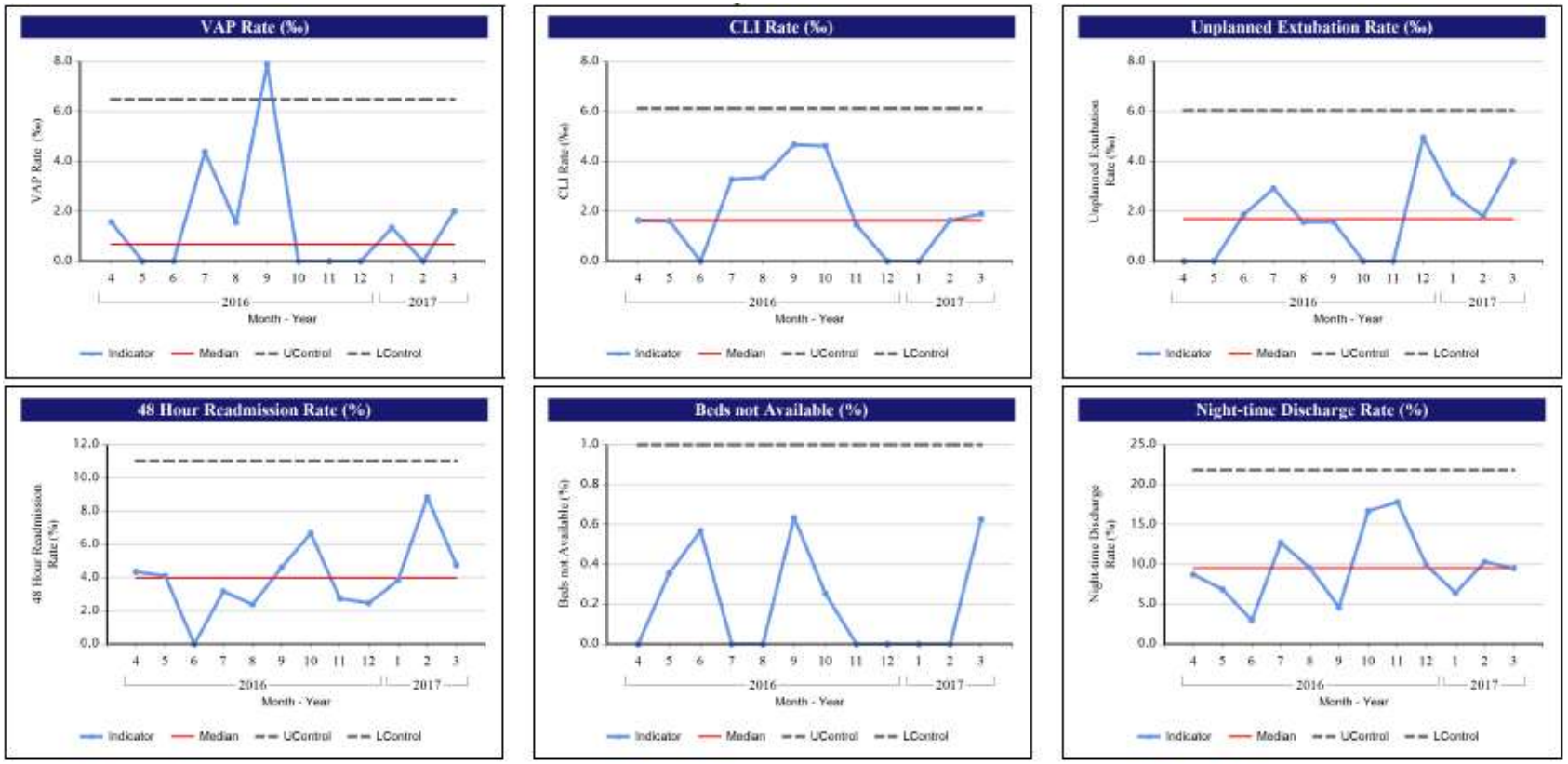
Run Charts can be used by units to identify the occurrence of trends, shifts or outliers. The following graph examples are designed to help units understand and interpret the Run Charts. There are three rules for interpreting Run Charts, which are explained below.[2]

One goal of using a control Run Chart is to maintain process stability. This is done by adding 'control limits' to the Run Charts. Wide control limits indicate instability (inconsistency) of process overtime; meanwhile narrow control limits indicate stability (consistency) of process overtime. Observations outside of the control limits need to be investigated to gain further understanding and to monitor quality improvement initiatives over time.

Please refer to Appendix C *for a detailed review of data used to generate sample Run Charts including calculations used to determine the upper and lower control limits.*

[2]Provost and Murray – The Health Care Data Guide: Learning from Data For Improvement (2011)

Figure 2. Unit Scorecard – *Run Charts* Sample



2.3 Unit Scorecard – *Peer Group Report*

What is it?

Peer level groups were developed to facilitate comparison of a unit's performance with similar units. Assignment to a specific peer group is based on activity levels and comparability using selected criteria. The peer groups can be used for comparisons within a peer group.

The process for developing the critical care unit peer groupings included engagement with stakeholders and considered factors such as unit designation by level of care, and severity of illness of patients managed in the units.

Intended Use

The Peer Group Report can be used by units to benchmark their performance and progress against their assigned peer group. The reports not only provide a list of units that are comparable but also provide the opportunity to learn from peers. Unit leaders are encouraged to contact units within their peer group to discuss key success factors and identify best practices and opportunities for improvement.

Please refer to Appendix D *for a list of peer groups and a summary of the criteria used to define each peer group.*

Figure 3. Unit Scorecard – *Peer Group Report* Sample

Unit Name: All the critical care units in the province that belong to this peer group.

Peer Group #: Indicates the peer group number the specified unit has been assigned to.

Rates: Please note that % symbol denotes the rate per 100 whereas ‰ denotes the rate per 1000

Performance Measures: Describes the indicators selected to be included in the Unit Level Scorecard.

Peer Group #

LHIN	Hospital Name	Unit Name	Antimicrobial Utilization (per 1000 ‰)	VAP Rate (per 1000 ‰)	CLI Rate (per 1000 ‰)	Incident Rate - Unplanned Extubation (per 1000 ‰)	Hand Hygiene Compliance -before patient contact (%) *	48 Hour Readmission Rate (%)	% of Nurses with Critical Care Training *	Admission to Bed (90 minutes) (%)	% of Beds not Available	Night-time Discharge Rate (%)	ICU Average Length of Stay (Days)	Avoidable Days Rate (%)	# Chronically Ventilated Patients (>21 Days)
South West (2)	*Hospital name removed for display purposes.*	MSICU - Intensive Care Unit	1,205.68	0.00	0.00	0.00	n/a	2.96	n/a	67.54	0.00	17.75	6.59	18.43	9
South West (2)		Critical Care And Trauma	1,130.64	0.00	0.00	1.80	n/a	3.62	n/a	82.39	0.00	17.65	6.67	14.47	11
Waterloo Wellington (3)		Intensive Care Unit	1,180.16	7.27	0.78	0.00	n/a	1.33	n/a	1.56	16.67	8.00	10.38	12.33	16
Waterloo Wellington (3)		Medical / Surgical ICU	841.42	0.00	0.00	0.00	n/a	3.21	n/a	2.27	23.53	7.05	3.68	3.10	4
Hamilton Niagara Haldimand Brant (4)		ICU East/South	922.31	0.00	0.58	1.10	n/a	3.80	n/a	8.27	1.81	7.61	8.32	4.86	14
Hamilton Niagara Haldimand Brant (4)		ICU	1,009.58	2.98	2.50	0.00	n/a	2.88	n/a	65.22	0.00	14.42	6.23	7.01	3
Hamilton Niagara Haldimand Brant (4)		ICU	1,017.72	1.88	3.43	1.88	n/a	2.91	n/a	43.12	0.00	12.79	7.05	13.95	10
Central West (5)		General ICU	824.12	2.96	3.14	2.96	n/a	5.62	n/a	29.41	4.87	21.91	6.48	2.53	12
Central West (5)		ICU	806.40	2.78	1.65	0.00	n/a	1.03	n/a	23.30	7.96	28.87	5.81	5.93	8
Mississauga Halton (6)		ICU	901.72	0.00	0.00	0.00	n/a	0.70	n/a	0.00	0.00	19.01	10.10	4.61	8
Mississauga Halton (6)		Intensive care Unit (Med/Surg/Neuro)	580.28	0.00	0.00	0.00	n/a	0.00	n/a	4.29	0.00	12.03	6.81	3.58	21
Toronto Central (7)		ICU	1,053.37	0.00	0.00	0.00	n/a	3.70	n/a	50.00	0.00	14.81	6.15	9.68	8
Toronto Central (7)		Critical Care Unit (Trauma)	673.82	0.72	0.00	0.00	n/a	0.60	n/a	38.14	0.60	29.17	6.83	0.00	7
Toronto Central (7)		ICU	682.16	5.45	0.00	1.82	n/a	4.69	n/a	58.82	42.24	0.78	4.94	3.08	2
Toronto Central (7)		MS ICU	849.34	0.00	0.00	0.00	n/a	0.76	n/a	54.24	0.00	20.61	5.78	5.50	2

Indicators no longer reported: Effective Q1 FY2023/2024, indicators no longer reported will appear as n/a.

2.4 Unit Scorecard – *LHIN Report*

What is it?

The LHIN report displays data on all 11 indicators for each critical care unit within the specified sub-region.

Intended Use

The LHIN report is a snapshot of the current status within a sub-region and can be used by the Critical Care Clinical Leaders (formerly referred to as Critical Care LHIN Leaders) and administrators to assess critical care system performance within their sub-region against the selected measures of access, quality and system integration. The LHIN report can be used to perform periodic and systematic strategic reviews and inform evaluation, planning and resource allocation.

Figure 4. Unit Scorecard – *LHIN Report* Sample

Unit Name: All the units in the LHIN (sub-region).

Peer Group Code: This column indicates the peer group number of a particular unit. Refer to Appendix D for Peer Group Classification

Indicators no longer reported: Effective Q1 FY2023/2024, indicators no longer reported will appear as n/a.

Performance Measures: Describes the indicators.

Hospital Name	Unit Name	Peer Group Code	Antimicrobial Utilization (per 1000 ‰)	VAP Rate (per 1000 ‰)	CLI Rate (per 1000 ‰)	Incident Rate - Unplanned Extubation (per 1000 ‰)	Hand Hygiene Compliance - before patient contact (%) *	48 Hour Readmission Rate (%)	% Nurses with Critical Care Training *	Admission to Bed (90 minutes %)	% of Beds not Available	Night-time Discharge Rate (%)	ICU Average Length of Stay (Days)	Avoidable Days Rate (%)	# Chronically Ventilated Patients (>21 Days)
Hospital name removed for display purposes.	Intensive Care	102	890.67	0.00	0.00	3.30	n/a	1.56	n/a	61.95	0.00	26.56	5.60	7.79	1
	Step-Down Unit	109	279.19	n/a	n/a	n/a	n/a	0.00	n/a	1.47	0.00	0.00	4.02	0.00	0
	Intensive Care Unit	101	1,180.16	7.27	0.78	0.00	n/a	1.33	n/a	1.56	16.67	8.00	10.38	12.33	16
	Med-Surg Level 2 Stepdown	109	780.20	0.00	0.00	0.00	n/a	0.84	n/a	0.96	0.00	16.81	3.94	17.05	0
	Critical Care - Acute	102	868.14	3.52	0.00	0.00	n/a	1.59	n/a	57.89	0.00	14.29	5.32	22.30	0
	Step Down	109	385.37	0.00	0.00	0.00	n/a	2.90	n/a	32.06	0.00	15.94	5.28	16.46	0
	Cardiac Acute Care Unit	112	124.58	n/a	0.00	n/a	n/a	0.00	n/a	8.33	0.00	3.85	5.02	1.91	0
	Cardiovascular ICU	103	492.38	0.00	0.00	2.73	n/a	1.05	n/a	n/a	0.00	0.52	3.19	1.91	1
	Chest Unit	107	475.96	0.00	0.00	0.00	n/a	2.86	n/a	0.00	0.00	5.71	3.20	0.00	0
	Coronary Care Unit	106	101.45	n/a	0.00	n/a	n/a	0.74	n/a	16.98	0.00	4.41	1.55	4.11	0
	Medical / Surgical ICU	101	841.42	0.00	0.00	0.00	n/a	3.21	n/a	2.27	23.53	7.05	3.68	3.10	4

n/a Not applicable
* Indicators no longer collected (effective Q1 23/24)
Note: Please refer to the *Critical Care Unit Scorecard Report Guide* for details.

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2.5 Critical Care Data Quality Scorecard – *Quarterly Summary*

What is it?

The Critical Care Data Quality Scorecard: Quarterly Summary is a table displaying the 7 selected indicators and their quality with regards to timely data entry, completeness and compliance for each critical care unit.

Intended Use

The Critical Care Data Quality Scorecard is intended to help unit managers and hospital administrators to assess the data quality of the seven selected data quality indicators in terms of compliance, timeliness, and completeness of the data entered in the CCIS database.

Please refer to Appendix A: Table 2 *for a complete list of the 7 indicators, their definitions, and calculations.*

Figure 5. Unit Scorecard – *Critical Care Data Quality – Quarterly Summary* Sample

Baseline: Describes the starting point of recorded data associated with the indicator from the first completed scorecard. The baseline measure will not change from scorecard to scorecard.

Last Reporting Period: Describes the indicator performance for the previous reporting period to allow comparison with current performance.

Change from Last Reporting Period: Signals a change in the indicator value from the last reporting period.

Status: The red, yellow and green status provides an 'at-a-glance' view of the indicator's performance/ progress, against the set target, for the reporting period.

Performance Measure: Provides a description of the indicator selected to be included in the unit level data quality scorecard.

Current Performance: Describes the indicator for the current reporting period.

Target: Indicates the desired, expected, and required level of performance for the indicator.

Data Source: Indicates where the data is collected from for each of the indicators.

DOMAIN	INDICATOR	PERFORMANCE MEASURE	BASELINE	LAST REPORTING PERIOD	CURRENT PERFORMANCE	CHANGE FROM LAST REPORTING PERIOD	TARGET	STATUS	DATA SOURCE
TIMELINESS/ COMPLETENESS /COMPLIANCE	ICU Admission	Hours from ICU Admission to CCIS Submission (Median)	10.20	9.69	9.66	↓	2 hours	🔴	CCIS
		% of Timely Entries for ICU Admissions to CCIS Submission (<=2 hours)	17.70	24.37	22.94	↓	100%	🔴	CCIS
	ICU Discharge	Hours from ICU Discharge to CCIS Submission (Median)	3.16	3.45	2.98	↓	2 hours	🟡	CCIS
		% of Timely Entries for ICU Discharge to CCIS Submission (<=2 hours)	65.09	61.62	67.44	↑	100%	🔴	CCIS
	LSI/NEMS	% of LSI/NEMS Timely Entries (by 23:59 next day)	99.68	99.71	99.22	↓	100%	🟡	CCIS
		% of LSI/NEMS Completed Updates	99.79	100.00	99.91	↓	100%	🟡	CCIS
	MODS	% of MODS Timely Entries (by 23:59 next day)	98.54	99.02	100.00	↑	100%	🟢	CCIS

Baseline	All indicators: based on FY2017/2018 data *(Data extracted on 12/03/2018)*	→	Indicates no change in indicator value since the last reporting period
		↓	Indicates a decrease in indicator value since the last reporting period
Change From Last Reporting Period	Signals a change in the indicator from the last reporting period	↑	Indicates an increase in indicator value since the last reporting period
		Target/Status	Please refer to the *Critical Care Unit Scorecard Reports Guide* for target/status setting methodology

n/a Not Applicable

3. LHIN Scorecard Reports Package

LHIN Scorecard Reports Package includes **three reports** that provide a framework for monitoring performance for each sub-region with the ability to provide a snapshot of the critical care system at the sub-regional level.

1. **Critical Care LHIN Scorecard – Quarterly Summary**
   A table displaying performance of each indicator for the reporting period to illustrate current performance at a glance, for the specified sub-region.
2. **Critical Care LHIN Scorecard – Run Charts**
   Graphs displaying performance of each indicator over time, for the specified sub-region.
3. **Critical Care Unit Scorecard – Macro Value Report**
   A table displaying data on the 15 indicators for sub-regions, to allow an 'at a glance view' of performance across all LHINs sub-regions within the province.

Please Note: The data presented in this report guide is for illustration purposes only.

3.1 LHIN Scorecard – *Quarterly Summary*

What is it?

The LHIN Quarterly Summary provides data for 15 indicators that focus on quality, access and system integration. The indicators were selected in consultation with Critical Care Clinical Leaders (formerly referred to as Critical Care LHIN Leaders) and healthcare providers. They were enhanced through CCSO consultations at 2014 Town Halls where it was also determined that distribution of this scorecard will be useful to all Critical Care units and sub-regions.

Intended Use

The LHIN Quarterly Summary can be used by Critical Care Clinical Leaders (formerly referred to as Critical Care LHIN Leaders) and healthcare providers to compare current performance to the previous reporting period, and identify needs for investigation of results and/or conduct further analysis.

Please refer to Appendix A *for a complete list of the indicators, their definitions and formulas.*

Figure 6. LHIN Scorecard – *Quarterly Summary* Sample

Baseline: Describes the starting point of recorded data associated with the indicator from the first completed scorecard. The baseline measure will not change from scorecard to scorecard.

Last Reporting Period: Describes the LHIN's performance for the previous reporting period to allow comparison with current performance.

Current Performance: Describes the LHIN's performance for the current reporting period.

Target/Status: Currently not set for the LHIN scorecard.

Performance Measure: Provides a description of the indicator selected to be included in the LHIN level scorecard.

DOMAIN	OBJECTIVE	PERFORMANCE MEASURE	BASELINE	LAST REPORTING PERIOD	CURRENT PERFORMANCE	CHANGE FROM LAST REPORTING PERIOD	TARGET	STATUS	DATA SOURCE
QUALITY	Deliver Safe Care	VAP Rate (per 1000 cases ‰)	0.54‰	0.00‰	0.00‰	→	-	-	CCIS
		CLI Rate (per 1000 cases ‰)	0.67‰	0.00‰	0.00‰	→	-	-	CCIS
	Deliver Effective Care	ICU Mortality Rate (%)	7.23%	7.25%	8.73%	↑	-	-	CCIS
		48 Hour Readmission Rate (%)	1.54%	1.21%	1.47%	↑	-	-	CCIS
ACCESS	Provide Timely Care	Bed Occupancy Rate (%)	77.52%	71.09%	74.22%	↑	-	-	CCIS
		Ventilated Patient Day Rate (%)	33.77%	31.07%	31.74%	↑	-	-	CCIS
		Night Time Discharge Rate (%)	7.45%	6.17%	7.56%	↑	-	-	CCIS
		Avoidable Days Rate (%)	6.37%	7.80%	14.58%	↑	-	-	CCIS
		Life or Limb Confirmed cases-Time to Arrival within 4 hours (%)	-	83.78%	83.70%	↓	-	-	CritiCall Ontario
SYSTEM INTEGRATION	Optimize Patient Flow	# Chronically Ventilated Patients >21 Days	47	10	12	↑	-	-	CCIS
		Admissions from Hospitals within LHIN (%)	4.03%	3.93%	3.29%	↓	-	-	CCIS
		Admissions from Hospitals outside LHIN (%)	0.51%	0.41%	0.24%	↓	-	-	CCIS
		Discharges to Hospitals within LHIN (%)	2.25%	2.73%	2.84%	↑	-	-	CCIS
		Discharges to Hospitals outside LHIN (%)	4.58%	4.70%	4.01%	↓	-	-	CCIS
		Repatriation with no delay rate (%)	-	67.65%	62.40%	↓	-	-	CritiCall Ontario

Baseline	Based on 2012-2013 fiscal year data	→	Indicates no change since the last reporting period
Change from last reporting period	Signals a change in the indicator from the last reporting period	↓	Indicates a decrease in indicator value
Target/Status	Work in process	↑	Indicates an increase in indicator value

Legend: Provides additional interpretative notes.

Change from Last Reporting Period: Signals a change in the indicator value from the last reporting period. E.g. if the Avoidable Days Rate decreased from the previous quarter, the arrow will face downwards.

Data Source: Indicates where the data is collected from for each indicator.

3.2 LHIN Scorecard – *Run Charts*

What is it?

Run Charts are graphs that display data about a process or system over time. They are frequently used for monitoring quality improvement initiatives and for predicting future performance.

Intended Use

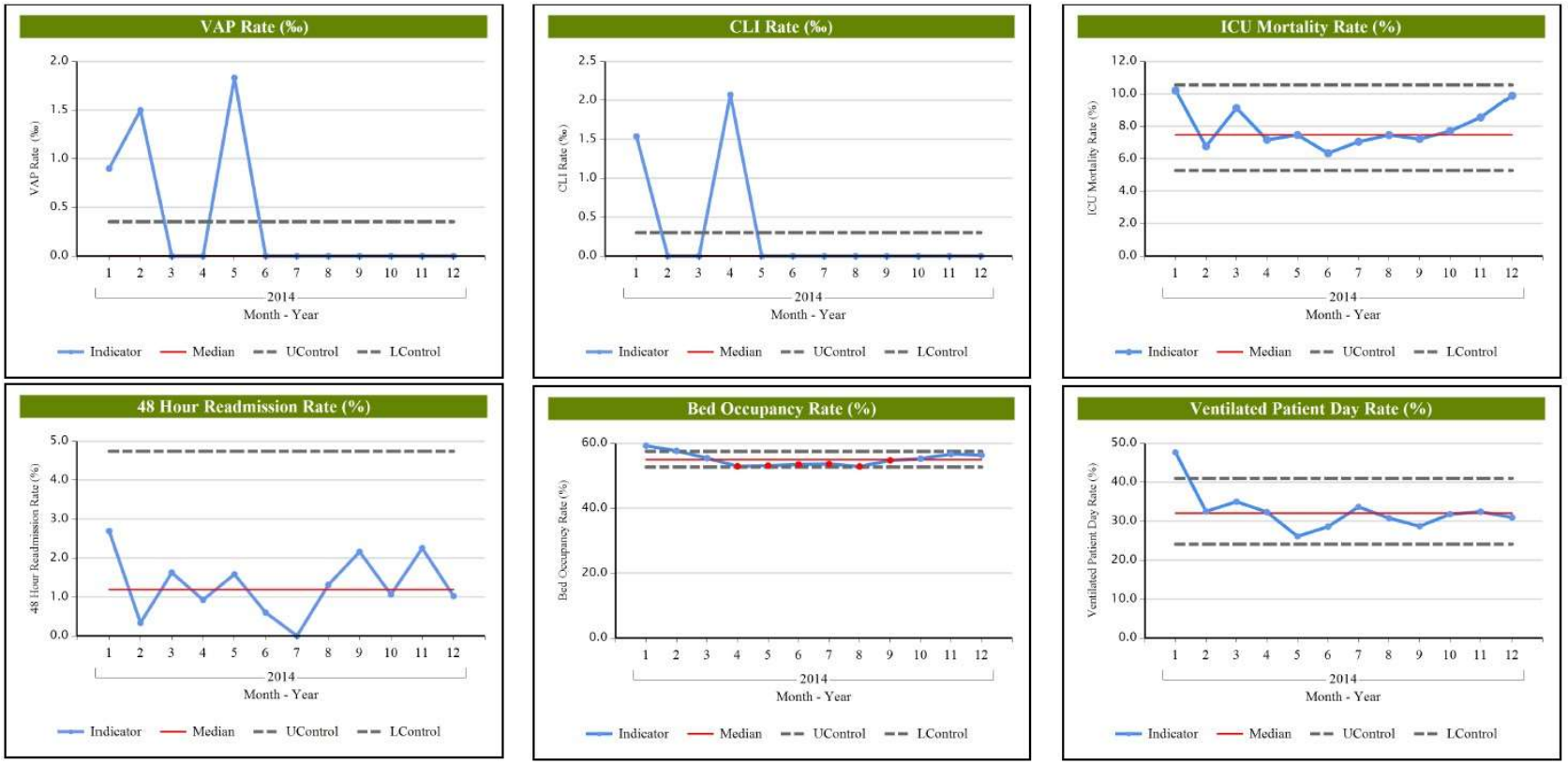
The LHIN level Run Charts can be used by sub-regional leaders and health care providers to identify the occurrence of trends, shifts or outliers. The following graph examples are designed to help sub-regions understand and interpret the Run Charts. There are three rules for interpreting Run Charts, which are explained below.[3]

One goal of using a control Run Chart is to maintain process stability. This is done by adding 'control limits' to the Run Charts. Wide control limits indicate instability (inconsistency) of process overtime; meanwhile narrow control limits indicate stability (consistency) of process overtime. Observations outside of the control limits need to be investigated to gain further understanding and to monitor quality improvement initiatives over time.

Please refer to Appendix C *for a detailed review of data used to generate sample Run Charts below, including calculation used to determine the upper and lower control limits.*

[3]Provost and Murray – The Health Care Data Guide: Learning from Data For Improvement (2011)

Figure 7. LHIN Scorecard – *Run Charts* Sample



3.3 LHIN Scorecard – *Macro Value Report*

What is it?

The LHIN Macro Value Report displays data on all 15 indicators for each of the 14 sub-regions.

Intended Use

The LHIN Macro Value Report is a snapshot of current status and can be used by Critical Care Clinical Leaders (formerly referred to as Critical Care LHIN Leaders) to assess how their sub-region is performing against the selected measures of access, quality and system integration. The LHIN Macro Value Report can also be used to compare one sub-region to another.

Figure 8. LHIN Scorecard – *Macro Value Report* Sample

LHIN Name: Lists all the LHINs (sub-regions) in the province.

Performance Measures: Describes the indicators selected to be included in the unit level scorecard.

LHIN Name	VAP Rate (per 1000 ‰)	CLI Rate (per 1000 ‰)	ICU Mortality Rate (%)	48 Hour Readmission Rate (%)	Bed Occupancy Rate (%)	Ventilated Patient Day Rate (%)	Night Time Discharge Rate (%)	Avoidable Days Rate (%)	Life or Limb Confirmed Cases - Time to Arrival within 4 hours (%)	Chronically Ventilated Patients (>21 Days)	Admissions from Hospitals within LHIN (%)	Admissions from Hospitals outside LHIN (%)	Discharges to Hospitals within LHIN (%)	Discharges to Hospitals outside LHIN (%)	Repatriation with No Delay Rate (%)
Erie St. Clair	0.00	0.38	11.05	1.10	79.91	32.26	7.80	7.69	77.66	7	7.30	0.37	2.72	4.19	65.82
South West	0.21	0.13	6.35	1.67	74.01	32.92	7.78	5.85	83.58	30	8.22	2.62	4.18	1.33	81.47
Waterloo Wellington	0.39	0.56	7.84	0.99	86.07	37.18	8.15	19.53	75.95	15	6.34	4.10	6.90	3.45	71.63
Hamilton Niagara Haldimand Brant	0.64	0.71	7.65	2.18	94.22	35.27	8.23	9.60	86.26	50	6.64	1.35	6.98	0.75	55.76
Central West	0.00	0.00	9.91	2.02	83.77	37.74	13.01	10.45	77.78	12	6.59	1.87	2.89	3.52	61.64
Mississauga Halton	0.55	0.67	10.29	2.02	90.46	55.59	5.89	3.07	84.62	38	8.85	1.90	5.89	1.46	69.77
Toronto Central	1.75	0.28	7.03	2.35	85.21	42.06	7.58	6.66	83.58	70	4.19	4.10	3.21	2.31	53.06
Central	0.00	0.13	12.09	1.56	95.38	58.05	6.46	2.16	86.03	44	3.46	5.16	1.82	3.60	53.21
Central East	0.39	0.00	10.85	2.45	87.69	42.95	11.45	7.55	65.87	32	11.12	1.92	8.39	3.07	49.43
South East	1.23	0.00	9.29	1.81	83.48	31.23	8.95	7.41	72.15	10	7.23	0.60	3.26	0.89	49.60
Champlain	0.20	0.25	8.36	1.65	89.33	31.43	10.93	6.99	78.17	24	12.22	0.50	4.57	0.06	66.20
North Simcoe Muskoka	0.00	0.00	8.19	1.36	79.29	23.50	9.03	11.63	61.40	3	5.57	4.86	5.18	3.52	84.47
North East	1.12	0.43	6.89	1.36	76.26	24.91	8.84	15.23	33.33	5	9.95	0.27	9.18	2.07	76.47
North West	0.00	0.00	9.76	2.47	73.76	21.59	13.27	22.00	23.53	2	13.54	0.93	5.82	2.08	51.14

4. Provincial Scorecard Report Package

The Provincial Scorecard Reports Package includes **one report** that provides a provincial overview of the indicators, with the ability to provide a snapshot of the critical care system at the provincial level.

1. **Critical Care LHIN Scorecard – Quarterly Summary**
   A table displaying performance of each indicator for the specified reporting period to illustrate current performance at a glance.

Please Note: The data used in this report guide is for illustration purposes only.

4.1 Provincial Scorecard – *Quarterly Summary*

What is it?

The Critical Care Provincial Scorecard Report is a table displaying performance of the 11 selected indicators for the province to illustrate current performance at a glance.

Intended Use

The Critical Care Provincial Scorecard can be used by sub-regions to assess provincial progress and to compare their rates to the provincial average.

Please refer to Appendix A *for a complete list of the 11 indicators, their definitions and formulas.*

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Figure 9. Provincial Scorecard – *Quarterly Summary* Sample

Performance Measure: Provides a description of the indicator selected to be included in the provincial scorecard.

Baseline: Describes the starting point of recorded data associated with the indicator from the first completed scorecard. The baseline measure will not change from scorecard to scorecard.

Last Reporting Period: Describes the provincial performance for the previous reporting period to allow comparison with current performance.

Current Performance: Describes the provincial performance for the current reporting period.

Target/Status: Currently not set for the provincial scorecard.

DOMAIN	OBJECTIVE	PERFORMANCE MEASURE	BASELINE	LAST REPORTING PERIOD	CURRENT PERFORMANCE	CHANGE FROM LAST REPORTING PERIOD	TARGET	STATUS	DATA SOURCE
QUALITY	Deliver Safe Care	Antimicrobial Utilization (per 1000 ‰)	816.35	732.03	704.71	↓	-	-	CCIS
		VAP Rate(per 1000 ‰)	1.14	0.87	1.13	↑	-	-	CCIS
		CLI Rate (per 1000 ‰)	0.61	0.37	0.45	↑	-	-	CCIS
		Incident Rate - Unplanned Extubation (per 1000 ‰)	2.68	1.19	0.88	↓	-	-	CCIS
		Hand Hygiene Compliance- before patient contact (%) *	n/a	n/a	n/a	–	-	-	Hospital Data
	Deliver Effective Care	48 Hour Readmission Rate (%)	1.93	1.94	1.87	↓	-	-	CCIS
	Enhance Staff Competency	% Nurses with Critical Care Training*	n/a	n/a	n/a	–	-	-	Hospital Data
ACCESS	Provide Timely Care	% Admission to Bed (within 90 minutes)	43.02	25.67	28.70	↑	-	-	CCIS
		% of Beds not Available	1.80	3.22	2.30	↓	-	-	CCIS
		Night-time Discharge Rate (%)	8.00	11.79	11.07	↓	-	-	CCIS
SYSTEM INTEGRATION	Optimize Patient Flow	ICU Average Length of Stay (days)	4.05	4.70	4.60	↓	-	-	CCIS
		Avoidable Days Rate (%)	6.74	8.20	8.20	→	-	-	CCIS
		# Chronically Ventilated Patients >21 Days	1,319	378	331	↓	-	-	CCIS
	Facilitate Potential Organ donation	Conversion Rate for Deceased Organ Donation (%)	n/a	n/a	n/a	–	-	-	TGLN

Baseline	Based on 2012-13 fiscal year data for quarterly indicators except Antimicrobial Utilization and Conversion Rate for Deceased Organ Donation Based on 2013-14 fiscal year data for quarterly indicators for Antimicrobial Utilization and Conversion Rate for Deceased Organ Donation and 2016-17 fiscal year data for % Admission to Bed Based on 2013-14 fiscal year data for annual hospital reported data
Change From Last Reporting Period	Signals a change in the indicator from the last reporting period

→	Indicates no change since the last reporting period
↓	Indicates a decrease in indicator value since the last reporting period
↑	Indicates an increase in indicator value since the last reporting period
-	Indicates data not reported
Target/Status	Work in progress

n/a Not applicable
* Indicators no longer collected (effective Q1 23/24)

Legend: Provides additional interpretative notes.

Indicators no longer reported: Effective Q1 FY2023/2024, indicators no longer reported will appear as n/a.

Change from Last Reporting Period: Signals a change in the indicator value from the last reporting period e.g. if the Avoidable Days Rate decreased from the previous quarter, the arrow will face downwards.

Data Source: Indicates where the data is collected from for each indicator.

5. Conclusion

It is anticipated the reports described in this document will support units in their quality improvement journey and encourage healthcare providers to employ and share innovative approaches towards achieving quality benchmarks in providing critical care services to critically ill patients.

CCSO is committed to providing ongoing support to healthcare providers in their quality journey by ensuring that tools are available to utilize data and best practices to drive performance improvement. For further information, please contact CCSO at: info@ccso.ca

6. Appendices

Appendix A: Table 1 – Critical Care Scorecard Performance Indicators

Critical Care Unit Level Scorecard indicator	Indicator Definition	Associated Formula	Unit Scorecard	LHIN Scorecard	Provincial Scorecard
Antimicrobial Utilization (per 1000 ‰)	Antimicrobial Utilization indicates the number of antifungal and antibacterial therapies for all (calendar) patient-days of the reporting period (reporting Days of Therapy DOT). Total Patient-Days is the number of (calendar) patient-days in an ICU for the selected reporting period.	$\frac{\text{Antibacterial Therapies} + \text{Antifungal Therapies}}{\text{Total (Calendar) Patient Days}} \times 1000$	✓		✓
VAP Rate (per 1000 ‰)	Ventilator-associated pneumonia (VAP) rate is defined as the number of ventilator-associated pneumonia incidents diagnosed after day 48 hours of admission per 1000 ventilator days. VAP is defined as pneumonia (a serious lung infection) that can occur in patients, specifically those in Intensive Care Units (ICU) who need assistance breathing with a mechanical ventilator for at least 48 hours.	$\frac{\text{Number of VAP Incidents diagnosed after day 2 of admission}}{\text{Number of Mechanically Invasive Ventilation Days}} \times 1000$	✓	✓	✓
CLI Rate (per 1000 ‰)	Central Line-Associated Primary Bloodstream Infections (CLI) occur when a central venous catheter (or "line") placed into a patient's vein gets infected. CLI Rate is rate of CLI incidents diagnosed after 48 hour of admissions per 1000 central venous line days.	$\frac{\text{Number of CLI Incidents diagnosed after 48 hours of admission}}{\text{Number of Central Venous Line Days}} \times 1000$	✓	✓	✓

Critical Care Unit Level Scorecard indicator	Indicator Definition	Associated Formula	Unit Scorecard	LHIN Scorecard	Provincial Scorecard
Incident Rate – Unplanned Extubation (per 1000 ‰)	Incident Rate – Unplanned Extubation is rate of self-extubation by the patient or accidental extubation by members of staff during bedside procedures per 1000 ventilated days.	$\frac{\text{Number of Unplanned Extubation Incidents}}{\text{Number of Mechanically Invasive Ventilated Days}} \times 1000$	✓		✓
48 Hour Readmission Rate (%)	Percent of patients readmitted to ICU within 48 hours after their initial discharge to non-ICU Inpatient locations.	$\frac{\text{Number of Readmissions Within 48 Hours}}{\text{Number of Live Inpatient Discharges}} \times 100$	✓	✓	✓
% Admission to Bed (90 min)	Percent of patients from ER, who, from the time a decision is made to admit to a critical care bed, are in a bed within 90 minutes.	$\frac{\text{Number of patients admitted from ER who, from the time a decision is made to admit to a critical care bed, are in a bed within 90 minutes}}{\text{Total \# of cases from ED per unit}} \times 100$	✓		✓
% of Beds not Available	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.	$\frac{\text{Not Available Bed Days}}{\text{Beds Days in Reporting Period}} \times 100$	✓		✓
Night Time Discharges Rate (%)	Rate of night-time in-patient discharges (between 22h00 and 06h59).	$\frac{\text{Number of Patients Discharged between 22h00 and 6h59 to a Specified Destination}}{\text{Number of Live Inpatient Discharges in the Unit}} \times 100$	✓	✓	✓
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).	$\frac{\text{Total Length of Stay}}{\text{Number of Unit Discharges}}$	✓		✓

Critical Care Unit Level Scorecard indicator	Indicator Definition	Associated Formula	Unit Scorecard	LHIN Scorecard	Provincial Scorecard
Avoidable Days Rate (%)	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.	$\frac{\text{Total Delayed days}}{\text{Total patient days}} \times 100$	✓	✓	✓
# Chronically Ventilated Patients > 21 Days	Total number of patients that are mechanically ventilated for more than 21 consecutive days.	There is no specific formula for this indicator, rather a set of steps that allow extracting data for patients mechanically ventilated for greater than 21 consecutive days: Using Patient and Life Support Intervention (LSI) core data export functionality in CCIS 1. Apply the filter 'Ventilation' = Mechanical: Invasive Ventilation 2. Sort by 'DateofIntervention' and ensure that the LSI entries displayed occur within the desired reporting period 3. Count the number of patients who were mechanically invasive ventilated for longer than 21 days	✓	✓	✓
ICU Mortality Rate (%)	Rate of deaths of patients under the care of the critical care service	$\frac{\text{Unit Discharges} - \text{Live Discharges}}{\text{Unit Discharges}} \times 100$		✓	
Bed Occupancy %	Total occupied beds Note: Bed numbers in CCIS are changed only upon approval of written change requests signed by a hospital CEO and Critical Care Clinical Leader and submitted to the CCSO.	$\frac{\text{Total Patient Days}}{\text{Days in Reporting} \times \text{Beds in Inventory}} \times 100$		✓	
Ventilated Patient Day Rate	Ventilator Patient Day Rate 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	$\frac{\text{Patient Days with Ventilation}}{\text{Total Patient Days}} \times 100$		✓	

Critical Care Unit Level Scorecard indicator	Indicator Definition	Associated Formula	Unit Scorecard	LHIN Scorecard	Provincial Scorecard
	calculated for units even if they do not have Ventilated Beds reported in the Inventory submitted to the MOHLTC.				
Life or Limb Confirmed Cases – Time to Arrival within 4hrs Rate	Only Declared and Confirmed Life or Limb Cases which result in a patient transfer [Time to Arrival (mins)] = [Start Time of Case] to [Arrival Time of Case] [Arrival Time]: the admit time at the receiving hospital	$\frac{\text{Number of cases with Time to Arrival} \leq 4\text{hrs}}{\text{Number of cases transferred}} \times 100$		✓	
Admissions from Hospitals Within LHIN (%)	Captures the rate of patients admitted by the reporting unit from another hospital within the same LHIN.	$\frac{\text{Admissions from Hospitals Within LHIN}}{\text{Unit Admissions}} \times 100$		✓	
Admissions from Hospitals Outside LHIN (%)	Captures the rate of patients admitted by the reporting unit from another hospital outside the LHIN.	$\frac{\text{Admissions from Hospitals Outside LHIN}}{\text{Unit Admissions}} \times 100$		✓	
Discharges to Hospital Within LHIN (%)	Captures the number of patients transferred from the reporting unit to another hospital within the same LHIN.	$\frac{\text{Discharges to Hospitals Within LHIN}}{\text{Total Live Discharges}} \times 100$		✓	
Discharges to Hospital Outside LHIN (%)	Captures the number of patients transferred from the reporting unit to another hospital outside the LHIN.	$\frac{\text{Discharges to Hospitals Outside LHIN}}{\text{Total Live Discharges}} \times 100$		✓	
Repatriation with no delay Rate	Only Repatriation cases (Not inter-facility transfers) Repatriation with no delay: request repatriated within 2 days of the Requested Transfer Date	$\frac{\text{Number of requests that were repatriated with no delay}}{\text{Number of requests repatriated}} \times 100$		✓	

Appendix A: Table 2 – Critical Care Scorecard Data Quality Indicators

Critical Care Scorecard Data Quality indicator	Indicator Definition	Associated Formula	Unit Scorecard	LHIN Scorecard	Provincial Scorecard
Hours from ICU Admission to CCIS ICU Submission Date Time	Median: # Hours between ICU Admission Submission Date and ICU Admission Date for each patient in the unit	('ICUAdmissionSubmissionDateTime') – ('ICUAdmissionDateTime')	✓		
% Timely Entries for ICU Admissions to CCIS Submissions	Percentage of Timely Entries for ICU Admissions to CCIS Submissions. Timely entries are cases where hours between 'ICUAdmissionSubmissionDateTime' and 'ICUAdmissionDateTime' are ≤ 2 hours. Expected entries are number of unique patient admissions in the ICU.	$\frac{\text{Timely Entries}}{\text{Exptected Entries}} \times 100$	✓		
Hours from ICU Discharge to CCIS Submission Date Time	Median number of hours between DischargeSubmissionDateTime and ICUDischargeDate for each patient in the unit.	('DischargeSubmissionDateTime') – ('ICUDischargeDate')	✓		
% Timely Entries for ICU discharges to CCIS Submissions	Percentage of Timely Entries for ICU discharges to CCIS Submissions. Timely entries are cases where hours between 'ICUDischargeSubmissionDateTime' and 'ICUDischargeDateTime' are ≤ 2 hours. Expected entries are number of unique patient discharges in the ICU.	$\frac{\text{Timely Entries}}{\text{Expected Entries}} \times 100$	✓		
% of LSI/NEMS Timely Entries	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 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.	$\frac{\text{Timely Entries}}{\text{Expected Entries}} \times 100$	✓		

Critical Care Scorecard Data Quality indicator	Indicator Definition	Associated Formula	Unit Scorecard	LHIN Scorecard	Provincial Scorecard
LSI/NEMS % Completed Updates	Completed updates are number of all the records where date of intervention falls within the period. (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 Updates are the number of calendar days patients are in the ICU for that time period.	$\frac{\#\text{ of Completed updates}}{\#\text{ of Expected Updates}} \times 100$	✓		
% MODS Timely Entries	Timely Entries are cases where the date of MODS is submitted prior to 23:59 of the following day (from the patient ICU admission date). Expected Entries are the admitted patients (≥18 years) in the ICU for that time period.	$\frac{\text{Timely Entries}}{\text{Expected Entries}} \times 100$	✓		

Appendix A: Table 3 – Indicators No Longer Reported

Critical Care Scorecard Data Quality indicator	Indicator Definition	Associated Formula	Unit Scorecard	LHIN Scorecard	Provincial Scorecard
Hand Hygiene Compliance (before patient contact) (%)	The number of times that hand hygiene was performed (by health care providers) before initial patient contact divided by the number of observed hand hygiene indications for before initial patient contact multiplied by 100, consistent with publicly reportable patient safety data.	$\frac{\text{Number of times hand hygiene performed}}{\text{Number of observed hand hygiene indications}} \times 100$ Note: if unit specific data is not available for hand hygiene compliance, site/hospital level data can be submitted.	✓		✓
% of Nurses with Critical Care Training (%)	Percent of Registered Nurses (RNs) who have completed in-house and/or college-based adult critical care nurse training OR meet the Practice Standards for Critical Care Nursing in Ontario. Note: this is snapshot data, colleceted annually (as at March 31st)	$\frac{\text{Number of RNs who completed critical care training OR meet all the competencies as per practice standards}}{\text{Total number of RNs in the unit}} \times 100$	✓		✓
Conversion Rate for Deceased Organ Donation	The overall rate for deceased patients who became actual organ donors from those that appears to have organ donor potential (potential donor). This determination is made after review of the medical record.	$\frac{\text{Number of organ Donors (neurological and cardiac)}}{\text{Potential eligible cases}} \times 100$			✓

Appendix B: Target Setting Methodology and Status

Target Setting Approach

The target indicates the desired level of performance for each indicator to assist units in measuring their performance. Setting targets for quality improvement should act as a 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, stretched and forward thinking.

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 (based on most recent fiscal year data e.g. for 17/18 reports, targets are based on 16/17 data reported in CCIS)
- For wait times, target aligned with the provincial wait time strategy
- For the Conversion rate for Deceased Organ Donation, the provincial targets are set by the Ontario Trillium Gift of Life Network
- Targets will be re-set annually using most recent fiscal year data available in CCIS e.g. for Q1 17/18 reports, targets will be updated using FY 16/17 CCIS data where applicable

Targets by Indicator

VAP Rate (‰) **CLI Rate (‰)** **Incident Rate - Unplanned Extubation (‰)**	**Theoretical Best (0% or 100%)**
48 Hour Readmission Rate (%) **% of Beds Not Available** **Night-Time Discharge Rate (%)**	
ICU Average LOS (days) **Avoidable Days Rate (%)** **Chronic Vent Patients > 21 Days** **Antimicrobial Utilization (‰)**	**Top 25th Percentile Performance (in that peer group)**
Admission to Bed (within 90 minutes) (%)	**Time Strategy (90%)**

Status

The red, yellow and green status provides an 'at-a-glance' view of the indicator's performance for the reporting period. When a target is not met, the status is indicated by a '*red*' signal. A '*green*' signal indicates the set target has been met or exceeded. A '*yellow*' signal indicates that indicator requires monitoring relative to performance target. Where data is not available, the cell will have no colour.

Status	Definition
	Target Achieved – Satisfactory target performance
	Requires Monitoring – Warning signal relative to performance
	Target Missed – Target is not being met and action should be taken

Indicators	Data Source	(Status) Green 	Yellow 	Red 
VAP Rate (per 1000 ‰)	CCIS	= 0 ‰	Top 25th percentile performance and above	Below top 25th percentile performance
CLI Rate (per 1000 ‰)		= 0 ‰		
Incident Rate - Unplanned Extubation (per 1000 ‰)		= 0 ‰		
48 Hour Readmission Rate (%)	CCIS	Top 25th percentile performance and above	Between top 25th and 50th percentile performance	Below 50th percentile performance
% of Beds Not Available				
Night-Time Discharge Rate (%)				
ICU Average LOS (days)				
Avoidable Days Rate (%)				
# Chronic Vented Patients > 21 days				
Antimicrobial Utilization (per 1000‰)				
Admission to Beds (within 90 minutes) (%)	CCIS	≥90%	Between 85% (inclusive) and 90%	<85%

Note: Analysis is based on peer groups

Data Quality Indicators	Data Source	(Status) Green	Yellow	Red
Hours from ICU Admission to CCIS Submission (median)	CCIS	≤ 2 hours	> 2 hours and ≤ 4 hours	> 4 hours
% of Timely Entries for ICU Admissions to CCIS Submission (≤ 2 hours)	CCIS	=100 %	Between 95% and < 100%	< 95%
Hours from ICU Discharge to CCIS Submission (median)	CCIS	≤ 2 hours	> 2 hours and ≤ 4 hours	> 4 hours
% of Timely Entries for ICU Discharge to CCIS Submission (≤ 2 hours)	CCIS	=100 %	Between 95% and < 100%	< 95%
% of LSI/NEMS Timely Entries (by 23:59 next day)	CCIS	=100 %	Between 95% and < 100%	< 95%
% of LSI/NEMS Completed Updates	CCIS	=100 %	Between 95% and < 100%	< 95%
% of MODS Timely Entries (by 23:59 next day)	CCIS	=100 %	Between 95% and < 100%	< 95%

Example:

Using the 'Average length of Stay (Days)' indicator from FY1617 as an example, the target and status (red, yellow, green) calculation is explained below.

Based on the data reported into CCIS, the top 25th percentile performance for this peer group for Average LOS is 4.99 days, and the 50th percentile performance is 6.15 days.

Peer Group Unit	Time	Average LOS
Unit1	FY1617_Q1	6.6196
Unit2	FY1617_Q1	5.5631
Unit3	FY1617_Q1	7.6786
Unit4	FY1617_Q1	4.5996
Unit5	FY1617_Q1	6.3315
Unit6	FY1617_Q1	7.1385
Unit7	FY1617_Q1	4.1763
Unit8	FY1617_Q1	4.4812
Unit9	FY1617_Q1	7.0577
Unit10	FY1617_Q1	6.5253
Unit11	FY1617_Q1	8.7665
Unit12	FY1617_Q1	10.8829
Unit13	FY1617_Q1	4.4604
Unit14	FY1617_Q1	5.8481
Unit15	FY1617_Q1	5.1561
Unit16	FY1617_Q1	4.0467
Unit17	FY1617_Q1	7.6934
Unit1	FY1617_Q2	6.9289
Unit2	FY1617_Q2	4.6004
Unit3	FY1617_Q2	6.0558
Unit4	FY1617_Q2	10.7757
Unit5	FY1617_Q2	7.04
Unit6	FY1617_Q2	7.7753
Unit7	FY1617_Q2	4.3341
Unit8	FY1617_Q2	2.6002
Unit9	FY1617_Q2	6.5518
Unit10	FY1617_Q2	7.7312
Unit11	FY1617_Q2	9.6756
Unit12	FY1617_Q2	7.4315
Unit13	FY1617_Q2	5.1864
Unit14	FY1617_Q2	6.0915
Unit15	FY1617_Q2	5.3314
Unit16	FY1617_Q2	5.4288
Unit17	FY1617_Q2	9.9673
Unit1	FY1617_Q3	5.3936
Unit2	FY1617_Q3	5.1969
Unit3	FY1617_Q3	7.14
Unit4	FY1617_Q3	4.8175
Unit5	FY1617_Q3	5.83
Unit6	FY1617_Q3	6.4969
Unit7	FY1617_Q3	4.0404
Unit8	FY1617_Q3	3.2883
Unit9	FY1617_Q3	7.0713
Unit10	FY1617_Q3	7.028
Unit11	FY1617_Q3	6.1988
Unit12	FY1617_Q3	8.2098
Unit13	FY1617_Q3	4.7252
Unit14	FY1617_Q3	7.6933
Unit15	FY1617_Q3	5.9478
Unit16	FY1617_Q3	4.5361
Unit17	FY1617_Q3	9.4555
Unit1	FY1617_Q4	5.1477
Unit2	FY1617_Q4	5.3181
Unit3	FY1617_Q4	6.5853
Unit4	FY1617_Q4	4.8251
Unit5	FY1617_Q4	6.6167
Unit6	FY1617_Q4	6.5153
Unit7	FY1617_Q4	4.2187
Unit8	FY1617_Q4	3.3716
Unit9	FY1617_Q4	6.601
Unit10	FY1617_Q4	6.6371
Unit11	FY1617_Q4	7.1102

Sorted from minimum to maximum

Sorted Average LOS
2.6002
3.2883
3.3716
4.0404
4.0467
4.1763
4.2187
4.3341
4.4604
4.4812
4.5273
4.5361
4.5996
4.6004
4.7252
4.8175
4.8251
5.1477
5.1561
5.1864
5.1969
5.253
5.3181
5.3314
5.3936
5.4288
5.5631
5.8186
5.83
5.8481
5.8737
5.9478
6.0558
6.0915
6.1988
6.3315
6.4969
6.5153
6.5253
6.5518
6.5853
6.601
6.6167
6.6196
6.6371
6.9289
7.028
7.04
7.0577
7.0713
7.1102
7.1385
7.14
7.4315
7.6786
7.6933
7.6934
7.7312
7.7753
8.2098
8.2789
8.7665

Target (green/yellow cutoff): 25th percentile performance is average of 4.8251 and 5.1477 is

4.99

Median (50th percentile performance – yellow/red cutoff) is average of 6.0915 and 6.1988 is

6.15

Units with Average LOS less or equal than 4.99 will be GREEN

Units with Average LOS greater than 4.99 and less or equal than 6.15 will be YELLOW

Units with Average LOS greater than 6.15 will be RED

Appendix C: Run Charts and Calculations

The data from the table below is used in the sample run charts illustrated on page 17.

Table 1: Avoidable Day Rate, Length of Stay, Night Time Discharge Fiscal Year 2012/2013.

	Avoidable Day Rate (%)	ICU Average Length of Stay (Days)	Night Time Discharge Rate (%)
2012-Apr	0.00	2.13	1.45
2012-May	0.00	1.55	4.28
2012-Jun	12.50	2.56	2.34
2012-Jul	11.20	3.15	1.89
2012-Aug	8.40	1.18	0.79
2012-Sep	9.20	1.28	1.37
2012-Oct	7.20	2.89	2.34
2012-Nov	12.30	3.14	1.84
2012-Dec	7.80	3.23	1.73
2013-Jan	6.40	2.56	1.61
2013-Feb	0.00	3.12	1.22
2013-Mar	1.20	2.85	0.79

Descriptive information is calculated for the three indicators:

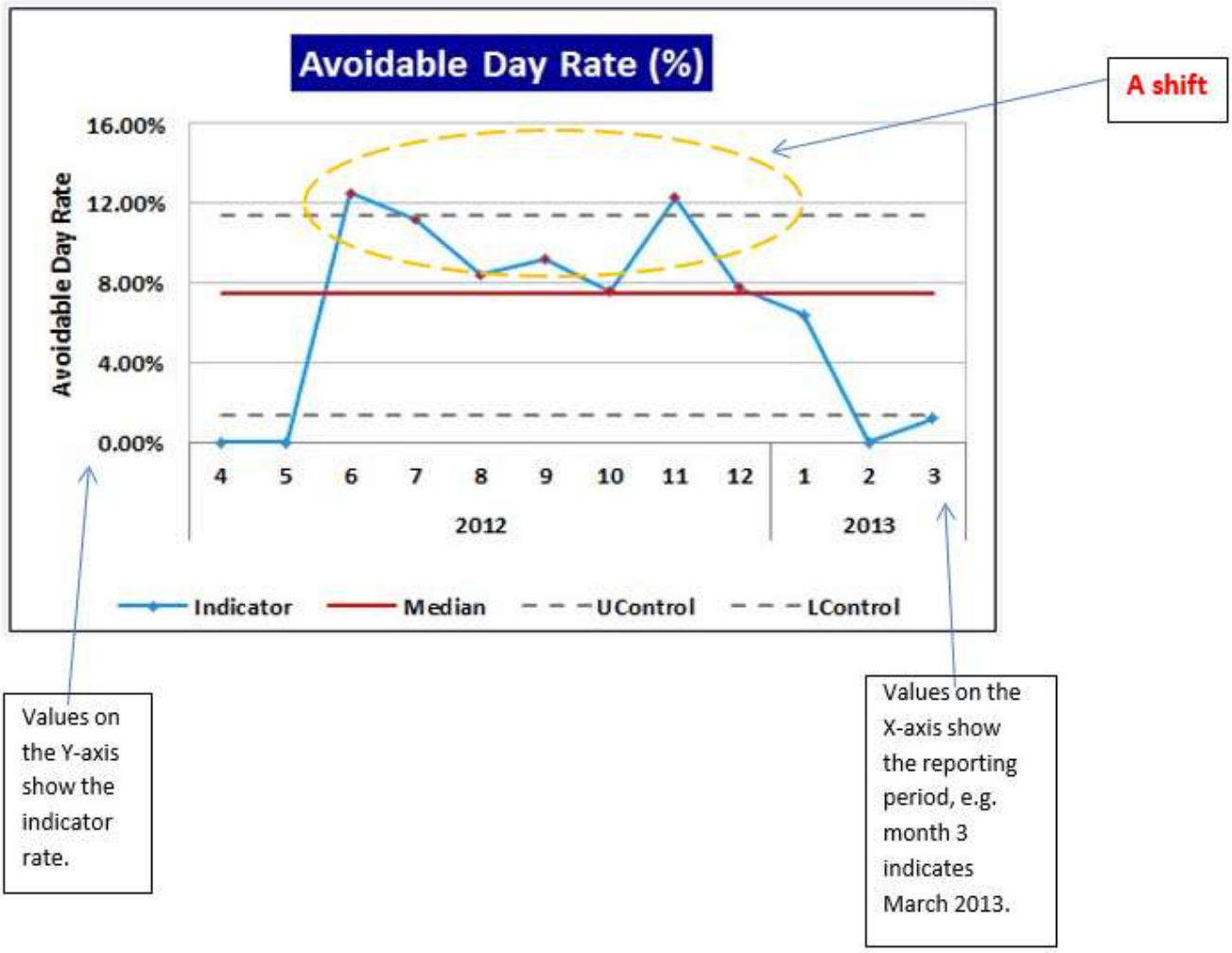
	Median	Mean	Upper Control Limited	Lower Control Limit
Avoidable Day Rate (%)	7.50	6.35	12.63	0.07
ICU Average Length of Stay (Days)	2.71	2.47	4.29	0.65
Night Time Discharge Rate (%)	1.67	1.80	3.37	0.23

Rule 1: Shift

A shift is six or more consecutive points, either all above or all below the median line. Values that fall on the median line neither add to nor break a shift and thus are not included in the count.

Run Chart Example 1 shows a shift for the period from June 2012 to December 2013 (shown as seven red points: 12.5%, 11.2%, 8.4%, 9.2%, 7.6%, 12.3% and 7.8% all greater than the median of 7.5%).

Example 1: Avoidable Day



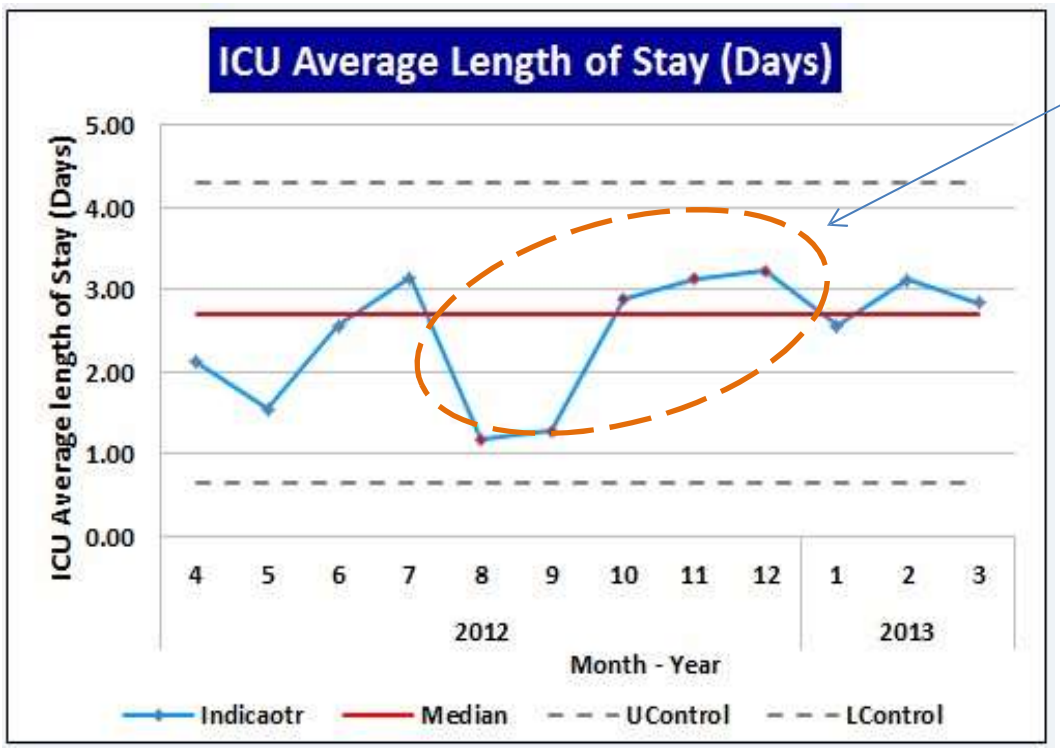
Rule 2: Trend

A trend is five or more consecutive points all going up or all going down. If the value of two or more consecutive points is the same, ignore one of the points and continue counting. The first data point (in this case - April) is not included in the count.

Example 2 shows a trend (increasing) for the period of August 2012 to December 2012 (shown as 5 red points). The data points increased from 1.18 to 3.23.

Example 3 shows a trend (decreasing) for the period of October 2012 to March 2013 (shown as 6 red points). The data points decreased from 2.34% to 0.79%.

Example 2: ICU Average Length of Stay (days)

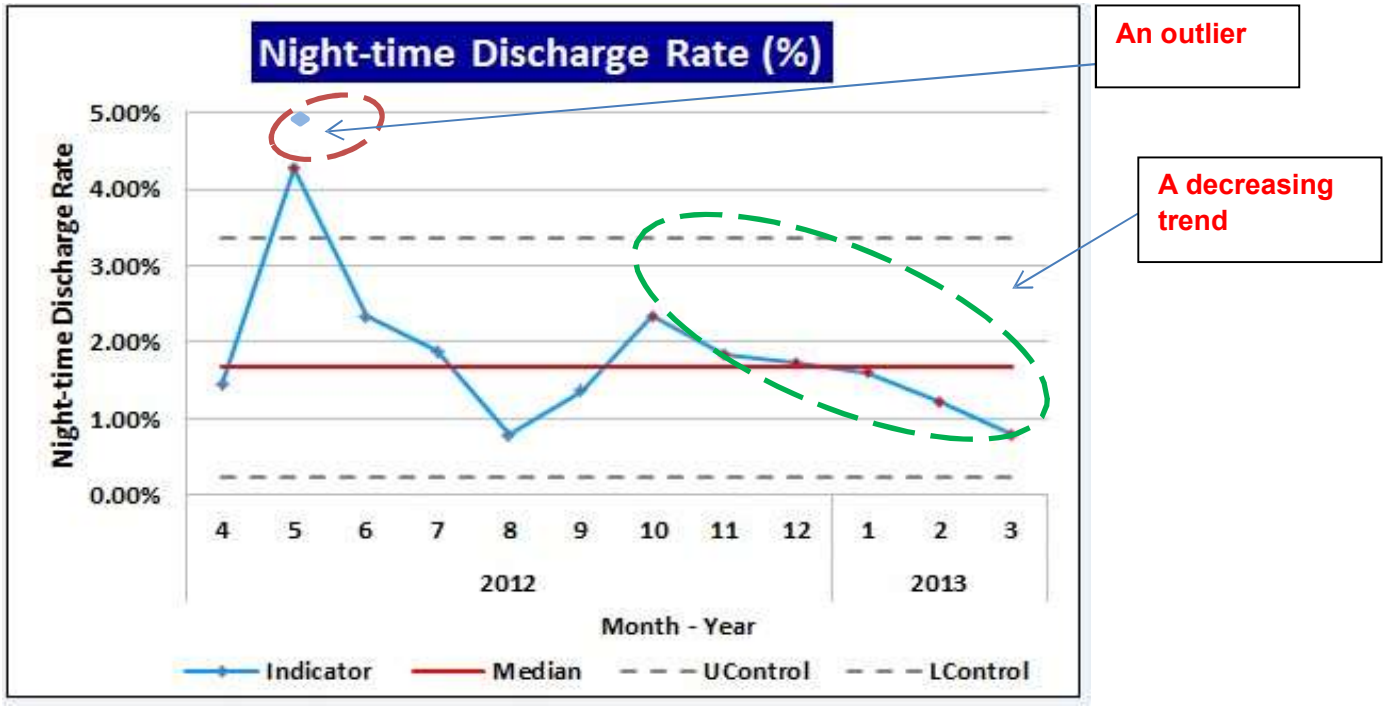


Rule 3: Astronomical Point (Outlier)

An astronomical data point is one point that has an obviously different value. Every data set will have a highest point and a lowest point, but this does not necessarily make it an outlier. It is worth understanding the cause of an outlier point, as this will allow users to either emulate if it is a result of a positive process, or avoid/address if it is an adverse impact due to an ineffective/inefficient process.

Example 3 shows an astronomic data point (1 outlier point: 4.28).

Example 3: Night Time Discharge Rate



Detailed Calculations (Using ICU Average Length of Stay Days as an example)

Median

The median of a finite list of numbers can be found by arranging all the observations from lowest value to highest value and picking the middle one (e.g., the median of {3, 5, and 9} is 5). If there is an even number of observations, then there is no single middle value; the median is then usually defined to be the mean of the two middle values, which corresponds to interpreting the median as the fully trimmed mid-range (e.g., the median of

{3, 5, 7and 9} is $\frac{5\ 7}{2}$ 6).

$Median_{LOS}$=

(1.18, 1.28, 1.55, 2.13, 2.56, ***2.56***, ***2.85***, 2.89, 3.12, 3.14, 3.15, 3.23) = $\frac{2.56\ 2.85}{2}$ 2.71

Mean

The mean is the sum of the sampled values divided by the number of items in the sample.

$Mean_{LOS}$ =

$$\frac{\sum_{1}^{12} LOS_i}{12} \quad \frac{2.13\ 1.55\ 2.56\ 3.15\ 1.18\ 1.28\ 2.89\ 3.14\ 3.23\ 2.56\ 3.12\ 2.85}{12} \quad 2.47$$

Control Limits (Upper and Lower)

The consistency within a control run chart is characterized by a stream of data falling within the control limits of the centerline. The centerline is chosen as the median in order to omit the skewed points in the process. Since the measurements are correlated, the moving ranges are calculated between successive data entries, as MRi= |Xi+1 - Xi|. Plus or minus 3.144 times of the average MR is calculated as up and low control limits.

LOS	2.13	1.55	2.56	3.15	1.18	1.28	2.89	3.14	3.23	2.56	3.12	2.85
Absolute Range=|LOS_i - LOS_{i-}	-	0.58	1.01	0.59	1.97	1.10	1.61	0.25	0.09	0.67	0.56	0.27
Median(Absolute Range): MR^4 = ***0.58***												
Upper Control Limits (***UControl***): $Mean_{LOS}$+ 3.14* MR^1= 2.47 + 3.14 * 0.58 = ***4.29***												
Lower Control Limits (***LControl***) : $Mean_{LOS}$- 3.14* MR^1= 2.47 - 3.14 * 0.58 = ***0.65***												

[4] Introduction to Statistical Quality Control – Chapter 5 Method and Philosophy of Statistical Process Control – XMR Chart – Median MR. Douglas C. Montgomery, Arizona State University. John Wiley & Sons, Inc .2009.

Appendix D: Peer Group Criteria

Peer Group #	Criteria
Group 101	**Adult_L3Adv_High_VentUtilization** L3 Advanced High Acuity Unit (with higher Vantilated Patient Day Rate >=57.5%)
Group 102	**Adult_L3Adv_Low_VentUtilization** L3 Advanced Low Acuity Unit (with lower Vantilated Patient Day Rate < 57.5%)
Group 103	**Adult_L3Adv_CardioV** L3 Advanced Cardiovascular Unit
Group 104	**Adult_L3Bas_Burn** L3 Basic Unit - Burn Units
Group 105	**Adult_L3Bas_Conventional** L3 Basic Unit - Conventional Units
Group 106	**Adult_L3Cor** L3 Coronary Unit
Group 107	**Adult_L2Adv_withL3** L2 Advanced Unit with a L3 unit at same hospital site
Group 108	**Adult_L2Adv_NoL3** L2 Advanced Unit without a L3 unit at same hospital site
Group 109	**Adult_L2Bas_withL3_Large** L2 Basic Unit with a L3 unit at same hospital site and unit bed number >4
Group 110	**Adult_L2Bas_withL3_Small** L2 Basic Unit with a L3 unit at same hospital site and unit bed number <=4
Group 111	**Adult_L2Bas_NoL3** L2 Basic Unit without a L3 unit at same hospital site
Group 112	**Adult_L2Cor** L2 Coronary Unit
Group 201	Paediatric Units