Critical Care Unit
Balanced Scorecard Toolkit

Critical Care Secretariat

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Ontario

For information regarding this toolkit, please contact:
Critical Care Secretariat
ccsadmin@uhn.ca
Phone: 1-416-340-4800

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Acknowledgements

This toolkit is the result of a collaborative effort between the Critical Care Secretariat and the following stakeholder groups:

- Critical Care LHIN Leaders
- Senior LHIN Directors
- Critical Care Intensivists
- Critical Care Nurse Administrators
- Intensive Care Unit Managers
- Respiratory Therapists
- Hospital Administrators

We wish to thank everyone for their support and guidance in the development of this document.

Methodology

The process for the development of this toolkit included:

- Literature research on practices across sites, systems, and current best practices
- Consultation sessions with Critical Care LHIN Leaders
- Stakeholder surveys
- Development of the Draft framework – Balanced Scorecard domains and objectives, Unit Profile and High Performing ICU Checklist
- Development of operational definitions for indicators
- Final review by Ministry of Health and Long Term Care officials

Critical Care Unit
Balanced Scorecard Toolkit

***Disclaimer**: The contents of this toolkit may change over time. The toolkit serves as a guide for critical care units that have implemented or are thinking about implementing the use of a unit level scorecard. The Critical Care Secretariat has provided a recommended set of unit level indicators but strongly suggests that units adopt measures that tie in with strategies and circumstances at the local level. This toolkit will be periodically updated to reflect feedback from the user community and the most recent evidence from the field.*

Introduction

In January 2006, the Minister of Health and Long-Term Care announced a $90 million strategy to improve critical care services in Ontario. The seven part strategy is aimed at improving access to care, quality of care, and health system integration. As an evolution of this strategy a number of initiatives were established to support performance and quality improvement, including the Performance Improvement Collaborative (PIC).

The PIC was established on the recommendations of the Critical Care Steering Committee Final Report[1] to support and progress all elements of the Critical Care Strategy in the area of performance improvement. The goal of the PIC is to provide guidance to Critical Care units and LHIN leaders across Ontario in relation to quality and patient safety, while improving performance and efficiency at a local level. An important component of this initiative is the implementation of the *Critical Care Balanced Scorecard*.

The Critical Care Secretariat (CCS) uses a whole systems approach in the development and execution of a Critical Care Balanced Scorecard, ensuring quality and performance improvements at the unit level are aligned with the Critical Care Strategy and with the Excellent Care for All Act (ECFAA)[2] quality agenda. In executing this systems approach the CCS will release a unit level, a LHIN level and a provincial level scorecard.

This toolkit will describe the purpose and use of the:

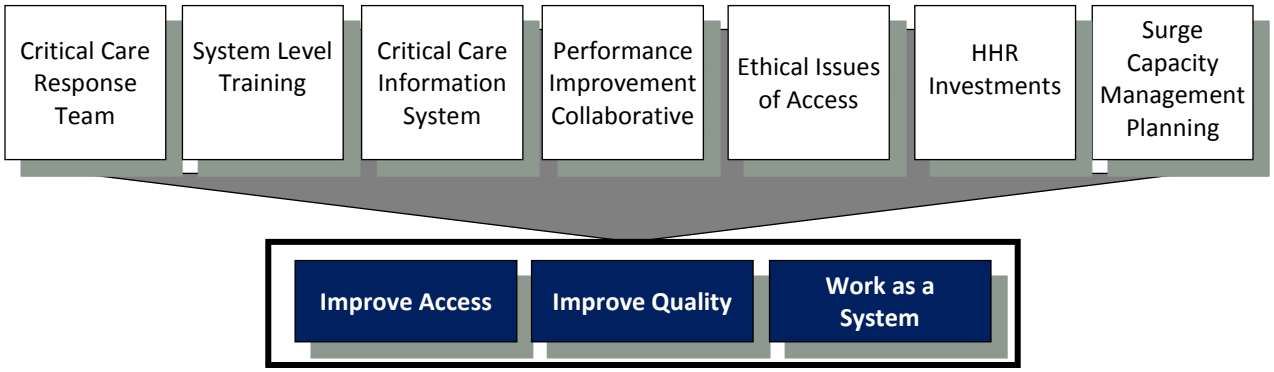
- **Unit Level Critical Care Balanced Scorecard** – A scorecard that identifies a small number of measures to improve accountability, quality and performance at the local level, and to align local quality focus with the Critical Care Strategy and ECFAA.
- **High Performing ICU Checklist** – A checklist that offers clinical and process best practices to improve quality of care, specific to Level 3 Critical Care units.
- **Unit Profile** – A unit specific profile of the patient population served which allows sites to identify similar critical care units and compare with peers.

Ontario's Critical Care Strategy

Following Ontario's battle with Severe Acute Respiratory Syndrome (SARS), the Ministry of Health and Long-Term Care (MOHLTC) assigned a group of system leaders to conduct a comprehensive review of the province's critical care services. This process culminated in the release of the Ontario Critical Care Steering Committee's Final Report[1] in March 2005 which sets out a blueprint for the transformation of Ontario's critical care services. Four of the report's thirty-three recommendations present an approach for improving the performance of the province's critical care system.

Acting on this report, in January 2006, the MOHLTC announced Ontario's Critical Care Strategy, a seven-fold strategy to improve Access, Quality and System Integration (see Figure 1). The strategy has expanded over time to incorporate programs related to critical care including neurosurgery, trauma and burns, transplant, and chronic ventilation.

Figure 1 – Ontario's Critical Care Strategy



As a further evolution of the recommendations by the Ontario Critical Care Steering Committee, the Performance Improvement Collaborative (PIC) was established to support work related to Quality Improvement (QI) and Performance Improvement (PI) initiatives in critical care.

There are four main projects under the umbrella of the PIC: 1) the development of a *critical care balanced scorecard* as a system measurement and performance tool, at the unit, LHIN and provincial level, 2) the provision of education, conferences and workshops related to QI and PI in the critical care environment, 3) the identification and spread of literature based on best practices and local leading practices to support critical care teams in their QI and PI planning, and, 4) the provision of tools and training programs to critical care service providers, including support of the Provincial Patient Safety Indicators.

Translating Strategy into Action

The Ontario Critical Care Strategy clearly articulates three goals; to improve Access, Quality and System Integration in critical care across the province. These goals drive strategic planning, focus energy and resources, strengthen operations, ensure that stakeholders are working toward a common purpose, and assess and adjust the organization's direction in response to a changing environment.

It is important to note that the quality agenda and goals of the Critical Care Strategy are aligned with the quality dimensions as described in The Excellent Care for All Act (ECFAA). ECFAA promotes a culture of continuous quality improvement and a belief that quality should be the goal of everyone involved in delivering healthcare in Ontario. The ECFAA[2] defines the nine attributes of a high quality healthcare system as: "accessible, appropriate, effective, efficient, integrated, patient-centred, population health focused and safe". The Critical Care Secretariat is committed to leveraging these attributes through the Critical Care Strategy to advance quality initiatives in Critical Care across the province.

To translate the vision and strategy into action, a strategic planning and management system is required. The balanced scorecard is utilized extensively as a management system (not only a measurement system) that enables organizations to clarify their vision and strategy elements and translate them into specific and measurable deliverables. The purpose of the balanced scorecard is to align business activities to the vision and strategy of the system, improve internal and external communications, and monitor system performance against strategic values and goals[4].

In approaching the development of a critical care balanced scorecard the CCS adopted a whole system approach. While improvements in individual units are desired, achieving real progress in the integration of the system requires units and LHINs across the province to work together towards a common and shared vision.

This whole system approach to quality improvement and performance management is strongly advocated by the Institute for Healthcare Improvement (IHI)[5], which is reflected in the approach to the introduction of the Critical Care Balanced Scorecard. IHI recommends that to successfully execute strategic improvement initiatives to produce system level results, organizations will need to advance capabilities in the following areas:

1. The ability to articulate, measure, manage and deliver on system-level aims aligned with strategic priorities by coordinating a portfolio of projects and the associated human and capital investments.
2. Ubiquitous local management and supervision of activities aimed at optimizing local performance, and addressing local needs in line with the vision and strategic aims of the system[5].

Achieving results at the system or organizational level requires commitment and management at all levels[6]. The CCS aims to provide a balanced set of indicators to supply healthcare leaders and other stakeholders with data that enables them to evaluate their units', LHINs' and the provinces' overall contribution to system level improvement, organized around the core dimensions of quality, access and system integration. Using stakeholder feedback and best practices in the field, the CCS will provide a balanced scorecard framework, at the unit, LHIN and provincial levels.

The first phase of implementation is the roll out of the **Unit Level Critical Care Scorecard**. The LHIN level and provincial scorecards are currently in development in consultation with stakeholders. This guidance document will describe the unit level critical care scorecard and supporting tools.

Critical Care Unit Balanced Scorecard Toolkit

This toolkit was generated to provide hospital critical care units with a set of recommended balanced scorecard indicators and supporting tools that could help guide Ontario's healthcare providers with their quality and performance improvement initiatives.

Contained in this toolkit are three complimentary documents which together will support units to target and achieve objectives in line with the Critical Care Strategy and the ECFAA.

The following documents are outlined in detail in this toolkit:

1. **Critical Care Balanced Scorecard** – A scorecard that measures performance indicators which have been selected through a rigorous process as relevant and useful to all Level 3 Critical Care units. The metrics are divided into the following domains: Quality, Access, and System Integration. These domains reflect the values of the Critical Care Strategy and are aligned with the Excellent Care for All Act (ECFAA) which directs the quality focus for the province.
2. **High Performing ICU Checklist** – A checklist that offers clinical and process best practices to improve quality of care, specific to Level 3 Critical Care units. This is a tool to help sites improve quality outcomes through the sharing of innovative and successful ideas and actions.
3. **Unit Profile** – A unit specific profile of the patient population served which allows sites to identify similar critical care units and compare with peers. This will help make the Unit Balanced Scorecard metrics more meaningful, as sites will be able to compare to other units with similar volumes and unit characteristics.

The toolkit is intended for use by frontline healthcare providers, Unit Managers, Nursing Administrators and Medical Directors who are directly or indirectly involved with patient care in a critical care environment. Additionally, hospital Quality Improvement teams that are involved in quality and performance initiatives in the critical care environment may find this toolkit helpful.

Alignment with Quality Improvement Plan

A cornerstone of the Excellent Care for All Act (ECFAA) was the requirement for hospitals to develop annual Quality Improvement Plans (QIP). QIPs require hospitals to outline the Aim, Measure and Change for each identified quality initiative across five dimensions: safe; effective; accessible; patient-centred and integrated. In addition to publicly posting QIPs, hospitals are required to submit QIPs to Health Quality Ontario (HQO) to facilitate provincial comparison across a minimum set of quality indicators.

The Unit Level Critical Care Scorecard is a quality improvement effort that was developed within the parameters of the ECFAA legislation. By ensuring that the Unit Level Critical Care Scorecard is reflective of improvement initiatives expressed in the annual QIP, hospitals can benefit from organizational alignment with a core set of quality initiatives.

The Balanced Scorecard

The Balanced Scorecard is a performance measurement tool that originated in the business sector but has more recently been one of the new tools adopted by hospital management. The Balanced Scorecard (BSC) was first introduced in the early 1990s through the work of Harvard professor Dr. Robert Kaplan and consultant David Norton. Since then, the concept has become well known and its various forms widely adopted internationally[7].

The collection of performance measures tells a brief yet comprehensive story about the achievement and performance of the organization toward primary healthcare goals and objectives. It provides a well-rounded view of what is happening. In essence, the scorecard is an integration of multiple interventions and keeps "score" of the success or failure of the strategic goals.

A balanced scorecard can have several benefits to healthcare providers: It can add customer insights, refocus internal operations, energize internal stakeholders, strengthen customer relations, and increase loyalty and returns of value[8].

Critical Care Unit Level Balanced Scorecard

The aim of the Critical Care Unit Level Balanced Scorecard initiative is to develop, test, and use a set of twelve measures that focus on Quality of Care, Access and System Integration and are aligned with the ECFAA attributes of a high quality healthcare system (i.e., accessible, appropriate, effective, efficient, integrated, patient-centred, population health focused and safe). In finalizing indicators, an important consideration was ease of access and availability of the required data to units.

Specifically, the unit level balanced scorecard can be used by critical care units to:

- clarify and gain consensus about strategy;
- communicate strategy throughout the unit;
- align unit and personal goals to the strategy;
- link strategic objectives to long-term targets and annual budgets;
- identify and align strategic initiatives;
- perform periodic and systematic strategic reviews; and
- inform decisions on resource allocations.

The scorecard template is illustrated below and is provided in a separate Excel Document file as part of this toolkit (Critical Care Unit Balanced Scorecard.xls). Please use this Excel Document to enter your data and track your progress over time.

Exhibit 1 – Critical Care Unit Balanced Scorecard

Critical Care Scorecard
Adult Critical Care Units

The Critical Care Strategy aims to improve quality and access, and work better as a sytem.

DOMAIN	OBJECTIVE	PERFORMANCE MEASURE	Baseline	Most Recent	Target	Status	Trend	Data Source
QUALITY	Deliver Safe Care	VAP Rate				○		CCIS
		CLI Rate				○		CCIS
		Incidence Rate - Unplanned Extubation				○		CCIS
		Hand Hygiene Compliance (before patient contact)				○		Hospital data
	Deliver Effective Care	48 hour Readmission Rate				○		CCIS
	Enhance Staff Competency	% Nurses with Critical Care Training				○		Hospital data
ACCESS	Provide Timely Care	Admission to Bed (90 minutes)				○		Wait Times
		% of Beds not Available				○		CCIS
		Night-time Discharge Rate				○		CCIS
SYSTEM INTEGRATION	Optimize Patient Flow	ICU Average Length of Stay (days)				○		CCIS
		Avoidable Days Rate				○		CCIS
		# of Chronically Ventilated Patients (> 21days)				○		Hospital data

Quality: A high quality health care system is one that is: "accessible, appropriate, effective, efficient, integrated, patient-centred, population health focused and safe" (ECFAA, 2010). All Ontarians should receive the high quality healthcare they need based on the best available scientific information, when they need it. People should not be harmed by an accident or

Access: The right care at the right time in the right setting by the right healthcare provider (Quality Improvement Guide, 2012). Ontarians should be able to get timely and appropriate healthcare services in order to achieve the best possible health outcomes. People should receive the same quality of care regardless of who they are and where they live. (Quality

System Integration: The province's health system needs to focus on supporting seamless transitions between health care providers (inter-disciplinary and cross-functional) throughout a patient's continuum of care. All parts of the healthcare system should be organized, connected and work collaboratively with other healthcare partners to develop a fully integrated system that can provide high quality care (Quality Improvement Guide, 2012). The use of modern information technology is a key enabler to providing quality health care. Organizations within the health system need to embrace and harness the power of information and technology to improve patient care.

The following section describes and defines each of the column headings on the Critical Care Unit Level Scorecard:

Domains

In keeping with Ontario's Critical Care Strategy, and with the ECFAA quality agenda, and to organize the data the scorecard reflects, the critical care unit scorecard is focused on three key areas, or 'domains':

1. **Quality** – A high quality healthcare system is one that is: "accessible, appropriate, effective, efficient, integrated, patient-centred, population health focused and safe" (ECFAA, 2010). All Ontarians should receive the high quality healthcare they need based on the best available scientific information, when they need it. People should not be harmed by an accident or mistakes when they receive care and the system should have appropriately qualified providers and adequate facilities to look after people's health needs (Quality Improvement Guide, 2012).

2. **Access –** The right care at the right time in the right setting by the right healthcare provider (Quality Improvement Guide, 2012). Ontarians should be able to get timely and appropriate healthcare services in order to achieve the best possible health outcomes. People should receive the same quality of care regardless of whom they are and where they live. (Quality Improvement Guide, 2012).

3. **System Integration –** The province's health system needs to focus on supporting seamless transitions between healthcare providers (inter-disciplinary and cross-functional) throughout a patient's continuum of care. All parts of the healthcare system should be organized, connected and work collaboratively with other healthcare partners to develop a fully integrated system that can provide high quality care (Quality Improvement Guide, 2012). The use of modern information technology is a key enabler to providing quality healthcare. Organizations within the health system need to embrace and harness the power of information and technology to improve patient care.

Objectives

Each of the three scorecard domains is divided into specific objectives against which the selected performance measures are aligned:

Domain	Objectives
Quality	**Deliver Safe Care –** Deliver healthcare which minimizes risks and harm to patients (WHO, 2006). The indicators for this objective have a focus on processes and outcomes which minimize risks and harm to service users.
	Deliver Effective Care – Delivering healthcare that is adherent to an evidence base and results in improved health outcomes for individuals and communities, based on need. A reduction in readmissions in a unit is a significant outcome for patients and represents an improvement in effectiveness of a unit[3].
	Enhance Staff Competency – Deliver healthcare in a setting where staff is skilled, qualified, and appropriate to needs of patients in their care.
Access	**Provide Timely Care –** People should receive the right care at the right time in the right setting by the right healthcare provider[9]. The measures used in examining this objective focus on wait times and bed availability.
System Integration	**Optimize Patient Flow** – Measures related to this objective focus on addressing the barriers which may exist within the critical care unit and between the acute healthcare setting and other sectors (i.e. community) to encourage a streamlined, continuous and patient-focused journey 'outside of hospital walls' (Quality Improvement Guide, 2012).

Performance Measures

This section provides a description of the selected performance measures. For detailed performance measure calculations, please see **Appendix A – *Performance Measure Calculations***.

Quality

Objective	Performance Measure Description
Deliver Safe Care	**VAP Rate** – Rate of VAP incidents diagnosed after day 2 of critical care admission. Ventilator associated pneumonia (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[10].
	CLI Rate – Rate of CLI incidents diagnosed after day 2 of critical care admissions. Central Line-Associated Primary Bloodstream Infections (CLI) occur when a central venous catheter (or "line") placed into a patient's vein gets infected. This happens when bacteria grow in the line and spreads to the patient's bloodstream[10].
	Incidence Rate – Unplanned Extubation – Rate of self-extubation by the patient or accidental extubation by members of staff during bedside procedures.
	Hand Hygiene (before patient contact) – Relates to hand hygiene before initial patient/patient environment contact by combined healthcare provider type (e.g., nurses, allied health professionals, physicians, etc.).
Deliver Effective Care	**48 hour Readmission Rate** – Percent of patients readmitted to ICU within 48 hours after their initial discharge to non-ICU Inpatient locations.
Enhance Staff Competency	**% Nurses with Critical Care Training** – Percent of nurses 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.

Access

Objective	Performance Measure Description
Provide Timely Care	**Admission to Bed (90 mins)** – Percent of patients who, from the time a decision is made to admit to a critical care bed, are in a bed within 90 minutes.
	% of Beds not Available – Percent of beds not available to provide care for the people who need them.
	Night-time Discharge Rate – Rate of night-time in-patient discharge (between 22h00 and 06h59).

System Integration

Objective	Performance Measure Description
Optimize Patient Flow	**ICU Average Length of Stay (days) –** Total time that an admitted patient is under the care of the critical care team regardless of the patient's location (i.e. includes ICU patients bed space outside of the ICU). The time measured includes avoidable days (time awaiting transfer out of ICU. This report includes the Length of Stay for all patients that have been discharged within the selected reporting period(s).
	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, delayed transfer days exclude the first 4 hours of a wait.
	# of Chronically Ventilated Patients (> 21days) – Total number of chronically ventilated patients awaiting transfer for > 21 days[11]. *Chronically ventilated patients are defined as "those patients suffering from a severe respiratory impairment who require ventilator support for more than six hours per day for more than 21 days, but who do not require additional services provided by a critical care unit (i.e., patients who are otherwise medically stable)*[11]*."*

Defining Baseline/Most Recent/Target/Status/Trend/Data Source

Other terms in the columns of the unit level scorecard are defined below:

Baseline – Describes the first element of recorded data or rate associated with the measure from the first completed scorecard. The baseline measure will not change from scorecard to scorecard. The figure allows units to see clearly their performance over time.

Most Recent – Describes the unit's current performance data or rate associated with the measure.

Target – Indicates the desired, expected, or required level of performance for that measure that the unit wants to achieve by the end of the year.

Status – Provides an 'at-a-glance' view of the measure's performance for the reporting period. When a metric target is not being met and action should be taken, the status should be "red". When target meets satisfactory goal performance, it should be "green". "Yellow" should be used as a warning signal relative to the performance target. Where there is no data available, the cell should have no color.

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

Trend – Indicates the general change in the data over a certain time period; measuring the performance of each indicator over time.

	**Improving** – Indicates improving performance trend.
	**Declining** – Indicates declining performance trend.

Data Source – Informs the unit of appropriate source for the required data or rate associated with the measure. An important consideration in developing measures is the availability and accessibility of the data.

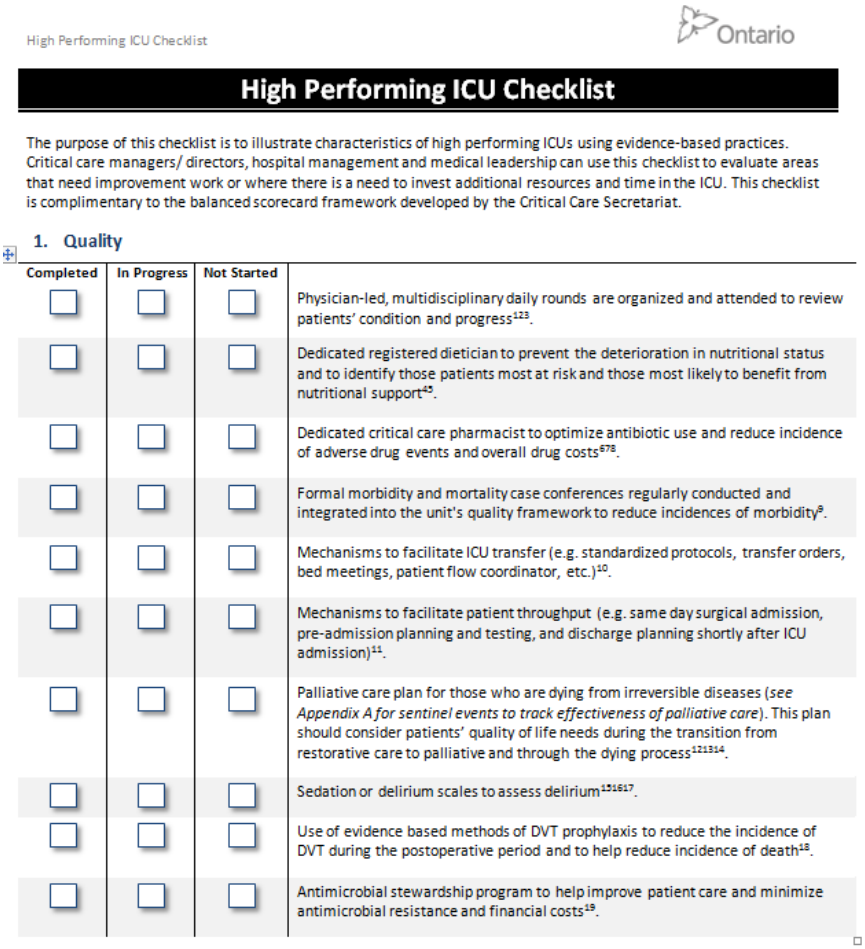
Measurement Reporting Period

The CCS recommends that the unit level scorecard be completed on a quarterly basis in line with the availability and collection frequency of many of the selected performance measures.

High Performing ICU Checklist

The High Performing ICU Checklist serves to complement the unit level scorecard. The checklist offers clinical and process evidence-based practices to improve quality of care for Level 3 critical care units and is intended to help sites who wish to achieve better quality outcomes through the sharing of innovative and successful ideas and actions. It provides ICUs across the province with a tool to compare their initiatives with those of high performers and identify areas where they need further development. The High Performing ICU Checklist is illustrated below and is provided in a separate Word Document file as part of this toolkit (High Performing ICU Checklist.doc). Please use this Word Document to enter your unit's information and track your progress over time.

Exhibit 2* – High Performing ICU Checklist *(Sample)



High Performing ICU Checklist

Ontario

High Performing ICU Checklist

The purpose of this checklist is to illustrate characteristics of high performing ICUs using evidence-based practices. Critical care managers/ directors, hospital management and medical leadership can use this checklist to evaluate areas that need improvement work or where there is a need to invest additional resources and time in the ICU. This checklist is complimentary to the balanced scorecard framework developed by the Critical Care Secretariat.

1. Quality

Completed	In Progress	Not Started	
☐	☐	☐	Physician-led, multidisciplinary daily rounds are organized and attended to review patients' condition and progress[1,2,3].
☐	☐	☐	Dedicated registered dietician to prevent the deterioration in nutritional status and to identify those patients most at risk and those most likely to benefit from nutritional support[4,5].
☐	☐	☐	Dedicated critical care pharmacist to optimize antibiotic use and reduce incidence of adverse drug events and overall drug costs[6,7,8].
☐	☐	☐	Formal morbidity and mortality case conferences regularly conducted and integrated into the unit's quality framework to reduce incidences of morbidity[9].
☐	☐	☐	Mechanisms to facilitate ICU transfer (e.g. standardized protocols, transfer orders, bed meetings, patient flow coordinator, etc.)[10].
☐	☐	☐	Mechanisms to facilitate patient throughput (e.g. same day surgical admission, pre-admission planning and testing, and discharge planning shortly after ICU admission)[11].
☐	☐	☐	Palliative care plan for those who are dying from irreversible diseases (*see Appendix A for sentinel events to track effectiveness of palliative care*). This plan should consider patients' quality of life needs during the transition from restorative care to palliative and through the dying process[12,13,14].
☐	☐	☐	Sedation or delirium scales to assess delirium[15,16,17].
☐	☐	☐	Use of evidence based methods of DVT prophylaxis to reduce the incidence of DVT during the postoperative period and to help reduce incidence of death[18].
☐	☐	☐	Antimicrobial stewardship program to help improve patient care and minimize antimicrobial resistance and financial costs[19].

Unit Profile

The Unit Profile is a unit specific summary of unit descriptors and the patient population served which allows sites to identify similar critical care units and compare with peers. The profile is intended to complement the Unit Level Balanced Scorecard making the metrics more meaningful by enabling units to compare themselves to other units with similar volumes and patient characteristics.

The Critical Care Secretariat advises that hospitals complete and share the unit profiles with other hospitals they believe may have similar characteristics. The unit profile will serve to group like units to enable identification of the most useful comparators.

The Unit Profile template is illustrated below and is provided in a separate Word Document file as part of this toolkit (Unit Profile Template.doc). Please use this Word Document to enter your unit's information.

***Exhibit 3* – Unit Profile**

Unit Profile Template

Ontario

Unit Profile

[insert logo here]

Main Catchment Area	
Primary Academic Affiliation	
Website	
Site	
Unit	
Quarter	
Actual Bed Count	
MOHLTC Bed Count	
Available Invasively Ventilated Beds	
Total # of Admissions	

Admission Diagnosis	Percent (%)
Admitted with Cardiovascular/Cardiac/Vascular	
Admitted with Gastrointestinal diagnosis	
Admitted with Genitourinary diagnosis	
Admitted with Metabolic/Endocrine diagnosis	
Admitted with Musculoskeletal/Skin diagnosis	
Admitted with Neurological diagnosis	
Admitted with Oncology/Hematology diagnosis	
Admitted with Respiratory diagnosis	
Admitted with Trauma diagnosis	
Admitted with Other diagnosis	

Age Distribution	Percent (%)
< 18	
18-39	
40-59	
>60	

Patient Complexity	Percent (%)
Average Multiple Organ Dysfunction Score (MODS)	
Average Nine Equivalents of Nursing Manpower Use Score (NEMS)	

Admissions	Percent (%)
Admissions ER	
Admissions OR/PACU	
Transfer from Ward/Level 2 or Step Down Unit	
External Transfers	

Note: *Indicators for this report were extracted on [insert date]. Any data entered into the Critical Care Information System (CCIS) for the [insert quarter] after data was extracted will not be reflected in this report.*

Conclusion

This document is intended to support critical care units to implement a new unit level scorecard or to enhance and complement an existing unit level scorecard. The domains, objectives and measures are intended to align the quality and improvement agenda of units to the Critical Care Strategy and to the Excellent Care for All Act. In addition this unit level scorecard will complement the LHIN and provincial level scorecards, which are currently in development.

The Critical Care Secretariat (CCS) will provide continued support to units to drive a culture of ongoing accountability and performance improvement and to understand which evidence-based initiatives may be the most helpful moving forward.

The CCS encourages units to continue to review the performance measures within their units' balanced scorecard and ensure they are aligned with organizational and provincial priorities expressed in the annual Quality Improvement Plan.

It is anticipated this toolkit will support units in their quality improvement journey and will encourage healthcare providers to employ and share innovative approaches to achieve quality benchmarks in critical care services.

Appendices

Appendix A – Performance Measure Calculations

This section describes the selected performance measures and defines in detail how each is calculated.

VAP Rate

Ventilator Associated Pneumonia Infection Rate
- (Number of VAP incidents Diagnosed after day 2 of Critical Care Admissions / Number of Mechanically Invasive Ventilated Days) x 1000
- Page 91 of CCIS v. 2.1C Reports Guide
- Calculated for the defined reporting period

CLI Rate

Central Line Infection Rate
- (Number of CLI Incidents Diagnosed after day 2 of Critical Care Admissions / Number of Central Line Days) x 1000
- Page 91 of CCIS v. 2.1C Reports Guide
- Calculated for the defined reporting period

Incidence Rate - Unplanned Extubation

Incidence Rate - Unplanned Extubation
- (Number of Unplanned Extubation Incidents/Number of Mechanically Invasive Ventilated Days) x 1000
- Page 93 of CCIS v. 2.1C Reports Guide
- Calculated for the defined reporting period

Hand Hygiene Compliance (before patient contact)

Hand Hygiene Compliance (before patient contact)
- (Number of times hand hygiene performed / Number of observed hand hygiene indications) x 100
- Calculated for the defined reporting period

48 Hours Readmission Rate

48 Hours Readmission Rate
- Readmissions within 48 hours from non-ICU Inpatient locations / Live non-ICU Inpatient Discharges
- Page 50 of CCIS v. 2.1C Reports Guide
- Calculated for the defined reporting period

% of Nurses with Critical Care Training

% Nurses with Critical Care Training
- (Number of Nurses who completed at least 300 didactic and clinical training hours x 100) / Total number of Nurses in the Unit
- Calculated for the defined reporting period

Admission to Bed (90 mins)

Admission to Bed (90 minutes)
- Number of patients admitted who, from the time a decision is made to admit to a critical care bed, are in a bed within 90 minutes / Total number of cases
- Calculated for the defined reporting period

% of Beds not Available

% of Beds not Available
- (Weighted Average Not Available Bed Days / Average MOHLTC Beds in Reporting Period) x 100
- Page 30 of CCIS v. 2.1C Report Guide
- Calculated for the defined reporting period

Night-Time Discharge Rate

Night-time Discharge Rate
- (Live Inpatient Discharges Between 22h00 and 06h59)/(Live Inpatient Discharges)
- Page 54 of CCIS v. 2.1C Reports Guide
- Calculated for the defined reporting period

ICU Average Length of Stay (days)

ICU Average Length of Stay (days)
- [(Total Days for Length of Stay) / (Number of Patients)]
- Page 48 of CCIS v. 2.1C Reports Guide
- Calculated for the defined reporting period

Avoidable Days Rate

Avoidable Days Rate
- [(Discharge Date & Time – Awaiting Transfer Start Date & Time) – 4 hours]/ Total ICU patient days
- Page 52 of CCIS v. 2.1C Reports Guide
- Calculated for the defined reporting period

of Chronically Ventilated Patients (> 21 days)

# of Chronically Ventilated Patients (> 21 days)
- Total number of chronically ventilated patients awaiting transfer for > 21 days
- Calculated for the defined reporting period

Appendix B – Useful Resources & Services for Implementation

In addition to this toolkit, units have available to them a number of resources and services developed or currently undergoing development by the MOHLTC and/or the Critical Care Secretariat, to implement improvement work. These include:

- **Quality Improvement Plan Guidance Document –** Developed by the ECFAA Implementation Working Group, this guidance document provides assistance to healthcare organizations in their efforts to complete a Quality Improvement Plan. ICUs are encouraged to review this document and align their improvement initiatives with their organization's objectives. The document is available at: http://www.health.gov.on.ca/en/ms/ecfa/pro/updates/qualityimprov/qip_guide.pdf.

- **Health Quality Ontario –** A government mandated agency which monitors and reports to the people of Ontario on access to publicly funded health services, health human resources in publicly funded health services, population health status, and health system outcomes. In addition, its website (available at: http://www.ohqc.ca/) includes a number of tools and guidance documents pertaining to quality improvement, particularly in healthcare.

- **Networks and Collaboratives –** Safer Healthcare Now! (available at: http://www.saferhealthcarenow.ca/EN/Pages/default.asp/), IHI (see: http://www.ihi.org/), and Critical Care Canada Forum (see: www.criticalcarecanada.com) are some examples of opportunities to network, share knowledge, and learn about leading practices.

- **Critical Care Subject Matter Experts –** The Critical Care Secretariat assigns these experts to provide regular educational webinars and workshops on best practice topics, including those related to performance measurement, to ICUs across the province. For more information contact the Critical Care Secretariat at ccsadmin@uhn.ca or phone (416) 340-4800.

- **VAP and CLI Toolkit** – The toolkit was developed to summarize best practice recommendations and provide local examples of successful tools and strategies that could help guide Ontario's healthcare providers with their VAP and CLI improvement initiatives. For more information contact the Critical Care Secretariat at ccsadmin@uhn.ca or phone (416) 340-4800.

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