

PRACTICE STANDARDS FOR CRITICAL CARE NURSING IN ONTARIO

CRITICAL CARE SERVICES ONTARIO
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Introduction

Critical care nurses provide specialized care to patients experiencing a life threatening or potentially life threatening illness. This care is complex, intensive and continuous. The intensity of the patient care requirements differs between level 2 and level 3 critical care units as it is based on the patients' illness trajectory. As a result, the level of complexity of nursing skills required for nurses in level 2 units may differ with more invasive skills required of nurses in level 3 critical care units. Regardless of the type of unit, nursing attributes required to practice critical care nursing include advanced theoretical knowledge, critical thinking, advanced problem solving, responsible leadership, advocacy, judgment and sound communication skills. To support the nurse in this practice requires a supportive and safe working culture provided through strong leadership of the health care facility and critical care unit.

Quality critical care nursing practice requires the engagement and interconnection of three elements: the health care facility, the critical care unit, and the critical care nurse. The **health care facility**, creates the necessary safety culture and quality environment that provides the foundation for the nursing practice. Supported by the Local Health Integration Network (LHIN) Critical Care Network [LCCN] and Critical Care Services Ontario (CCSO), the health care facility drives quality and performance improvement through their accountability mechanisms and critical care quality framework. The **critical care unit**, incorporates the quality care framework within its policies and processes such as the use of high performance check lists and closely monitors the program score cards; thereby providing oversight mechanisms to create conditions for daily quality care supported by evidence informed practices which supports the clinical nurse in achieving best practice. The **critical care nurse**, by utilizing specific knowledge and building on previous experience, progresses along the continuum from novice to expert critical care nurse. The critical care nurse maintains professional competence through ongoing learning and reflective practice. In addition, the critical care nurse contributes positively to the image of nursing and is committed to the delivery of quality patient care. In order to foster delivery of evidence-based and/or best practices within critical care nursing, defining competency is crucial.

The *Standards for Critical Care Nursing in Ontario (2012)* were developed to identify desirable and achievable critical care nursing knowledge and competencies with the intent to standardize critical care nursing practice within the province of Ontario. The *Standards for Critical Care Nursing in Ontario (2012)* are based on the 2009 Standards of Nursing Practice of the College of Nurses of Ontario (CNO) and the revised 2017 Canadian Association of Critical Care Nurses (CACCN).

The 2018 release of the *Practice Standards for Critical Care Nursing in Ontario* replaces the second edition in 2012. It reflects the *Excellent Care for All Act*¹ (ECFAA) legislation, ensuring critical care nursing practice includes a focus on inter-professional and multidisciplinary practice, and patient and family-centred care. (Note: Family is who the patient identifies as their family. See Appendix A). This edition provides further clarity on the supporting requirements of a health care facility and critical care unit which facilitate the achievement of Critical Care Nursing Practice Standards by each nurse working within a critical care environment.

The *Practice Standards for Critical Care Nursing in Ontario* are organized into the following categories:

- Professional Behaviour/Ethics

¹ On June 8, 2010, the *Excellent Care for All Act*, 2010 (ECFAA) received Royal Assent and most requirements in the Act came into force. The Act requires health care organizations, beginning with public hospitals, to :

- Develop and post annual quality improvement plans
- Implement patient and employee satisfaction surveys and a patient relations process
- Link executive compensation to achievement of quality plan performance improvement targets
- Develop declarations of values after public consultation
- Create quality committees to report to each hospital board on quality related issues

Source: http://www.health.gov.on.ca/en/ms/ecfa/pro/legislation/ecfa_notice.aspx

- Continuing Competence and Research
- Client and Nurse Safety/Risk Prevention
- Therapeutic and Professional Relationships/Caring
- Clinical Skills, Knowledge, Integration and Critical Thinking

Each category consists of competency statements and the associated criteria or performance behaviours related to the three elements (organization, unit and/or nurse). The criteria have been adapted from the CACCN Standards for Critical Care Nursing Practice. The CACCN Structure of the Critical Care Unit is also incorporated to identify the key infrastructure necessary to support critical care nursing practice in the province of Ontario.

The *Practice Standards for Critical Care Nursing in Ontario* is intended for use by critical care nurses, critical care unit managers, and program administrators in critical care units across the province. As previously noted, the level of complexity in nursing skill requirements is based on patient illness trajectory which is also reflected in the type of unit (level 2 or 3) which houses the patient. Competencies and criterion in which intensity of nursing skills may vary have been identified by an asterisk (*).

The *Practice Standards for Critical Care Nursing in Ontario* will be reviewed bi-annually and edited, if required, to maintain quality and relevance.

Critical Care Nursing Standards Categories and Competency Statements

PROFESSIONAL BEHAVIOUR/ETHICS

Competency Statement

1. The critical care nurse practices within the scope of professional, legal and ethical standards.

CONTINUING COMPETENCE AND RESEARCH

Competency Statements

2. Personnel assigned roles and responsibilities within the critical care unit (related to the structure of the critical care unit) are qualified and current in practice.
3. A mechanism for communication and establishment of policy/procedures such as a Critical Care Committee is established and endorsed by the health care facility in collaboration with the critical care team (related to the structure of the critical care unit).
4. The critical care nurse has a shared accountability along with the unit and organization to seek out and obtain education to maintain, enhance and improve his/her practice.

CLIENT AND NURSE SAFETY/RISK PREVENTION

Competency Statements

5. The health care facility has a quality and safe work environment.
6. The critical care nurse in collaboration with other members of the interdisciplinary health care team formulates the plan of care.
7. The health care facility provides opportunities for the critical care nurse to maintain the knowledge and skills necessary to deliver safe and knowledgeable care within the context of the chosen conceptual model of nursing practice.

THERAPEUTIC AND PROFESSIONAL RELATIONSHIPS/CARING

Competency Statements

8. Based upon knowledge of nursing, biological, physical, psycho-social and behavioural sciences, data are continuously analyzed by the critical care nurse to: identify patient and/or family wishes, priorities and problems; formulate a care plan, and provide interventions which are evidence-based, in collaboration with other members of the interdisciplinary health care team and patient/family.
9. The critical care nurse implements the plan of care including independent and interdependent nursing functions.
10. The critical care nurse evaluates patient outcomes in accordance with a conceptual model for critical care nursing and consistent with independent nursing functions.

CLINICAL SKILLS, KNOWLEDGE, INTEGRATION AND CRITICAL THINKING

Competency Statements

11. The critical care nurse continuously assesses, monitors and evaluates data regarding the patient's physical, emotional, and psycho-social status. In addition, documentation regarding advance directives is collected by the critical care nurse at the time of admission and throughout the patient's stay.
12. Based upon knowledge of nursing, biological, physical, psycho-social and behavioural sciences, data are continuously analyzed by the critical care nurse to formulate nursing response and interventions based on patient and/or family wishes, priorities, problems and needs.
13. Interventions based upon the patient and/or family wishes, priorities and problems are planned by the critical care nurse, in collaboration with other members of the inter-professional health care team to formulate the overall plan of care.
14. The critical care nurse in collaboration with the inter-professional health care team and patient/family implements the plan of care using advanced skills and knowledge within his/her professional scope of practice to promote quality of care, safety initiatives and best practice.*
15. The critical care nurse evaluates patient outcomes in accordance with a conceptual model for critical care nursing and consistent with independent and interdependent nursing functions.

Professional Behaviour/Ethics

Competency Statement

1. The critical care nurse practices within the scope of professional, legal and ethical standards.

Criterion

The health care facility:

- 1.1 Complies with all appropriate legislation and in collaboration with the Local Health Integration Network (LHIN) Critical Care Network [LCCN] strives to achieve CCSO Critical Care Strategic Goals.

The critical care unit:

- 1.2 Monitors, evaluates and reports unit-based performance data and participates in improvement activities related to Quality Improvement Plans and ECFAA.
- 1.3 Ensures unit staff and physicians are aware of performance data and are engaged in determining improvement activities.

The critical care nurse:

- 1.4 Incorporates professional, legal, ethical and critical care standards into practice.
- 1.5 Practices patient and family-centred care, and is focused on engaging patients and families in the care process
- 1.6 Ensures patient and family privacy and confidentiality within the limits of the environment
- 1.7 Participates in building a culture of safety by identifying and proactively reporting near misses and reporting errors, omissions, and incidents promptly as well as participating in disclosure and support to family and colleagues
- 1.8 Follows guidelines for reporting data to appropriate agencies (e.g. Critical Care Information System, Office of the Chief Coroner)
- 1.9 Identifies potential organ and tissue donors through adherence to Trillium Gift of Life Network²- End of Life Care guidelines and legislation
- 1.10 Responds in a timely manner to environmental, physical, and psychosocial stress factors which impact inter-professional team members in the critical care setting
- 1.11 Participates in critical care nursing research and incorporates research findings into practice where applicable
- 1.12 Recognizes the delineation between the practice of critical care nursing and the practice of critical care medicine
- 1.13 Develops and maintains professional relationships focusing on working with others in a positive and non-threatening manner
- 1.14 Develops and maintains professional relationships by conducting themselves in a way that promotes respect for team members and contributes to positive team functioning

² Trillium Gift of Life Network was created in December 2000 by the Ontario Government and assumed the role of Ontario's central organ and tissue donation agency with the challenge to significantly increase organ and tissue donation across the province and improve related processes and functions. Source: www.giftoflife.on.ca

Continuing Competence and Research

Competency Statement

2. Personnel assigned roles and responsibilities within the critical care unit (related to the structure of the critical care unit) are qualified and current in practice.

Criterion

The health care facility:

- 2.1 Provides the structure and materials to ensure that research is feasible and ethical.
- 2.2 Ensures there are hiring practice policies and procedures to ensure qualified individuals are recruited and hired.
- 2.3 Ensure all employees receive an orientation to the assigned clinical area which reflects facility-wide requirements as well as unit specific needs.

The critical care unit:

- 2.4 Staff Nurses, with advanced preparation, education or experience in critical care nursing are responsible for direct patient and family-centred care.
- 2.5 Ensures that patient assignments are based on skills, knowledge, and ability of the critical care nurse and the patient's needs and acuity
- 2.6 Ensures that all critical care nursing personnel receive a performance appraisal, in accordance with the hospital's policies, which is based on the written job description, discussed with the staff members involved, and includes a process for the development of mutually agreed upon goals and objectives

The critical care nurse:

- 2.7 Stays current with evidence informed practice changes on the unit and identifies and reports to supervisor if further skill development required.
- 2.8 Attends inservices and/or education to maintain clinical competency.
- 2.9 Promotes research, evidence-informed practice, and dissemination of best practice.
- 2.10 Provides leadership to other members of the critical care team by acting as a resource person & mentor.

Competency Statement

3. A mechanism for communication and establishment of policy/procedures such as a Critical Care Committee is established and endorsed by the health care facility in collaboration with the critical care team (related to the structure of the critical care unit).

Criterion

The Critical Care Unit:

- 3.1 Ensures the method of communication has broad representation from all levels of critical care nursing, medicine, and allied health care professionals involved in patient care and, if possible, patient/family advisors
- 3.2 Administration works in collaboration with those represented in 3.1 in an advisory or decision-making capacity with responsibilities for, but not limited to:
 - Unit philosophy, goals, and objectives
 - Structural planning
 - Policies and procedures
 - Program development and evaluation
 - Establishment of a mechanism for resolving issues related to interdepartmental and interdisciplinary matters, and insufficient resources
 - Unit quality improvement activities, ensuring alignment with Quality Improvement Plan and Accreditation Canada Standards

- Accountable for improvement on all indicators, including publically reported outcomes
 - Mechanisms and methods to analyze, plan and take action on statistical data, related utilization and outcomes
 - Other activities as deemed appropriate in an organizational setting
- 3.3 Endorses written information regarding the critical care unit including, but not limited to:
- Unit philosophy, goals, and objectives
 - Organization chart
 - Dependent nursing responsibilities
 - Medical responsibilities
 - Roles and responsibilities of other health professionals in the unit
- 3.4 Endorses written policies and procedures specific to the critical care unit including, but not limited to:
- Admission, transfer, and discharge criteria
 - Surge Capacity Management Plan
 - Fire, disaster, and evacuation
 - Medication administration and other treatments
 - Transfer of medical function(s) and shared competencies
 - Protocols for management of specific patient populations

Competency Statement

4. There is shared accountability of the critical care nurse along with the unit and organization to seek out and obtain education to maintain, enhance and improve his/her practice.

Criterion

The critical care unit:

- 4.1 Will regularly provide opportunities for nursing education and practice of rarely used critical care skills on an annual basis.
- 4.2 Will provide educational opportunity for any new skill required in the critical care unit.

The critical care nurse:

- 4.3 Will seek opportunities to continually learn issues around critical care to enhance knowledge, skills and competencies

Client and Nurse Safety/Risk Prevention

Competency Statement

5. The health care facility has a quality and safe work environment.

Criterion

The health care facility and critical care unit:

- 5.1 Have defined, transparent processes for timely reporting and responding to concerns from all employees and patients/families, unusual occurrences, errors and near misses.
- 5.2 Engages patients/families in decision making that can influence or impact patient care such as Patient Advisory Councils, patient/family representation on committees.
- 5.3 Implements and adheres to Required Organization Practices and Accreditation Canada Standards and the Occupational Health and Safety Act (2017).

The critical care nurse:

- 5.4 Contributes to the development of a culture of safety within the critical care environment by ensuring any safety concerns are brought forward to a supervisor in a timely manner.
- 5.5 Will ensure self-safety by utilizing appropriate Personal Protection Equipment as per hospital/unit policy and protocols.
- 5.6 Will follow and comply with any hand-washing expectations as per infection control practices.

Competency Statement

6. The critical care nurse in collaboration with other members of the interdisciplinary health care team formulates the plan of care.

Criterion

The critical care nurse:

- 6.1 Formulates the plan of care in a culture of quality, safety, and risk prevention
- 6.2 Practices with an inter-professional team and actively engages in implementation of evidence based and/or best practice in relation to clinical care and patient safety for patients, family, and members of the health care team when developing the plan of care.
- 6.3 Monitors and evaluates results of the clinical plan of care, then, according to evidence and in discussion with the team, makes revisions in the plan accordingly.

Competency Statement

7. The health care facility provides opportunities for the critical care nurse to maintain the knowledge and skills necessary to deliver safe and knowledgeable care within the context of the chosen conceptual model of nursing practice.

Criterion

The critical care unit:

- 7.1 Develops criteria for hiring nurses based on the knowledge and skill requirements of the job
- 7.2 Provides an orientation program which:
 - Is based on a learning needs assessment
 - Includes specific unit philosophy, goals, policies and procedures, as well as an organizational chart for the unit
 - Includes physical layout and instructions on the use of unit equipment
 - Includes a clinical and theoretical component, the content and length of which is based on the level and type of unit

- 7.3 Provides continuing education and communication on the following:
- New or revised policies and procedures
 - The use of new or updated equipment
 - Advanced skills or skills used infrequently (i.e. Intra-aortic balloon pump, Continuous Renal Replacement Therapy)
 - Roles and responsibilities of the critical care nurse, including the role of charge nurse, preceptor, as well as other members of the interprofessional team
 - Role of the critical care nurse on the health care team
 - Theory pertinent to the critical care patient population and the learning needs of critical care nurses
 - Critical incident stress management for all staff members
 - The use and fitting of personal protective equipment for all staff involved in patient care
- 7.4 Evaluates the knowledge and competencies of the critical care nurse on an ongoing basis
- 7.5 Ensures the availability of current evidence and literature relevant to the patient population

The critical care nurse:

- 7.6 Takes advantage of and attends educational opportunities to enhance clinical skills and theoretical knowledge.
- 7.7 Ensures self-competence in all skills performed. Self-identifies issues with competency and informs supervisor if update is required.
- 7.8 Stays current on any unit policy or procedural changes.

Therapeutic and Professional Relationships/Caring

Competency Statement

8. Based upon knowledge of nursing, biological, physical, psycho-social and behavioural sciences, data are continuously analyzed by the critical care nurse to: identify patient and/or family wishes, priorities and problems; formulate a care plan, and provide interventions which are evidence-based, in collaboration with other members of the interdisciplinary health care team and patient/family.

Criterion

The critical care nurse:

- 8.1 Addresses significant findings with other members of the inter-professional team, patients, families and/or Substitute Decision Makers³ (SDMs)
- 8.2 Collaborates with patient, family, and other health care team members to establish an individualized and holistic plan of care

Competency Statement

9. The critical care nurse implements the plan of care including independent and interdependent nursing functions.

Criterion

The critical care nurse:

- 9.1 Optimizes communication with the patient and family by:
 - Assessing current communication status by using all techniques available and involving the family in interpreting the patient's efforts to communicate (e.g. lip reading, gestures, posturing, eye contact, touch)
 - Encouraging and teaching the family and other members of the inter-professional health care team strategies to communicate with the patient
 - Continuously evaluating the effectiveness of the communication process
- 9.2 Intervenes to facilitate optimal family processes by:
 - Using language that is consistent with level of understanding, education, culture and circumstance of the patient
 - Providing an opportunity for the patient/family to verbalize feelings and concerns, using interpreters when needed
 - Demonstrating concern and acceptance through sincere and empathetic verbal and nonverbal communication
 - Providing honest and realistic information to the patient/family
 - Providing ongoing support
 - Providing frequent and regular exchanges of information
 - Using principles of crisis intervention to identify and mediate source of crisis
 - Initiating internal/external referrals
 - Providing opportunity and privacy for patient/family interaction
 - Facilitating partnerships and decision-making with family members
 - Involving the family in direct patient care
 - Encouraging and exploring the verbalization of feelings
 - Providing opportunities to make informed choices
 - Educating the patient and family about nursing and collaborative interventions based on learning needs

³ According to the *Health Consent Act*, 'substitute decision-maker' refers to a person who is authorized under section 20 to give or refuse consent to a treatment on behalf of a person who is incapable with respect to the treatment. 1996, c. 2, Sched. A, s. 9.
Source: http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_92s30_e.htm

Therapeutic and Professional Relationships/Caring (continues)

Competency Statement

10. The critical care nurse evaluates patient outcomes in accordance with a conceptual model for critical care nursing and consistent with independent nursing functions.

Criterion

The critical care nurse:

- 10.1 Reports, discusses, and addresses significant differences between actual and expected outcomes with the appropriate inter-professional team members in order to modify the plan of care

Clinical Skills, Knowledge, Integration and Critical Thinking

Competency Statement

11. The critical care nurse continuously assesses, monitors and evaluates data regarding the patient's physical, emotional, and psycho-social status. In addition, documentation regarding advance directives is collected by the critical care nurse at the time of admission and throughout the patient's stay.

Criterion

The critical care nurse:

- 11.1 Reports, discusses, and addresses significant differences between actual and expected outcomes with the appropriate inter-professional team members in order to modify the plan of care at patient's transition points; including but not limited to:
 - Time of admission to the unit
 - Beginning of each shift
 - Change of patient assignment
 - Change in patient's clinical status
 - When providing handover of care upon transfer
- 11.2 Assesses, interprets, and evaluates data on a continual basis, based on comprehensive physiological assessment, laboratory and diagnostic data, as well as interactions from the patient and family as needed and:
 - Using technological supports both invasive and non-invasive (See Appendix B)
- 11.3 Collects laboratory specimens as per hospital policy (e.g. sputum via endotracheal tube, blood via invasive lines)
- 11.4 Continuously gathers pathophysiological, psycho-social, cultural, developmental, spiritual and family's needs data based on the patient's condition
- 11.5 Obtains a comprehensive health history using all available and appropriate sources in the absence of patient's ability to communicate
- 11.6 Assesses data regarding infection control and transmission risks to patients and staff and takes all the necessary measures to prevent risk in a proactive manner by ensuring adherence to routine practices

Competency Statement

12. Based upon knowledge of nursing, biological, physical, psycho-social and behavioural sciences, data are continuously analyzed by the critical care nurse to formulate nursing response and interventions based on patient and/or family wishes, priorities, problems and needs.

Criterion

The critical care nurse:

- 12.1 Analyzes unexpected findings and makes rapid decisions about priorities of care
- 12.2 Anticipates, intervenes and delivers measures to manage multi-organ and single system organ failure, as well as provides best evidence care to prevent complications and promote optimal health; including but not limited to:
 - Ineffective airway clearance
 - Respiratory failure secondary to impaired gas exchange, mechanical failure, respiratory muscle fatigue, inflammation, infection, inhalation injury, obstruction or trauma
 - Shock and/or hypotension due to arrhythmias, and/or pump failure, obstruction, infection or inflammation
 - Alteration in cardiac output either due to mechanical or electrical dysfunction
 - Brain injury, head trauma, cerebral aneurysm, seizures, meningitis, neurogenic shock, cerebral vascular accident, arteriovenous malformation, cerebral vasospasm, and increased intracranial pressure
 - Gastrointestinal tract abnormalities due to organ failure, bleeding, infection, inflammation or trauma
 - Acute renal failure with fluid, electrolyte, or acid-base imbalance

- Vascular tissue perfusion abnormalities
- Skin breakdown, loss of skin integrity due to thermal injury, trauma, infection of exfoliative diseases
- Abnormality in fluid balance
- Ineffective thermoregulation
- Alterations in musculoskeletal function
- Alterations in endocrine function
- Alterations in immunologic function
- Alterations in hematologic function
- Abnormality in mood, judgment, or cognition including anxiety
- Delirium, depression and dementia
- Impaired communication
- Altered family processes
- Altered family/patient coping
- Manifestations of abuse (e.g. child, spouse, elder)
- Altered nutritional requirements
- End-of-Life Care
- Transition to allow for a natural death
- Pain

12.3 Interprets, evaluates, and responds to pertinent diagnostic data in a timely and appropriate manner (See Appendix C)

Competency Statement

13. Interventions based upon patient and/or family wishes, priorities and problems are planned by the critical care nurse, in collaboration with other members of the inter-professional health care team to formulate the overall plan of care.

Criterion

The critical care nurse:

- 13.1 Anticipates and prepares for life-threatening situations
- 13.2 Establishes priorities for care with the patient/family
- 13.3 Selects specific nursing interventions designed to achieve expected patient outcomes
- 13.4 Balances the science of curing with the art of caring
- 13.5 Incorporates the patient's pathophysiological, psycho-social, cultural, spiritual, and developmental needs, into the plan of care
- 13.6 Formulates measurable immediate and longer-term, patient-oriented goals with the patient and/or family and health care team
- 13.7 Identifies realistic and measurable expected patient outcomes to be used in the evaluation of formulated goals
- 13.8 Validates the plan of care with the patient, family and other members of the health care team
- 13.9 Identifies required resources to accomplish the plan of care
- 13.10 Documents and revises the plan of care as necessary
- 13.11 Identifies patient and family learning needs when formulating the plan of care
- 13.12 Plans for patient and family support needs
- 13.13 Identifies and plans for transition and direction of care

Competency Statement

14. *The critical care nurse in collaboration with the inter-professional health care team and patient/family implements the plan of care using advanced skills and knowledge within his/her professional scope of practice to promote quality of care, safety initiatives and best practice.

Criterion

The critical care nurse:

- 14.1 *Implements care that reflects established priorities and evidence based practice (e.g. Central Line Infections and Ventilator Associated Pneumonia bundles, early mobilization and nutrition)
- 14.2 Ensures timely and accurate documentation in the patient health record in accordance with hospital policies and CNO standards
- 14.3 Communicates significant interventions to the patient, family and other members of the inter-professional health care team in a timely manner
- 14.4 Coordinates the delivery of the patient's care
- 14.5 *Intervenes to ensure effective airway and manage respiratory failure secondary to impaired gas exchange or mechanical failure may include but not limited to:
- Positioning
 - Managing airway
 - Managing the endotracheal tube/Laryngeal Mask Airway
 - Sizing, hyperoxygenation, suctioning, cuff management, tapes/ties
 - Tracheostomy, tracheobronchial toilet
 - Administering pharmacologic agents as ordered
 - Managing secretions
 - Troubleshooting inadequate mechanical supports
 - Assisting with interventions
 - Managing changes in oxygenation
 - Managing changes to manipulate minute ventilation
 - Managing changes to adjust pressure support ventilation
 - Managing changes to manipulate pressure-controlled ventilation, high-frequency ventilation or inverse-ratio ventilation
 - Managing dyssynchrony
- 14.6 *Intervenes to promote successful weaning from ventilatory supports by ensuring adequate nutrition and fluids, pain management, rest and the alleviation of anxiety
- 14.7 *Intervenes to correct shock with hypotension, arrhythmias, and alterations in cardiac output – may include but not limited to:
- Manipulating preload/afterload (e.g. fluids, pharmacologic agents)
 - Manipulating contractility
 - Fluids, pharmacologic agents
 - Intra-aortic balloon pump
 - Manipulating heart rate or rhythm (e.g. fluids, pharmacologic agents, assisting with pacing, cardioversion and defibrillation)
 - Troubleshooting invasive hemodynamic parameters
 - Participating in the management of a cardiac arrest, respiratory arrest or other unexpected event (e.g. Paediatric Advance Life Support, Advanced Cardiac Life Support, protocols, administration of drugs)
 - Assisting with the insertion of invasive hemodynamic monitoring catheters (e.g. set up, leveling, patency)
 - Initiating and managing fluid therapy
 - Administering and monitoring oxygen, vasodilators, anticoagulants, extra corporal membrane oxygenation
 - Administering and monitoring vasodilators, vasopressors, and thrombolytic agents

14.8 *Implements interventions to manage acute renal failure by using pharmacological or technical methods - may include but not limited to:

- Administering and managing fluids (e.g. calculating total fluid intake/output)
- Administering pharmacologic agents (e.g. diuretics, vasodilators)
- Maintaining invasive interventions and managing fluid and toxin removal:
 - Ureteral stents, fluids, and pharmacological agents
 - Continuous Renal Replacement Therapies including intermittent hemodialysis, sledding, and peritoneal dialysis
- Recognizing and minimizing the side effects of nephrotoxic pharmacologic agents (e.g. aminoglycosides, diuretics, vasopressors, radiographic dye)

14.9 *Intervenes to correct alterations in cerebral perfusion – may include but not limited to:

- Using techniques to prevent obstruction and promote venous and cerebral spinal fluid drainage (e.g. elevate head of bed to 30 degrees, positioning head in neutral position, techniques to minimize elevation of intracranial pressure)
- Manipulating PaCO₂:
 - Using a bag-valve apparatus
 - Mechanical ventilation
- Minimizing stimulation
- Administering pharmacologic agents (e.g. oxygen, anticonvulsants, diuretics, barbiturates, calcium channel blockers, sedatives, steroids, hyperosmolar therapy)
- Manipulating cerebral perfusion pressures (e.g. pharmacologic agents, fluids, PaCO₂ control and external ventricular drainage)
- Managing seizure activity
- Assisting with insertion/maintenance of intracranial pressure monitoring or ventricular drainage devices (e.g. set up, drainage, positioning)
- Assisting with insertion or cerebral oxygenation monitoring devices
- Troubleshooting invasive intracranial parameters/waveforms
- Using techniques that minimize elevations in intrathoracic pressures (e.g. gastric drainage, pharmacologic agents, minimizing airway stimulation)
- Administering fluid therapy (e.g. intracranial hypertension, hypervolemia, hypovolemia)
- Controlling metabolic rate (e.g. invasive and non-invasive warming/cooling devices or fluids, pharmacologic agents, minimizing stimulation)
- Preventing secondary injury (e.g. oxygen therapy, fluid management, blood pressure management, neuromuscular blockade and external ventricular drainage)

14.10 *Intervenes to correct alterations in gastrointestinal tract abnormalities – may include but not limited to:

- Managing gastric bleeding (e.g. pharmacologic agents, gastric tubes, lavage)
- Managing overdose (e.g. pharmacologic agents, gastric lavage, fluid administration)
- Maintaining gastric drainage
- Promoting early and safe enteral feeding
- Promoting early and safe parenteral nutrition if enteral feeding cannot be initiated
- Intervenes in ineffective thermoregulation by promoting normothermia (e.g. using invasive cooling devices, using non-invasive warming/cooling devices or fluids/ pharmacological agents)

14.11 Intervenes to correct abnormalities in hematologic, immune, endocrine, skin and muscular skeletal systems

14.12 Intervenes to manage alterations in mood, emotional, judgment, or cognitive function

14.13 Promotes optimal comfort and safety by:

- Utilization of validated assessment and interventional tools for complex conditions (e.g. alcohol withdrawal, delirium, sedation)
- Organizing care to optimize comfort (e.g. timing, grouping and sequencing of activities)
- Selecting, organizing, and administering pharmacologic agents (e.g. analgesics, sedatives, regional blocks, epidural anesthetics/analgesia, and patient controlled analgesia)

- Implementing and evaluating individualized pain management regimen (e.g. communication, appropriate use of touch, noise control, music therapy, visualization, relaxation techniques, use of personal mementos, family member presence)
- 14.14 Intervenes to prevent complications of immobility and respiratory compromise (e.g. early mobilization, range of motion exercises)
- 14.15 Minimizes/prevents motor and/or sensory deficits by:
- Maintaining spinal cord integrity (e.g. positioning, immobilization devices, pharmacologic agents)
 - Intervening for spinal cord crisis (e.g. spinal shock, autonomic dysreflexia)
 - Maintaining traction and monitoring for compartment syndrome and other neurovascular complications

Competency Statement

15. The critical care nurse evaluates patient outcomes in accordance with a conceptual model for critical care nursing and consistent with independent and interdependent nursing functions.

Criterion

The critical care nurse:

- 15.1 Evaluates the patient/family's response to interventions
- 15.2 Compares collected data with expected outcomes
- 15.3 Analyzes gaps between actual and expected outcomes
- 15.4 Rapidly revises the plan of care with the patient/family and/or health care team members and implements alternatives
- 15.5 Continuously evaluates the revised plan of care
- 15.6 Participates in quality improvement activities (e.g. system effectiveness, patient/family outcomes)

Appendix A: Terminology

Critical Care Nurse: Critical care nursing is a specialty which exists to care for vulnerable patients who are experiencing life-threatening health crises within a patient/family centred model of care. Nursing the critically ill patient is continuous and intensive, aided by technology. Critical care nurses require advanced problem-solving abilities using specialized knowledge regarding the human response to critical illness. The critical care nurse, works collaboratively within the inter-professional team, and is responsible for coordinating patient care using each member's unique talents and scope of practice to meet patient and family needs. Critical care nurses are at the forefront of critical care science and technology. Lifelong learning and the spirit of enquiry are essential for the critical care nurse to enhance professional competencies and to advance nursing practice. The critical care nurse's ability to make sound clinical nursing judgments is based on a solid foundation of knowledge and experience (Canadian Association of Critical Care Nurses, 2009 & 2017).

Critical Care Committee: A multidisciplinary committee that reports to the Medical Advisory Committee and Senior Management Team, and consists of medical, nursing, and allied health professionals. The role of the Critical Care Committee includes: developing admission, transfer, and discharge criteria, developing policies, and procedures, prioritizing patients, matching resources to priorities; and defining and tracking quality, safety, and performance indicators (Ontario Critical Care Steering Committee, 2005).

Critical Care Services Ontario (CCSO): CCSO is the managing body responsible for the overall program implementation of initiatives of the Critical Care Strategy. Originally established as the Critical Care Secretariat in June 2005, its work is the result of an on-going collaboration between critical care health care providers, hospital administrators, officials from the Ministry of Health and Long-Term Care and other health system partners.

Inter-professional Practice: The provision of comprehensive health service to patients by multiple health caregivers who work collaboratively to deliver quality care within and across settings (Inter-professional Care Steering Committee, 2007).

Level 2 Critical Care Unit: Capable of providing service to meet the needs of patients who require more detailed observation or intervention including support for a single failed organ system, short-term non-invasive ventilation, post-operative care, patients "stepping down" from higher levels of care or "step ups" from lower levels of care. These units provide a level of care that falls between the general ward (Level 1) and a "full service" critical care unit (Level 3). Level 2 units do not provide invasive ventilator support. Level 2 critical care units may provide invasive mechanical ventilation for a short period (for example ≤ 48 hours). For patients requiring longer term invasive mechanical ventilation or develop multi-system organ dysfunction, consideration should be given to transferring these patients to a Level 3 unit (Inventory of Critical Care Services, 2006).

Level 3 Critical Care Unit: Capable of providing the highest level of service to meet the needs of patients who require advanced or prolonged respiratory support, or basic respiratory support together with the support of more than one organ system. This is generally considered a "full service" critical care unit despite the fact some specialized services may not be available (e.g. dialysis). All Level 3 units are capable of invasive ventilator support. For institutions that combine Level 2 and Level 3 critical care service in one geographic area (i.e., unit), the unit designation reflects the highest level of care provided, even if all patients may not be receiving that level of care (Inventory of Critical Care Services, 2006).

Local Health Integration Network (LHIN) Critical Care Network [LCCN]: The LCCN serves as a key forum for critical care service planning, improvement, and integration within each LHIN. The LCCN also supports LHIN-wide adoption and implementation of critical care initiatives and the Ontario Critical Care Plan, with focus on improving access, accountability, quality, and system integration of critical care services within Ontario.

Patient and Family Centred Care: An approach to the planning, delivery, and evaluation of health care that is grounded in mutually beneficial partnerships among patients, families, and health care providers. It is founded on

the understanding that the family plays a vital role in ensuring the health and well-being of patients of all ages. In patient and family centred care, patients and families define their 'family' and determine how they will participate in care and decision-making (Institute for Family-Centred Care, 2004).

Appendix B

Using technological supports both invasive and non-invasive may include but not limited to:

- Intra-aortic balloon pump
- Continuous hemofiltration
- Mechanical ventilators including oscillator ventilators
- Non-invasive ventilation
- Temporary pacemakers
- Continuous electrocardiography monitoring
- Non-invasive blood pressure monitoring
- Oxygen monitoring
- CO₂ end tidal
- Invasive monitoring techniques and devices including but not limited to:
 - Arterial lines
 - Pulmonary artery
 - Intracranial pressure monitoring
 - Bladder pressures
 - Central venous pressures
 - SVO₂ monitor
- Continuous electroencephalography monitoring
- Doppler devices
- Bladder scanners
- Continuous physiological monitoring

Appendix C

The critical care nurse interprets, evaluates, and responds to pertinent diagnostic data in a timely and appropriate manner may include but not limited to:

- Arterial and venous blood gases
- Invasive haemodynamic monitoring:
- Intracardiac pressures and waveforms (e.g. pulmonary artery, right atrial, left atrial)
- Central venous pressures and waveforms
- Arterial pressures and waveforms
- Intra-aortic balloon pressures/waveforms
- Hemodynamic calculated parameters (e.g. cardiac index, systemic vascular resistance index, pulmonary vascular resistance index)
- SVO₂ data
- Cardiac rhythm interpretation (e.g. rate, rhythm, ST elevation, T wave configuration)
- Twelve and 15 electrocardiogram changes consistent with myocardial injury, ischemia, or infarction
- Pacemaker functions (e.g. sensing and capturing)
- Intracranial pressures and waveforms
- Cerebral perfusion pressure
- Pulse oximetry
- End tidal carbon dioxide
- Ventilation information (e.g. tidal volume, minute volume, oxygenation, rate, airway pressures, end-tidal CO₂)
- Ventilation support
- BiPap
- Assist control, synchronized intermittent mandatory ventilation, positive and expiratory pressure, pressure support ventilation, pressure control ventilation, volume control ventilation, high frequency jet ventilation, high frequency oscillation
- Hemodialysis, Continuous Renal Replacement Therapies, peritoneal dialysis, sledding

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