Ontario's Critical Care Scorecard Reports

Reports Guide V3.7

Critical Care Services Ontario April 2020

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For more information, please contact:

Critical Care Services Ontario Phone: 416-340-4800 x 5856 Email: <u>info@ccso.ca</u> Website: <u>www.criticalcareontario.ca</u>

CCSO is funded by the Government of Ontario.



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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: <u>info@ccso.ca</u> Telephone: (416) 340-4800 Ext. 5856

SECTION 1 – Introduction

This *Reports Guide* is intended to help users understand and navigate the content of the 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.

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 Timline



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, however was suspended earlier last year for technical reasons and is being 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 LHIN Leaders, senior administrators in the LHINs, and Ministry of Health and Long-Term Care (MOHLTC) will find the reports helpful.

Reporting Period

The Scorecard Reports are distributed quarterly by CCSO seven weeks after the quarter has ended. For example, for Q1 April 1^{st} – June 30^{th} , the reports are disseminated in the third week in August.

Performance Measures and Data Sources

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 Unit Scorecard incorporates two indicators submitted annually to CCSO by the units/hospitals. The hospital-reported indicators are 1) hand hygiene compliance (before patient contact) and 2) nurses with critical care training. 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. Lastly, the Provincial Scorecard includes the conversion rate for deceased organ donation indicator, which is provided to CCSO by Trillium Gift of Life Network.

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.

SECTION 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 LHIN 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 13 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 13 indicators for all the units within a LHIN, to allow 'at a glance view' of performance across all units within the specified LHIN.

5. Critical Care Unit Scorecard – Data Quality Report

A table displaying the seven 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.



SECTION 2.1 – Unit Scorecard – Quarterly Summary

What is it?

The Quarterly Summary provides data for all 13 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 13 indicators, their definitions and formulas; and* Appendix B *for a detailed description of target setting, status, quarterly indicators and annual indicators.*

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

| Performan Provides a the indicate be included level scored | 1. Unit Scoreca ce Measure: description of or selected to d in the unit card. | 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. | <u>ple</u> | La inu pr co pe | st Reporting Period: I dicator performance f evious reporting perio mparison with curren erformance. Current Per Describes th performanc current rep period. | Describes the for the od to allow it rformance: he indicator ce for the orting | | Si g 'a ir p ta p Da t the eac | tatus: The red, yellow and reen status provides an at-a-glance' view of the adicator's performance/ rogress, against the set arget, for the reporting eriod. ta Source: Indicates where a data is collected from for ch of the indicators. |
|---|--|--|-------------------------|---|---|---|--------------|--|---|
| DOMAIN | OBJECTIVE | PERFORMANCE MEASURE | BASELINE | LAST REPORTING PERIOD | CURRENT PERFORMANCE | CHANGE ROM LAST EPORTING PERIOD | TARGET | STATUS | DATA SOURCE |
| | | Antimicrobial Utilization (per 1000 ‰) | 979.80 | 1080.33 | 1114.47 | t | 815.64 | ٠ | CCIS |
| | | VAP Rate (per 1000 ‰) | 0.00 | 0.00 | 0.00 | → | 0.00 | • | CCIS |
| | Deliver Safe Care | CLI Rate (per 1000 ‰) | 0.00 | 0.00 | 0.00 | → | 0.00 | • | CCIS |
| QUALITY | | Incident Rate - Unplanned Extubation (per 1000 ‰) | 6.57 | 2.25 | 4.57 | 1 | 0.00 | • | CCIS |
| | | Hand Hygiene Compliance-before patient contact (%)* | 100.00 | 100.00 | 100.00 | ⇒ | 100.00 | • | Hospital Data |
| | Deliver Effective Care | 48 Hour Readmission Rate (%) | 1.83 | 1.14 | 2.54 | t | 0.89 | • | CCIS |
| | Enhance Staff Competency | % Nurses with Critical Care Training* | 82.00 | 74.14 | 73.00 | t | 100.00 | • | Hospital Data |
| | | % Admission to Bed (within 90 minutes) | 55.96 | 57.35 | 51.85 | t | 90.00 | • | CCIS |
| ACCESS | Provide Timely Care | % of Beds not Available | 0.49 | 0.00 | 0.00 | → | 0.00 | • | CCIS |
| | | Night-time Discharge Rate (%) | 9.59 | 11.36 | 7.63 | t | 4.56 | • | CCIS |
| | | ICU Average Length of Stay (days) | 5.48 | 3.59 | 5.26 | t | 4.96 | • | CCIS |
| SYSTEM INTEGRATION | Optimize Patient Flow | Avoidable Days Rate (%) | 4.40 | 2.61 | 4.19 | 1 | 1.38 | • | CCIS |
| | | # Chronically Ventilated Patients >21 Days | 15.00 | 2.00 | 2.00 | ⇒ | 3.00 | • | CCIS |
| Baseline | Antimicrobial Utilization: based o Annual hospital reported indicator % Admission to Bed: based on FY All other indicators: based on FY2 | n FY2013/2014 data s (*): based on FY2013/2014 data (2016/2017 data 1012/2013 data | | → Ind ↓ Ind † Ind | licates no change since the last licates a decrease in indicator v licates an increase in indicator | reporting period value ince the last value since the las | reporting pe | eriod period | |
| Change From Last Reporting Period | Signals a change in the indicator fi | rom the last reporting period | Tar | get/Status Ple | ease refer to the Critical Care U | Unit Scorecard Rep | ports Guide | for target/stat | us setting methodology |
| n/s Data not submi n/a Not applicable * Annual hospital ** Site level data | itted by hospitals l reported indicators | | C | hange From L | ast Reporting a change in the | | | Target | : Indicates the |
| | Legend: Provides additio *Annual data: Please no Hygiene compliance and Training are annual hosp data is submitted by unit scorecard reports. | nal interpretative notes te the following indicators: Hand % Nurses with Critical Care ital reported indicators, where the ts/hospitals for inclusion in the | ir ru U d d | ndicator value eporting perio Jnplanned Extr lecreased from juarter, the an lownwards. | from the last d. E.g. if the ubation Rate n previous row will face | | L | desired require perfor indicat | a, expected, and ed level of mance for the cor. |

SECTION 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.

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



Figure 2. Unit Scorecard – Run Charts Sample

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SECTION 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 taking into account factors such as unit designation (Level 2 or Level 3), academic affiliation, 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 (in this case peer group 9). | | | Peer Group #: Indicates the peer group number the specified unit has been assigned to. | | | | | Rates: 1 % syml rate pe ‰ der 1000 | Please not ool denote r 100 when notes the r | e that s the reas ate per | | Perfor Descri select the U | Performance Measures: Describes the indicators selected to be included in the Unit Level Scorecard. | | |
|---|---|------------------------|---|--------------------------------|-----------------------------|--|---|--|---|--|-------------------------------|-------------------------------------|--|-------------------------------|--|
| | | | | | | Peer Grouj Q4 2016/2 | p: 9 017 | Ļ | | | | Ļ | | | |
| 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) |
| Hamilton Niagara | Hamilton Health Sciences - | 5 West Stepdown | 412.98 | 0.00 | 0.00 | 0.00 | 55.36 | 6.41 | 75.00 | 25.27 | 0.00 | 3.85 | 3.10 | 0.00 | 0 |
| Haldimand Brant (4) | General Site | 7 West Step Down Unit | 858.42 | 0.00 | 0.00 | 0.00 | 62.26 | 1.78 | 71.43 | 25.00 | 0.02 | 5.92 | 2.53 | 4.07 | 0 |
| Hamilton Niagara Haldimand Brant (4) | Niagara Health System - Greater Niagara Site | ICU | 771.52 | 0.00 | 0.00 | 0.00 | 94.40 | 0.79 | 42.10 | 16.90 | 0.00 | 11.81 | 4.24 | 5.42 | 0 |
| Hamilton Niagara | Niagara Health System - St. | CCU | 0.00 | 0.00 | 0.00 | 0.00 | n/s | 0.00 | n/s | n/s | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| Haldimand Brant (4) | Catharines General Site | Progressive Care Unit | 224.07 | 0.00 | 0.00 | 0.00 | n/s | 1.67 | n/s | n/s | 0.00 | 5.00 | 3.69 | 0.00 | 0 |
| Hamilton Niagara Haldimand Brant (4) | St. Joseph's Health Care System (Hamilton) - Charlton | Surgical Stepdown Unit | 1,081.89 | 0.00 | 0.00 | 0.00 | 92.90 | 2.93 | 26.00 | 27.20 | 0.00 | 3.66 | 2.14 | 3.72 | 0 |
| Toronto Central (7) | University Health Network - Toronto General Hospital | Thoracics SDU | 43.45 | 0.00 | 0.00 | 0.00 | 85.16 | 4.85 | 100.00 | 35.90 | 0.00 | 1.82 | 2.55 | 6.15 | 0 |
| Toronto Central (7) | University Health Network - Toronto Western Hospital | Neuro Critical Care | 321.51 | 0.00 | 0.00 | 0.00 | 90.63 | 1.11 | 100.00 | 33.54 | 0.07 | 14.07 | 3.23 | 7.07 | 0 |
| Central East (9) | Peterborough Regional Health Centre - Hospital Drive Site | Surgical Constant Care | 806.54 | 0.00 | 0.00 | 0.00 | 87.00 | 0.55 | n/s | n/s | 0.00 | 6.08 | 2.24 | 22.38 | 0 |
| Champlain (11) | The Ottawa Hospital - General Campus | 6th floor observation | 698.42 | 0.00 | 0.00 | 0.00 | 90.10 | 0.75 | 0.00 | 45.60 | 0.00 | 2.99 | 3.81 | 3.27 | 0 |



What is it?

The LHIN report displays data on all 13 indicators for each critical care unit within the specified LHIN.

Intended Use

The LHIN report is a snapshot of the current status within the LHIN and can be used by Critical Care LHIN leaders and LHIN administrators to assess critical care system performance within their LHINs 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.



Unit Name: All the units in the LHIN (in this case, LHIN 4)

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



| 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) |
|---|---|-----------------------|--|--------------------------|--------------------------|--|---|------------------------------------|--|--------------------------------------|-------------------------------|-------------------------------------|---|----------------------------|--|
| Brantford General Hospital - Brantford General Hospital | Critical Care Unit | 3 | 1,106.29 | 0.00 | 0.00 | 2.31 | 98.00 | 2.13 | 59.00 | 49.40 | 0.00 | 10.64 | 4.61 | 6.95 | 0 |
| | 4 West Stepdown Unit | 8 | 120.43 | 0.00 | 0.00 | 0.00 | 67.80 | 0.00 | 75.00 | 9.18 | 0.00 | 6.38 | 3.68 | 0.00 | 0 |
| | 5 West Stepdown | 9 | 412.98 | 0.00 | 0.00 | 0.00 | 55.36 | 6.41 | 75.00 | 25.27 | 0.00 | 3.85 | 3.10 | 0.00 | 0 |
| | 6 South Step- down | 10 | 970.84 | 0.00 | 0.00 | 0.00 | 67.74 | 2.97 | 77.00 | 16.50 | 4.41 | 11.88 | 3.55 | 0.99 | 0 |
| | 6 West | 8 | 524.26 | 0.00 | 0.00 | 0.00 | 80.39 | 0.00 | 71.00 | 0.00 | 0.00 | 12.12 | 3.20 | 0.00 | 0 |
| Hamilton Health Sciences - General Site | 7 West Step Down Unit | 9 | 858.42 | 0.00 | 0.00 | 0.00 | 62.26 | 1.78 | 71.43 | 25.00 | 0.02 | 5.92 | 2.53 | 4.07 | 0 |
| | 8 South Step- down | 10 | 1,163.85 | 0.00 | 0.00 | 666.67 | 72.86 | 2.17 | 93.60 | 0.69 | 0.46 | 2.17 | 3.01 | 0.00 | 0 |
| | Burn Unit | 7 | 1,077.36 | 15.38 | 0.00 | 0.00 | 86.96 | 2.78 | 90.00 | 15.76 | 2.67 | 13.89 | 4.88 | 4.14 | 1 |
| | сси | 5 | 159.60 | 0.00 | 0.00 | 0.00 | 65.79 | 1.42 | 100.00 | 62.03 | 1.30 | 5.67 | 2.44 | 9.15 | 0 |
| | ICU East/South | 1 | 798.31 | 0.54 | 1.56 | 4.83 | 60.61 | 2.16 | 100.00 | 65.86 | 0.81 | 11.69 | 6.94 | 11.13 | 8 |
| | ICU West | 4 | 641.16 | 1.29 | 0.67 | 11.61 | 31.25 | 0.48 | 100.00 | 100.00 | 0.29 | 1.43 | 2.84 | 10.78 | 1 |
| Hamilton Health | JHCC - CCU | 10 | 698.62 | 0.00 | 0.00 | 0.00 | 57.69 | 2.40 | 100.00 | 34.93 | 0.00 | 6.40 | 2.56 | 1.92 | 0 |
| Sciences - Juravinski Hospital and Cancer | JHCC - HI- CICU | 4 | 1,687.32 | 0.00 | 0.00 | 0.00 | 57.69 | 1.23 | 100.00 | 39.84 | 4.08 | 8.64 | 4.15 | 3.73 | 2 |
| Centre | JHCC - ICU | 1 | 1,570.17 | 0.00 | 0.00 | 0.00 | 57.14 | 1.98 | 100.00 | 51.97 | 0.00 | 8.91 | 5.84 | 0.56 | 4 |
| Hamilton Health Sciences - McMaster University Medical | Labour and Delivery Critical Care Unit | 12 | 0.00 | 0.00 | 0.00 | 0.00 | n/s | 0.00 | n/s | n/s | 0.00 | 100.00 | 0.01 | 0.00 | 0 |
| | Paediatric Critical Care | 6 | 925.70 | 2.96 | 0.00 | 2.96 | 89.58 | 3.85 | 100.00 | 60.44 | 0.00 | 10.77 | 3.71 | 3.75 | 1 |

n/s - data not submitted * Annual hospital reported indicators ** Site level data

Note: Please refer to the Critical Care Unit Scorecard Report Guide for details.

Page 1 of 2

SECTION 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 seven 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 seven indicators, their definitions, and calculations.



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

| _ | | | | Last Desc perf prev to al curr | Reportin cribes the ormance ious repo low comp ent perfo | g Perio indicat for the orting p parison rmance | od: tor eriod with e. | Change Report a chang value fr reporti | e from L ing Peri ge in the rom the ng perio | ast od: Sigr indicat last od. | nals :or | Status greens 'at-a-g indicat against the rep | The reastatus p lance' vi or's per t the set | d, yello rovides iew of t formar target period. | w and an the nce for | |
|--|---|--|--|--|---|---|--|--|--|--|--|--|---|--|---|--------------------------------|
| | Performance Provides a contract of the indicator included in the data quality | e Measure: lescription of or selected to be the unit level o scorecard. | Baseline: Describes the recorded data associate indicator from the first scorecard. The baseline not change from scorecard. | e starting poir ted with the t completed e measure wil ecard to scored | nt of Il card. | Cur Des per cur per | rrent Perf scribes th formance rent repo riod. | ormance e indicate e for the orting | e: or | Tar des and per ind | get: Inc ired, ex d requir formar icator. | dicates the pected, ed level ace for the | ie of e | Da Inc dat fro the | ta Source licates wh ta is colleo m for eac e indicato | ere the cted h of rs. |
| | | ↓ | | | | , | | , | | | | | | , | | , |
| DOMAIN | INDICATOR | PERFORM | IANCE MEASURE | BASELINE | LAS REPOR PER | ST RTING IOD | CURR PERFOR | ENT MANCE | CHAI FROM REPOR PER | NGE LAST KTING IOD | TAR | GET | STAT | rus | DATA S | OURCE |
| | ICU Admission | Hours from ICU A Submission (Med | Admission to CCIS ian) | 10.20 | 9. | .69 | 9.6 | 6 | 1 | ŀ | 2 h | ours | | | сс | IS |
| I | | % of Timely Entr CCIS Submission | 17.70 | 24 | .37 | 22.9 | 94 | 1 | ŀ | 10 | 0% | | | сс | IS | |
| | ICU Discharge | Hours from ICU I Submission (Med | Discharge to CCIS ian) | 3.16 | 3. | .45 | 2.9 | 8 | 1 | ŀ | 2 h | ours | |) | сс | IS |
| TIMELINESS/ COMPLETENESS (COMPLIANCE | 5 | % of Timely Entr CCIS Submission | ies for ICU Discharge to (<=2 hours) | 65.09 | 61 | .62 | 67.4 | 14 | 1 | 1 | 10 | 0% | | | сс | IS |
| /compliance | LSI/NEMS | % of LSI/NEMS (next day) | Timely Entries (by 23:59 | 99.68 | 99 | 9.71 99.2 | | 22 | | ŀ | 100% | | | | сс | IS |
| | | % of LSI/NEMS | Completed Updates | 99.79 | 100 | 0.00 | 99.9 | 91 | 1 | ŀ | 10 | 0% | |) | сс | IS |
| | MODS | % of MODS Time day) | ely Entries (by 23:59 next | 98.54 | 99 | .02 | 100. | 00 | 1 | 1 | 10 | 0% | |) | сс | IS |
| Baseline | All indicators: base | ed on FY2017/2018 | data (Data extracted on 12/ | 03/2018) | -1 | | → | Indica | tes no cl | nange in | indicato | or value si | nce the l | ast repo | orting perio | od |
| | | | | | | | Ļ | Indica | tes a dec | rease in | indicate | or value si | nce the l | last repo | orting perio | od |
| Change From Last Reporting | Signals a change in | the indicator from | the last reporting period | | | | 1 | Indica | tes an in | crease in | n indicat | or value s | ince the | last rep | orting per | iod |
| Period | | | | | | Targ | et/Status | Please target/s | refer to status set | the Crit | ical Car thodolog | e Unit Sc gy | orecard | Reports | Guide for | r |
| n/a Not Applicable | | | | | | | | | | | | | | | | |

SECTION 3 – LHIN Scorecard Reports Package

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

- 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 LHIN.
- 2. Critical Care LHIN Scorecard Run Charts

Graphs displaying performance of each indicator over time, for the specified LHIN.

3. Critical Care Unit Scorecard – Macro Value Report

A table displaying data on the 15 indicators for all LHINs, to allow an 'at a glance view' of performance across all LHINs within the province.

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



SECTION 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 LHIN Leaders and healthcare providers. They were enhanced through CCSO consultations at 2014 LHIN Town Halls where it was also determined that distribution of this scorecard will be useful to all Critical Care units and LHIN offices.

Intended Use

The LHIN Quarterly Summary can be used by 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.



| Derformence | Moccuro | Receive Describes the starting | | Last Re perform period perform | eporting Period: D mance for the to allow compa mance. | Describes the LH previous repo rison with cur | HN's rting rrent | | |
|--|---|--|--|--|---|---|--|------------------------------------|---|
| Provides a de the indicator be included i level scoreca | escription of selected to n the LHIN rd. | point of recorded data associated with the indicator from the first completed scorecard. The baseline measure will not change from scorecard to scorecard. | 7 | | Current Pe Describes t performan reporting p | <mark>rformance:</mark> he LHIN's ce for the curre veriod. | ent | Targe Curre the L | e t/Status: ently not set for HIN Scorecard. |
| DOMAIN | OBJECTIVE | PERFORMANCE MEASURE | BASELINE | LAST REPORTING PERIOD | CURRENT PERFORMANCE | CHANGE FROM LAST REPORTING PERIOD | TARGET | STATUS | DATA SOURCE |
| | Deliver Safe Care | VAP Rate (per 1000 cases ‰) | 0.54‰ | 0.00‰ | 0.00‰ | ⇒ | - | - | CCIS |
| OUALITY | Deliver Sale Care | CLI Rate (per 1000 cases ‰) | 0.67‰ | 0.00‰ | 0.00% | → | | - | CCIS |
| QUALITY | Deliver Effective | ICU Mortality Rate (%) | 7.23% | 7.25% | 8.73% | 1 | - | - | CCIS |
| | Care | 48 Hour Readmission Rate (%) | 1.54% | 1.21% | 1.47% | 1 | 77 | - | CCIS |
| | Bed Occupancy Rate (%) | 77.52% | 71.09% | 74.22% | 1 | - | - | CCIS | |
| | D | Ventilated Patient Day Rate (%) | 33.77% | 31.07% | 31.74% | 1 | - | - | CCIS |
| ACCESS | Care | Night Time Discharge Rate (%) | 7.45% | 6.17% | 7.56% | 1 | - | - | CCIS |
| | | Avoidable Days Rate (%) | 6.37% | 7.80% | 14.58% | 1 | - | - | CCIS |
| | | Life or Limb Confirmed cases-Time to Arrival within 4 hours (%) | - | 83.78% | 83.70% | t | - | - | CritiCall Ontario |
| | | # Chronically Ventilated Patients >21 Days | 47 | 10 | 12 | 1 | - | - | CCIS |
| | | Admissions from Hospitals within LHIN (%) | 4.03% | 3.93% | 3.29% | Ŧ | - | - | CCIS |
| SYSTEM | Optimize Patient | Admissions from Hospitals outside LHIN (%) | 0.51% | 0.41% | 0.24% | t | - | - | CCIS |
| NTEGRATION | Flow | Discharges to Hospitals within LHIN (%) | 2.25% | 2.73% | 2.84% | 1 | - | - | CCIS |
| | | Discharges to Hospitals outside LHIN (%) | 4.58% | 4.70% | 4.01% | t | - | - | CCIS |
| | | Repatriation with no delay rate (%) | - | 67.65% | 62.40% | Ŧ | - | - | CritiCall Ontario |
| Baseline | Based on 2012-2013 | fiscal year data | | Indicates no chang | e since the last reporting | g period | | | î |
| Change from last eporting period | Signals a change in | the indicator from the last reporting period | Ļ | Indicates a decreas | e in indicator value | | | | |
| larget/Status | Work in process | | † t | Indicates an increa | se in indicator value | | | | |
| Legend interpr | d: Provides add retative notes. | itional Change from Last Reporting Pe value from the last reporting p decreased from the previous qu | riod: Signals eriod e.g. if arter, the a | s a change in th f the Avoidable rrow will face de | e indicator Days Rate ownwards. | | Data Source the data is each indicat | : Indicates collected f cor. | s where rom for |

Figure 6. LHIN Scorecard – *Quarterly Summary* Sample

SECTION 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 LHIN leaders and health care providers to identify the occurrence of trends, shifts or outliers. The following graph examples are designed to help LHINs 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.

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

Figure 7. LHIN Scorecard - Run Charts Sample



What is it?

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

Intended Use

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



Figure 8. LHIN Scorecard – Macro Value Report Sample

LHIN Name: Lists all the LHINs 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 | 55.7 6 |
| 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 |

SECTION 4 – Provincial Scorecard Reports 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.



SECTION 4.1 – Provincial Scorecard – *Quarterly Summary*

What is it?

The Critical Care Provincial Scorecard Report is a table displaying performance of the 14 selected indicators for the province to illustrate current performance at a glance.

Intended Use

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

Please refer to Appendix A for a complete list of the 14 indicators, their definitions and formulas.



| - | | | | | | | | | | |
|--|--|---|--|---|--|--|---|------------------------------------|---|--|
| | | Baseline: Describes the starting point of recorded data | | Г | Last Repor the previou performan | ting Perioc us reportin ice. | l: Descrik g period | pes the p to allow | rovincial per comparison | formance for with current |
| Performanc | e Measure: | associated with the indicator | | | | | | | | |
| Provides a d the indicato be included provincial sc | escription of r selected to in the orecard. | from the first completed scorecard. The baseline measure will not change from scorecard to scorecard. | | | Curre Desc perfo repo | ent Perforr ribes the p ormance fo rting perior | nance: rovincial r the cur d. | rent | Target/ Current the pro- scoreca | <mark>Status:</mark> ly not set for <i>v</i> incial rd. |
| DOMAIN | OBJECTIVE | PERFORMANCE MEASURE | BASELINE | LAST REPORTING PERIOD | CURRENT PERFORMAN CE | CHANGE FROM LAST REPORTING PERIOD | TARGET | STATUS | DATA SOURCE | |
| | | Antimicrobial Utilization (per 1000 ‰) | 816.35 | 874.46 | 892.29 | 1 | - | - | CCIS | |
| | | VAP Rate(per 1000 ‰) | 1.14 | 0.66 | 0.70 | t | - | - | CCIS | |
| | Deliver Safe Care | CLI Rate (per 1000 ‰) | 0.61 | 0.43 | 0.33 | + | - | - | CCIS | |
| QUALITY | | Incident Rate - Unplanned Extubation (per 1000 ‰) | 2.68 | 1.89 | 1.83 | + | - | - | CCIS | |
| | | Hand Hygiene Compliance- before patient contact (%) \ast | 83.22 | 82.52 | 85.44 | 1 | - | - | Hospital Data | |
| | Deliver Effective Care | 48 Hour Readmission Rate (%) | 1.93 | 1.87 | 1.93 | 1 | - | - | CCIS | |
| | Enhance Staff Competency % Nurses with Critical Care Training* | | | 62.03 | 65.23 | 1 | - | - | Hospital Data | |
| | % Admission to Bed (within 90 minutes) | | 43.02 | 42.15 | 39.03 | + | - | - | CCIS | |
| ACCESS | ACCESS Provide Timely Care % of Beds not Available | | 1.80 | 0.59 | 0.75 | 1 | - | - | CCIS | |
| | | Night-time Discharge Rate (%) | 8.00 | 8.58 | 8.44 | ↓ ↓ | - | - | CCIS | |
| | | ICU Average Length of Stay (days) | 4.05 | 4.03 | 4.15 | 1 | - | - | CCIS | |
| SYSTEM | Optimize Patient Flow | Avoidable Days Rate (%) | 6.74 | 8.16 | 8.28 | 1 | - | - | CCIS | |
| INTEGRATION | | # Chronically Ventilated Patients >21 Days | 1319 | 267 | 313 | Ť | - | - | CCIS | |
| | Facilitate Potential Organ donation | Conversion Rate for Deceased Organ Donation (%) | 51.00 | 59.00** | 61.00** | Ť | - | - | TGLN† | - |
| Baseline | Based on 2012-13 fiscal year data for quarter | v indicators except Antimicrobial Utilization and Conversion Rate | - | Indicates no chan | e since the last reportin | ig period | | | | |
| | for Deceased Organ Donation Based on 2013-14 fisc al year data for quarter | v indicators for Antimicrobial Utilization and Conversion Rate for | 1 | Indicates a decrea | se in indicator value sin | ce the last reporti | rg period | | | |
| | Deceased Organ Donation and 2016-17 fiscal | year data for % Admission to Bed | | Indicates an incre | ana in indicator value ci | non the last smart | ing pariod | | T | |
| | Based on 2015-14 liscal year data for annual f | iospital leported data | Target/Status | Work in progress | ase in indicator value si | nce me not report | ing period | | | |
| Change From Last Reporting Period | Signals a change in the indicator from the last : | eporting period | Target Status | work in progress | | | | | | |
| n/a Not applicable Ammal hospital ** Data presented † Refer to http://v | reported indicators for the Organ Donor indicator has a one quarter www.giftoflufe.on.ca/ for definitions and hospita Legend: Provides additiona interpretetive notes. | I Change from Last Reporting indicator value from the last Avoidable Days Rate decrea arrow will face downwards. | <mark>g Period:</mark> Sig t reporting p sed from th | nals a chang period e.g. if f e previous qu | e in the the uarter, the | | Data So Indicate the data collecte for each | urce: s where a is d from | ┙ | |

Figure 9. Provincial Scorecard – *Quarterly Summary Sample*

CCSO Critical Care Services Ontario

SECTION 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: <u>info@ccso.ca</u>



SECTION 6 – Appendices

<u>Appendix A: Table 1 – Critical Care Scorecard Performance Indicators</u>

| 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. | Antibacterial Therapies + Antifungal Therapies Total (Calendar) Patient Days | ~ | | ✓ |
| 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. | Number of VAP Incidents diagnosed <u>after day 2 of admission</u> Number of Mechanically Invasive Ventilation Days | ~ | • | ✓ |
| 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. | Number of CLI Incidents diagnosed <u>after 48 hours of admission</u> × 1000 Number of Central Venous Line Days | ~ | ~ | • |

| 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. | Number of Unplanned Extubation Incidents Number of Mechanically Invasive Ventilated Days | ✓ | | ~ |
| 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. | Number of times hand hygiene performed Number of observed hand hygiene indications × 100 Note: if unit specific data is not available for hand hygiene compliance, site/hospital level data can be submitted. | √ | | √ |
| 48 Hour Readmission Rate (%) | Percent of patients readmitted to ICU within 48 hours after their initial discharge to non-ICU Inpatient locations. | $\frac{\text{Number of Readmissions Within 48 Hours}}{\text{Number of Live Inpatient Discharges}} \times 100$ | \ | 1 | ~ |
| % of Nurses with Critical Care Training (%) | Percent of RNs who have completed in-house and/or college- based adult critical care training with a minimum of 300 didactic and clinical training hours in length. Note: this is snapshot data, gathered once a year (on March 31 st) | Number of RNs who completed at least 300 didactic and clinical training hours Total number of RNs in the unit | √ | | • |
| % 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. | Number of patients admitted from ER who, from the time a decision is made to admit to a <u>critical care bed, are in a bed within 90 minutes</u> Total # of cases from ED per unit | ✓ | | Image: A start of the start of |

| Critical Care Unit level Scorecard indicator | Indicator Definition | Associated Formula | Unit Scorecard | LHIN Scorecard | Provincial Scorecard |
|---|--|---|-------------------|-------------------|-------------------------|
| % 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. | Not Available Bed Days Beds Days in Reporting Period × 100 | 1 | | 1 |
| Night Time Discharges Rate (%) | Rate of night-time in-patient discharges (between 22h00 and 06h59). | Number of Patients Discharged between 22h00 and $6h59$ to a Specified Destination Number of Live Inpatient Discharges in the Unit \times 100 | 1 | 1 | 1 |
| 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). | Total Length of Stay Number of Unit Discharges | 1 | | 1 |
| 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. | Total Delayed days Total patient days × 100 | 1 | 1 | 1 |
| # 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 Apply the filter 'Ventilation' = Mechanical: Invasive Ventilation Sort by 'DateofIntervention' and ensure that the LSI entries displayed occur within the desired reporting period Count the number of patients who were mechanically invasive ventilated for longer than 21 days | ✓ | ✓ | √ |

| Critical Care Unit level Scorecard indicator | Indicator Definition | Associated Formula | Unit Scorecard | LHIN Scorecard | Provincial Scorecard |
|--|---|--|-------------------|-------------------|-------------------------|
| 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 LHIN Leader and submitted to the CCSO. | Total Patient Days Days in Reporting × Beds in Inventory | | 1 | |
| 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 calculated for units even if they do not have Ventilated Beds reported in the Inventory submitted to the MOHLTC. | Patient Days with Ventilation Total Patient Days | | | |
| 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 | $\frac{\text{Number of cases with Time to Arrival} \le 4 \text{hrs}}{\text{Number of cases transferred}} \times 100$ | | √ | |
| Admissions from Hospitals Within LHIN (%) | Captures the rate of patients admitted by the reporting unit from another hospital within the same LHIN. | $\frac{\text{Admissions from Hospitals Within LHIN}}{\text{Unit Admissions}} \times 100$ | | 1 | |
| Admissions from Hospitals Outside LHIN (%) | Captures the rate of patients admitted by the reporting unit from another hospital outside the LHIN. | Admissions from Hospitals Outside LHIN Unit Admissions × 100 | | 1 | |

| Critical Care Unit level Scorecard indicator | Indicator Definition | Associated Formula | Unit Scorecard | LHIN Scorecard | Provincial Scorecard |
|---|---|--|-------------------|-------------------|-------------------------|
| Discharges to Hospital Within LHIN (%) | Captures the number of patients transferred from the reporting unit to another hospital within the same LHIN. | $\frac{\text{Discharges to Hospitals Within LHIN}}{\text{Total Live Discharges}} \times 100$ | | 1 | |
| Discharges to Hospital Outside LHIN (%) | Captures the number of patients transferred from the reporting unit to another hospital outside the LHIN. | $\frac{\text{Discharges to Hospitals Outside LHIN}}{\text{Total Live Discharges}} \times 100$ | | 1 | |
| 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 | Number of requests that were repatriated with no delay Number of requests repatriated \times 100 | | 1 | |
| 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. | Number of organ Donors (neurological and cardiac) Potential eligible cases | | | ~ |



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') | 1 | | |
| % 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') | 1 | | |

| % 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. | Timely Entries Expected Entries × 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. | $\frac{\text{Timely Entries}}{\text{Expected Entries}} \times 100$ | ~ | |
| 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. | # of Completed updates # of Expected Updates × 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. | $\frac{\text{Timely Entries}}{\text{Expected Entries}} \times 100$ | 1 | |

<u>Appendix B – Target Setting Methodology and Status</u>

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 LHIN 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

| VAP Rate (‰) | |
|--|----------------------------------|
| CLI Rate (‰) | |
| Incident Rate - Unplanned Extubation (‰) | Theoretical Best (0% or 100%) |
| % of Nurses with Critical Care Training | |
| Hand Hygiene Compliance (before patient contact) (%) | |
| 48 Hour Readmission Rate (%) | |
| % of Beds Not Available | |
| Night-Time Discharge Rate (%) | |
| ICU Average LOS (days) | (in that peer group) |
| Avoidable Days Rate (%) | |
| Chronic Vent Patients > 21 Days | |
| Antimicrobial Utilization (‰) | |
| Admission to Bed (within 90 minutes) (%) | Time Strategy (90%) |

Targets by Indicator



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 |
|--------|--|
| 0 | Target Achieved – Satisfactory target performance |
| 0 | 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 ‰) | | = 0 ‰ | | | |
| CLI Rate (per 1000 ‰) | CCIS | = 0 ‰ | Top 25th | Below top 25th | |
| Incident Rate - Unplanned Extubation (per 1000 ‰) | | = 0 ‰ | performance | performance | |
| Hand Hygiene Compliance (before patient contact) (%) | Hospital Data | =100 % | and above | | |
| % of Nurses with Critical Care Training | Dutu | =100 % | | | |
| 48 Hour Readimission Rate (%) | | | | | |
| % of Beds Not Available | | Top 25th | Between top | Below 50th | |
| Night-Time Discharge Rate (%) | CCIS | percentile | 25th and 50th | percentile | |
| ICU Average LOS (days) | | above | percentile | performance | |
| Avoidable Days Rate (%) | | | performance | | |
| # 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 | | | > 2 hours | |
| Submission (median) | CCIS | ≤ 2 hours | and ≤ 4 hours | > 4 hours |
| % of Timely Entries for ICU Admissions | | | Between 95% | |
| to CCIS Submission (≤ 2 hours) | CCIS | =100 % | and < 100% | < 95% |
| Hours from ICU Discharge to CCIS | | | > 2 hours | |
| Submission (median) | CCIS | ≤ 2 hours | and ≤ 4 hours | > 4 hours |
| % of Timely Entries for ICU Discharge to | | | Between 95% | |
| CCIS Submission (≤ 2 hours) | CCIS | =100 % | and < 100% | < 95% |
| % of LSI/NEMS Timely Entries (by 23:59 | | | Between 95% | |
| next day) | CCIS | =100 % | and < 100% | < 95% |
| % of LSI/NEMS Completed Updates | | | Between 95% | |
| | CCIS | =100 % | and < 100% | < 95% |
| % of MODS Timely Entries (by 23:59 | | | Between 95% | |
| next day) | CCIS | =100 % | 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.

Sorted

from

minimum

to

maximum

| Peer Group Unit | Time | Average LOS |
|-----------------|------------|-------------|
| Unit1 | FY1617_Q1 | 6.6196 |
| Unit2 | FY1617_Q1 | 5.5631 |
| Unit3 | FY1617 Q1 | 7.6786 |
| | EV1617_01 | 4 5996 |
| UnitE | EV1617_01 | 4.0000 |
| Units | FT1617_Q1 | 0.3315 |
| 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 |
| Linit12 | EV1617_01 | 10.8829 |
| | EV4647_04 | 10:0023 |
| Unit13 | | 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 |
| Linit2 | EV1617_02 | 6.0559 |
| Unit | EV1617_02 | 10 7757 |
| Unit4 | F11017_Q2 | 10.7757 |
| Unit5 | FY1617_Q2 | /.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 | EV1617_02 | 9.6756 |
| | EV4647_02 | 3:0750 |
| Unit12 | FT1017_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 |
| Linit1 | EV1617_03 | 5 3036 |
| Unit2 | EV4647_02 | 5.5950 |
| Unitz | FT1017_Q3 | 5.1969 |
| Unita | 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 |
| Linit9 | EY1617_03 | 7 0713 |
| Linit10 | EV1617_03 | 7.028 |
| Unitit | EV4647_00 | 1.020 |
| UnitT | FTID1/_Q3 | 0.1988 |
| 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 |
| Linit1 | EV1617_04 | 5 1/77 |
| Unit | F11017_Q4 | 5.14/7 |
| 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 04 | 3,3716 |
| L Init0 | EV1617 04 | 6,601 |
| Units | F11017_Q4 | 0.001 |
| Unit10 | F 11617_Q4 | 0.03/1 |
| Unit11 | FY1617_Q4 | 7.1102 |
| Unit12 | FY1617_Q4 | 11.3501 |
| Unit13 | FY1617_Q4 | 5.253 |
| Unit14 | FY1617 Q4 | 5.8737 |
| Unit15 | FY1617 04 | 5.8186 |
| Linit16 | EV1617 04 | 4 5272 |
| | EV4647_04 | 4.3213 |
| Unit17 | FY1617_Q4 | 8.2789 |

| 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 |
| 5.8180 |
| D.83 |
| 5.8481 |
| 5.8737 |
| 5.9478 |
| 6.0015 |
| 6 1099 |
| 6 3315 |
| 6.4969 |
| 6 51 53 |
| 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 |
| 9.4555 |
| 9.6756 |
| 9.9673 |
| 10.7757 |
| 10.8829 |
| 11.3501 |

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 greater than 4.99 and less or equal than 6.15 will be YELLOW



Appendix C – Run Charts and Calculations

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

Avoidable Day Rate (%) Night Time Discharge Rate (%) ICU Average Length of Stay (Days) 2012-Apr 0.00 2.13 1.45 0.00 1.55 4.28 2012-May 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 1.20 2.85 0.79 2013-Mar

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

Descriptive information is calculated for the three indicators:

| | Median | Mean | Upper Control Limits | Lower Control Limits |
|-----------------------------------|--------|------|----------------------|----------------------|
| 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 Rate



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 astronomical 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)

<u>Median</u>

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

$$\{3, 5, 7 \text{ and } 9\}$$
 is $\frac{57}{2}$ 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 the sampled values divided by the number of items in the sample.

Mean_{LOS} =

$$\begin{array}{c}
\overset{12}{LOS_{i}} \\
\overset{1}{12} \\
\overset{1}{12} \\
\end{array}$$

$$\begin{array}{c}
\overset{12}{2.13} \\
\overset{1}{1.55} \\
\overset{1}{2.56} \\
\overset{1}{3.15} \\
\overset{1}{1.18} \\
\overset{1}{1.28} \\
\overset{2}{2.89} \\
\overset{3}{3.14} \\
\overset{3}{3.23} \\
\overset{2}{2.56} \\
\overset{3}{3.12} \\
\overset{2}{2.85} \\
\overset{2}{12} \\
\end{array}$$

$$\begin{array}{c}
\overset{12}{2.47} \\
\overset{12}{12} \\
\end{array}$$

Control Limits (Upper and Lower)

The consistency with in 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 - | - | 0.58 | 1.01 | 0.59 | 1.97 | 1.10 | 1.61 | 0.25 | 0.09 | 0.67 | 0.56 | 0.27 |
| LOS _{i-1} | | | | | | | | | | | | |
| Median(Absolute Range): MR^4 = 0.58 | | | | | | | | | | | | |
| Upper Control Limits (<i>UControl</i>): Mean _{LOS} + 3.14^* <i>MR</i> ¹ = $2.47 + 3.14^* 0.58 = 4.29$ | | | | | | | | | | | | |
| Lower Control Limits (<i>LControl</i>) : Mean _{LOS} - 3.14^* <i>MR</i> 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 1 | Level 3 Teaching Hospitals (Medical Surgical ICU) |
| Group 2 | Level 3 Community Hospitals Medical Surgical ICU with Ventilator Patient Day Rate Above the Mean Rate (43.61%) |
| Group 3 | Level 3 Community Hospitals Medical Surgical ICU with Ventilator Patient Day Rate Equal to or Less Than the Mean Rate (43.61%) |
| Group 4 | Level 3 and Level 2 Cardiac/Cardiovascular Unit. Note: Identification of cardiac/cardiovascular unit is based solely on the unit name provided by each hospital in CCIS |
| Group 5 | Level 3 and Level 2 Coronary Care Units. Note: Identification of coronary care units is based solely on the unit name provided by each hospital in CCIS |
| Group 6 | Paediatric Units (Level 3 and Level2) |
| Group 7 | Level 3 Burn Units |
| Group 8 | Level 2 Small-Low Acuity Units |
| Group 9 | Level 2 Large-Low Acuity Units |
| Group 10 | Level 2 Small - High Acuity Units |
| Group 11 | Level 2 Large - High Acuity Units |
| Group 12 | Miscellaneous |

Note: For Groups 8-11, criteria identified using mean values of total beds and MODS (6 and 1.97, respectively). Values equal to or below the means were defined as small (total beds \leq 6) or low acuity (MODS \leq 1.97). The data used to generate the mean MODS is based on fiscal 2016-2017.

Peer Groups are updated every year based on most recent fiscal year CCIS data.