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Title: **ADULT CRITICAL CARE CLINICAL EMERGENCY STANDARD OF CARE FOR MAJOR SURGE**

Applies to: All staff and physicians responsible for adult critical care triage and resource allocation.

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1.0 Assumptions and Background

Introduction:

This standard of care applies to **all adult patients (over age 18) assessed for critical care or receiving critical care, regardless of the etiology of their illness** (i.e. pandemic or non-pandemic patients). It does NOT address pediatric critical care decision-making.

In the context of a major surge in demand for critical care resources, where the demand actually exceeds the number who can be safely managed with available resources (including ventilators, supplies and trained staff), it is inevitable that some who may have otherwise benefited from critical care will not receive it, and as a result, some will die who would otherwise have lived. In such a context, an emergency standard of care is appropriate in order to mitigate the worst effects of this surge. This document represents an emergency standard of care that aims to reduce preventable deaths to the degree possible.

Under major surge conditions, and against a backdrop of a health system and health care practices that are known to involve biases and discrimination, it is imperative to develop an approach to allocating critical care resources that involves the least infringement of human rights and which strives to not perpetuate or exacerbate health and social inequities. The primary overarching medical obligation in critical care triage is to save the most lives possible, while the primary overarching legal obligation must be non-discrimination and the protection of human rights through processes that promote fair, equitable and evidence-based clinical decision-making. It is also imperative that whatever approach is taken does not result in more patient needs going unmet compared to what would be expected had no action been taken.

An emergency standard of care should be undergirded by mechanisms of due process that minimize impairment of rights as much as possible. A clear, transparent, accountable system, applied across all patients, hospitals and regions, is the optimal way to support fair and evidence-based decisions, protect human rights and to minimize the risk of discrimination and unconscious bias negatively impacting the care of vulnerable populations (such as people with disabilities, people who are racialized and people with pre-existing health conditions). It is also the best way to minimize moral injury and burnout amongst healthcare professionals and leaders burdened with the responsibility of triage.

Taking non-discrimination and human rights seriously entails ensuring triage decisions: i) are based on *clinical criteria that predict short term mortality risk (STMR)* grounded in the best available evidence and are not reliant on particular demographic factors, disease, or disability, and; ii) involve an *individual assessment* of a patient's clinical condition in relation to triage criteria based on short term mortality risk, and not a judgment of the individual's social value, quality of life, long-term survival, or need for accommodations.

This standard of care is based on the document entitled: "Critical Care Triage during Major Surge in the COVID-19 Pandemic: Proposed Framework for Ontario" (date: September 11, 2020, updated January 12, 2021) prepared by the Ontario COVID-19 Bioethics Table. It builds on earlier work in Ontario by M. Christian et al, and is informed by extensive Ontario-based research into public views on pandemic triage and resource allocation. The clinical tools to support prioritization of patients based on short term mortality risk were selected based on an extensive review of critical care triage frameworks globally, and a consultative process with physicians representing specialties including: critical care, emergency medicine, neurology, geriatrics, oncology, cardiology, nephrology, respirology, neurosurgery, hepatology, palliative care, and internal medicine, in addition to other health system partners, human rights and disability advocacy groups, and ethicists. This document is a "ever green" document within the overall COVID pandemic response in Ontario, in that the process of allocating critical care resources in the context of a major surge in demand should remain sensitive and responsive to changing conditions, quality improvement opportunities and emerging evidence.

This standard of care is based on the following assumptions:

- Critical care triage should only be enacted in the context of a major surge in demand for critical care and only once a decision to initiate triage has been made by the Ontario Critical Care COVID Command Centre, and in conversation with regional and hospital partners.
- Critical care triage for major surge in a pandemic should be well-coordinated, consistent, predictable, and responsive to an evolving pandemic context. The approach should incorporate three essential elements: i) defined levels of triage proportional to demand on

critical care, ii) explicit clinical triage criteria based on predicted short term morality risk, and iii) key structures and processes to ensure fairness, consistency and accountability.

- Critical care triage for major surge should be considered an option of last resort, to be invoked only when all existing local and regional critical care resources have been used, all reasonable attempts have been made to move patients to or resources from areas with greater critical care resource availability, and only for as long as the major surge lasts.
- Critical care triage should only be enacted in the context of allocating critical care resources, such as ICU beds and ventilators and human resources. Critical care triage should not be used to guide allocation decisions in other clinical contexts.
- During a pandemic, the availability of Health Care Providers (HCP) could be reduced significantly due to personal illness, absenteeism and family caregiving responsibilities. A shortage of HCP will result in a decrease in the usual capacity to provide service concurrent with a surge in demand for healthcare.
- Each hospital should be aware of the precise number of critically ill and mechanically-ventilated patients they can accommodate with their resources (including consumables), staff and space. The timing and degree of the surge in demand is likely to be variable in different areas, so as one site approaches their maximum capacity, regional authorities should make significant efforts to transfer patients to or equipment from hospitals with lower occupancy. When all hospitals in a region are near their capacity, or when transportation resources are no longer able to reallocate patients to hospitals with lower occupancy, regional authorities should notify the Ontario Critical Care COVID Command Centre and inform these hospitals that a triage scenario is impending.
- If capacity for managing the critical care surge has been maximized, transfer options are exhausted, and there are still inadequate critical care resources in the system to meet the current and anticipated need, this standard of care may be initiated by formal direction from the Ontario Critical Care COVID Command Centre and the hospital's Incident Management Command Structure (ICMS).
- At all times every effort will be made to support clear and transparent communication to patients and SDMs about available resources and options, their triage status, and to align care plans with the known wishes and values of patients. All patients, regardless of triage status or clinical presentation, deserve access to care, including appropriate medical treatments to maximize outcomes, and support for comfort and symptom management.

1.1 Guiding Principles for Critical Care Triage

In the context of a major surge in demand for critical care in a pandemic, the overarching objective of triage should be to **save the most lives in the most ethical manner possible**. This requires adhering to the following ethical principles and human rights standards to the highest degree possible.

- *Prioritize those with the greatest likelihood of survival* – Aim to prioritize those patients who are most likely to survive their critical illness; 'surviving critical illness' is interpreted as **survival twelve months from the onset of critical illness**. Patients who have a high likelihood of dying within twelve months from the onset of their episode of critical illness (based on an evaluation of their clinical presentation at the point of triage) would have a lower priority for critical care resources. This evaluation is done through a Short Term Mortality Risk (STMR) assessment along with the Clinical Assessment Tools for short term mortality risk assessment (see STMR Assessment and Clinical Tools for STMR).

- *Non-discrimination* – Aim to ensure that restrictions which may affect people protected under prohibited grounds in the Ontario Human Rights Code (Appendix A) are strictly limited to those that are reasonably necessary, minimally impairing, and proportional to the degree of surge. Non-discrimination emphasizes every person's right not to be denied services like health care because of their age, race, Indigeneity, disability, gender identity, or sexual orientation. Accommodations in the allocation of critical care must be made to the greatest extent possible to ensure that patients with disabilities can fully benefit from and be fully included in the health care services and products offered on a footing of equality, and to ensure that people protected by the Ontario Human Rights Code have equal opportunity to receive such care.

- *Protection of individual human rights* – Uphold individual human rights to the extent possible in a pandemic emergency, including ensuring that any restrictions of individual rights are strictly necessary and proportional so as to assure the most minimal impairment of rights possible. Additionally, to engage fully in the decision-making process, individual patients must be supported through accommodations to the extent possible in the context of a major surge and infection control precautions.

- *Fairness* – Where no relevant differences exist between patients being considered for access to critical care, triage decisions should treat those patients similarly, i.e., those with similar prognoses of short term mortality risk should be treated similarly unless there are relevant differences that warrant differential treatment. In the event that there is uncertainty or insufficient clinical evidence to prioritize one patient over another on the basis of predicted short term mortality, a fair process that gives patients equal chances of accessing critical care should be used for resource allocation (such as randomization).

- *Proportionality* – Ensure that the number of individuals who are negatively affected by the use of critical care triage criteria in a pandemic does not exceed what would be required to accommodate the surge in demand. Given that critical care capacity and demand can be dynamic, access to critical care should be restricted only to the extent necessary to achieve maximum benefit within resource constraints and should become less restrictive as resources become available or the surge abates.

- *Equity* – Affirm and safeguard the equal value of all people in Ontario by implementing processes and measures to minimize the risk of perpetuating or exacerbating the effects of individual and systemic discrimination or marginalization on access to health care. Promoting equity is a **positive obligation** that must be enacted in practice. Under conditions of great stress during a major surge in demand for critical care, unconscious bias is likely to be activated unless steps are taken to support clinicians in promoting equity.

- *Beneficence* – Act in a way that promotes patients' well-being to the greatest extent possible given resource constraints by proactively clarifying patient goals of care (i.e., patient wishes, beliefs, and values regarding their treatment) in relation to their critical care needs, providing a range of care options, ensuring continuity of care for all patients appropriate to their clinical circumstances, including those whose critical care needs cannot be met, and ensuring no patient is left without care (i.e., non-abandonment). Although resource scarcity in a pandemic may limit the ability to meet all patient needs, maintaining a caring relationship with all patients is essential. Every effort to provide culturally safe and appropriate care should be made.

- *Respect for Autonomy* – Ensure all patients have a chance to make their goals and wishes known and to have treatment provided in alignment with these goals and wishes wherever possible. Patients (or their substitute decision-makers) may need support to make free and informed decisions about their care. To ensure effective communication and informed decision-making, individual patients may require accommodations (e.g., plain language, use of communication devices, interpretation services) and/or participation of an attendant care worker or other support person to the extent possible in an infection control and surge context.
- *Accountability* – Remain answerable for decisions made in the context of triage. This means communicating triage decisions, including the criteria used to make those decisions in an open and honest manner to patients or their substitute decision-makers. It involves decision-review processes (such as a Triage Review Committee) and also involves collecting data on the triage decision-making process and outcomes, and monitoring the implementation of the triage approach to ensure the process outlined in this protocol is followed and opportunities for process improvements are identified. Triage decisions, triage criteria, and triage processes should be evaluated at regular intervals at local, regional, and provincial levels to assess the extent to which they are clinically and ethically justified.

1.2 Prohibitions in Critical Care Triage

This standard of care is intended to align with the Ontario Human Rights Code (Appendix A) to the extent permitted in the context of a major surge. *As such, critical care triage decisions must NOT consider the following factors:*

- A patient's demographic characteristics (e.g., age, sex, socioeconomic status, Indigenous status, race, ethnicity, gender identity and expression, sexual orientation, creed, family status, marital status, geography, and home setting)
- A patient's disease or disability *independent of their predicted short term mortality risk* (i.e. survival 12 months after the onset of critical illness). Mortality risk may be assessed using disease-specific scales that may involve assessments of functional status. However, these scales and functional assessments should not be applied outside of the conditions for which they are relevant.
- A patient's quality of life (as judged by anyone except the patient)
- The cost of a patient's future care
- A patient's life expectancy *independent of their predicted short term mortality risk* (i.e. survival beyond 12 months after the onset of critical illness) Mortality risk may be assessed using disease-specific scales that may involve assessments of functional status. However, these scales and functional assessments should not be applied outside of the conditions for which they are relevant.
- A patient's need for disability-related accommodations or assistance (e.g., a deaf patient who needs Sign Language interpreters to effectively communicate with hospital staff)
- **Note**: A patient who has their own, pre-existing ventilator used to treat a pre-existing chronic condition must be permitted to continue to use their personal ventilator. Their own, pre-existing ventilator must not be re-allocated to other patients.

In addition, clinicians or administrators should **not** be involved in triage decisions where they have a conflict of interest, where triage decisions involve:

- family members or close professional colleagues or friends
- any situation in which they feel they have a bias that prejudices their analysis (i.e. they cannot judge on the basis of the relevant triage criteria)

1.3 Randomization in Critical Care Triage

In the context of a major surge, there may be occasions where there is little clinical evidence to guide triage decisions (i.e. to distinguish between multiple critically ill patients) on the basis of predicted short term mortality, or there are irreconcilable differences of opinion between physicians regarding a patient's eligibility for critical care at a particular level.

In such contexts of uncertainty, triage decisions must appeal to procedural fairness.

Randomization offers a procedurally fair process of decision-making that mitigates against the potential of explicit or unconscious bias and demonstrates the value of humility when uncertainty is high. Random selection also has other advantages as a decision-making strategy in the context of an overwhelming surge of critically ill patients:

- it is already a well-established practice for making decisions in situations of uncertainty or equipoise in medicine (e.g., randomized controlled trials)
- it reduces the moral and psychological burden of deciding who receives life-saving treatment, which can lead to moral injury and burnout after repeated cases
- it is efficient when decisions need to be made rapidly
- it allows for procedural transparency and accountability
- it may reduce medico-legal risk to a single individual and to the organization in situations of uncertainty
- it balances power amongst health professionals involved in triage decisions (i.e. avoids autocratic decision-making)

Throughout this document, reference is made to randomization as a last resort where there is insufficient evidence to guide prioritization. In all circumstances, randomization should not be conducted at the bedside by clinicians involved directly in patient care. Ideally, randomization should be conducted by an administrator on call (other senior leader), with full situational awareness of the available critical care resources and the number of patients eligible for critical care.

If and when patients are randomized for admission, safeguards should be in place to ensure the integrity and fairness of the randomization process. Randomization should be done through a valid tool (www.random.org) to ensure that the results cannot be predicted or influenced. The process of randomization and its outcomes should be clearly documented. Clinicians should not be able to change the results of randomization, unless new information becomes available that reduces uncertainty with respect to predicted short term mortality.

2.0 Equipment/Supplies

Short Term Mortality Risk Assessment for Critical Illness form (see STMR Assessment and Clinical Tools for STMR)

Short Term Mortality Risk Assessment Summary and Care Plan (see STMR Assessment Summary and Care Plan)

Short Term Mortality Risk Assessment Calculator tool: to support physicians to complete the calculations required by the STRM Assessment form: www.stmrcalculator.ca

Randomization tools available at: www.random.org

Critical Care Triage Resources and Goals of Care Conversation Resources are available at: https://macdrop.mcmaster.ca/s/cjQtgsqkBdnBcCd?path=%2F

3.0 Policy

3.1 Critical Care Triage Steps

Steps in Responding to a Pandemic Surge in Critically Ill Patients:

The response to a surge in demand for critical care resources is expected to occur in a graduated fashion, in coordination with regional and provincial authorities, specifically the Ontario Critical Care COVID Command Centre. The response will unfold in the following steps.

Step 1: Build surge capacity. When a pandemic triggers a surge in the need for critical care, the ICU team will work with hospital management, and provincial/regional/city authorities to enhance capacity to help all patients get the treatment they require. For example, through redeployment of staff, team management of critical care patients, canceling non-urgent care, opening new critical care beds, etc. During this time, patients not requiring acute care will begin to be discharged to alternate locations as the hospital transitions to focusing on providing mass treatment for patients affected by the pandemic.

Step 2: If demand still exceeds capacity, the hospital will adjust the type of care being provided to focus on key critical care interventions (i.e. *mass critical care*), including:

- Basic modes of ventilation
- Hemodynamic support
- Antibiotics and medication
- Disease specific countermeasures (e.g. thrombolysis)
- Prophylaxis

Step 3: If the system is still overwhelmed, initiation of critical care triage using this standard of care and any provincial guidelines will be authorized by the Ontario Critical Care COVID Command Centre, and confirmed by the hospital's Incident Management Command Structure (IMCS), in consultation with the hospital's Chief of Critical Care. Once critical care triage is initiated by the IMCS, all requests for ICU admission are managed by an administrator on call who supports the bedside clinicians, in accordance with the procedure described below.

3.2 Triage Process Overview

Once this standard of care is enacted, all patients requiring critical care will be triaged according to the following basic steps:

- Any patients who need or are anticipated to need ICU admission (according to the **Eligibility Criteria**) should have a STMR assessment completed by the Most Responsible Physician (MRP) and a second assessor (ideally a Critical Care Physician) using Appendix Short Term Mortality Risk Assessment for Critical Illness (the STMR assessment) and Clinical Tools for STMR. Triage decisions apply to all patients who are being considered for critical care, since all patients must share a single pool of resources.
- **Prioritization criteria** are used to identify those patients who have the greatest likelihood of surviving their episode of critical illness (understood as likelihood of survival twelve months from the onset of critical illness based on an evaluation of their clinical presentation at the point of triage). Patients who meet eligibility criteria, wish to receive critical care, but have a high likelihood of dying during or within twelve months from the onset of critical illness based on an evaluation of their clinical presentation at the point of triage would have a lower priority for critical care resources.
- Patients who meet eligibility criteria and who wish to receive critical care should be assigned one of four colours that identifies their predicted short-term mortality risk based on the Short Term Mortality Risk Assessment For Critical Illness (see STMR Assessment and Clinical Tools for STMR):

Red	80-99% predicted short-term mortality risk
Purple	50-79% predicted short-term mortality risk
Yellow	30-49% predicted short-term mortality risk
Green	1-29% predicted short-term mortality risk

- **Insufficient information:** In all cases, an individualized review of each patient's clinical condition should be performed, not assuming any specific diagnosis or clinical finding is determinative of predicted short term mortality risk. Where there is insufficient evidence to support a reasonable clinical judgement regarding whether a patient meets prioritization criteria, the default should be to offer the patient a trial of critical care, if available.
- **Urgent decision-making**: If time does not permit the completion of a full STMR assessment because of the acuity of the patient's illness, clinicians should continue to follow the standard of care that would exist in non-surge situations. The patient should be offered critical care if it aligns with their goals of care, and clinically appropriate. If critical care is not consistent with their goals of care or is not clinically appropriate (independent of any triage consideration), the patient should be offered standard of care given their clinical context (i.e. medical management and/or palliative care). A full STMR assessment can be completed once the patient has become more stable.
- The level of triage should be calibrated to the degree of demand and availability of critical care resources in order to limit the possibility that a patient will be denied critical care resources unnecessarily. Consequently, a three-level approach to triage is proposed.
- As system pressures increase, the range of predicted short term mortality risk used for prioritization becomes proportionately more stringent:
    - In a **level 1 triage** scenario, patients who have a greater than 20% chance of surviving twelve months from the onset of critical illness (based on an evaluation of

their clinical presentation at the point of triage) should be prioritized. This includes those with colour codes of green, yellow, and purple.
  - In a **level 2 triage** scenario, patients who have a greater than 50% chance of surviving twelve months from the onset of critical illness (based on an evaluation of their clinical presentation at the point of triage) should be prioritized. This includes those with colour codes of green and yellow.
  - In a **level 3 triage** scenario, patients who have a greater than 70% chance of surviving twelve months from the onset of critical illness (based on an evaluation of their clinical presentation at the point of triage) should be prioritized. Priority groups include those with the colour code of green.

- It is anticipated that the patient's STMR assessment would not generally change throughout a patient's stay. Thus, a triage assessment should occur in advance of any deterioration when possible, to avoid the potential for time-pressured decision-making.
- A second physician must conduct an independent assessment of the patient's mortality risk and eligibility for critical care, ideally a physician with critical care experience. Ideally, both physicians will achieve consensus on their STMR assessment; if not, any differences should be noted in the health record and the decision default to the STMR with the lower prediction of mortality (i.e. the more optimistic prognosis).
- The role of the administrator on call is to provide real-time information about the availability of critical care resources. The administrator on call should be notified of every patient meeting Eligibility Criteria for Critical Care Admission (see STMR Assessment and Clinical Tools for STMR) in order to support the allocation of available ICU resources, and to track the anticipated need of critical care resources as the Triage Level is increased or decreased.
- After confirming the availability of critical care with the administrator on call, the MRP communicates the ICU admission decision to the patient and/or family. Patients who are declined ICU admission will receive best available non-ICU medical treatments and/or palliative care under the direction of the MRP.
- NOTE: Some hospitals with sufficient staff may create a Triage Team to assume some of the responsibility and moral burden of triage decisions and to support the administrator on call. In such a model, the MRP and second MD assess the likelihood of survival (a clinical, evidence-informed judgement based on the assessment tool), while the decision about allocation and prioritization of critical care resources is made by the Triage Team, considering the patient's likelihood of survival alongside the current level of triage and anticipated availability of critical care resources.

3.3 Levels of Critical Care Triage

In the context of a major surge, it is expected that hospitals and regions will collaborate to coordinate the allocation of critical care resources to save the most lives possible, and cooperate with provincial directions provided by the Ontario Critical Care COVID Command Centre.

Level 1 Triage:

Level 1 triage deprioritizes critical care resources for patients with a predicted mortality greater than (>) 80%. All patients who develop critical illness after a Level 1 triage scenario must be evaluated against the Level 1 prioritization criteria before being offered a trial of critical care.

Under a Level 1 triage, the hospital and regional authorities should continue to coordinate transportation of patients and resources to optimize the utilization of all critical care resources before initiating a level 2 triage.

Level 2 Triage:

Level 2 triage deprioritizes critical care resources for patients with a predicted mortality >50% (Purple and Red, as above). All patients who develop critical illness after a Level 2 triage scenario must be evaluated against the Level 2 criteria before being offered a trial of critical care.

Under a Level 2 triage, the hospital and regional authorities should continue to coordinate transportation of patients and resources to optimize the utilization of all critical care resources before initiating a level 3 triage.

Level 3 Triage:

Level 3 triage deprioritizes critical care resources for patients with a predicted mortality >30% (Yellow, as above). All patients who develop critical illness after a Level 3 triage scenario must be evaluated against the Level 3 criteria before being offered a trial of critical care.

At level 3 triage patients who have suffered a cardiac arrest will be deprioritized for critical care, as their predicted mortality is greater than 30%. Thus, Code Blue may no longer be called for cardiac arrest, and out-of-hospital cardiac arrests may not be transferred to hospitals in Level 3 triage.

If demand for critical care continues to exceed available resources at Level 3, there may be little clinical evidence to guide triage decisions on the basis of *predicted short term mortality*. As a result, triage decisions must appeal to procedural fairness. If triage decisions must be made between multiple patients who cannot be distinguished on the basis of predicted short term mortality, a system of random selection among eligible and not-yet-admitted patients should be implemented by an administrator on call (see 1.3).

As Surge Abates

At any given level, if the surge of critically ill patients abates and critical care resources become available, there must be a clear process for transitioning from a higher level to a lower level of triage, and for making decisions about offering critical care to patients with a higher mortality risk.

For example, if the hospital moves from Level 3 to Level 2 triage, the following process should be followed:

- Patients who meet Level 3 prioritization criteria should always be prioritized
- Patients who meet Level 2 prioritization criteria should be offered critical care if resources are available
- If there are insufficient resources to offer critical care to all Level 2 patients, decisions about allocating resources should be made through randomization (see 1.3)

4.0 Hospital Procedure for Enacting Critical Care Triage

If capacity for managing the critical care surge has been maximized, transfer options are exhausted, and there are still inadequate critical care resources to meet the need, this protocol is enacted by:

- The hospital's Chief of Critical Care (or delegate) notifies the hospital IMCS that critical care resources are unable to meet the current surge in critically ill patients
- The hospital IMCS consults with the Ontario Critical Care COVID Command Centre and regional partners to ensure all options for transport/surge capacity have been enacted
- The hospital IMCS authorizes the use of this protocol and communicates to all appropriate medical staff/wards/units that the protocol is in effect, along with the level of triage

4.1 Goals of Care Conversations Before Initiating STMR Assessments

In the context of a surge, MRPs (ward physicians or ED physicians) will endeavor to have proactive conversations regarding the current surge situation and the patient's goals of care, to align care plans with the patient's known wishes and values.

Ideally, goals of care conversations will be held with each patient upon admission to identify the following:

- Current diagnosis and prognosis with presenting illness
- Goals, wishes, values and beliefs
- Current treatments, options and plans
- Substitute decision-makers
- Need for accommodations (i.e. disability or communication supports) and rights advice (as appropriate)
- Preferred visitors and essential caregivers
- Preferred social and psycho-spiritual supports
- Wishes if the patient becomes critically ill and requires ICU admission

Responses should be documented in the patient's chart. Patients should be provided with reassurance that care and symptom relief will be provided and they will not be abandoned if critical care is not available.

The patient's code status shall be documented as per usual practice.

Patients whose code status indicates they are not to receive ICU admission, vasopressors, or intubation will NOT receive critical care admission, and do not require a STMR assessment at any time.

Goals of Care conversation resources and tools are available at:
https://macdrop.mcmaster.ca/s/cjQtgsqkBdnBcCd?path=%2FGoals%20of%20Care%20%26%20Communication

4.2 Critical Care Triage in the Emergency Department

- Where possible, decisions to intubate should be made AFTER patient has STMR assessment according to this standard of care. This should include the appropriate use of temporizing measures to support oxygenation and the utilization of resources (i.e. HCP staff/residents) to gather relevant information required for a rapid triage process.

- The Emergency Room Physician (ERP), in collaboration with health professional staff will attempt to ascertain the patient's goals of care and wishes regarding receiving critical care in the event of a critical illness, through conversation with the patient/SDM. If the patient/SDM declines the option of critical care, this is noted in the patient's health record, along with their code status, and STMR assessment is not conducted.
- For patients whose goals of care include critical care and who are anticipated to require critical care resources, the ERP (or most qualified physician available) will complete the Short Term Mortality Risk Assessment (see STMR Assessment and Clinical Tools for STMR) and identify the colour based on predicted mortality, and the current level of triage (1, 2, 3)
- If a patient meets eligibility criteria the patient's case should be referred to a second physician for an independent STMR assessment, even if the first physician does not feel that they meet prioritization criteria at the current level of triage. *The only exception would be for patients who have goals of care (voiced by themselves or their SDM) that precludes admission to ICU.*
- If there are differences of opinion between the two physicians re: the patient's eligibility, this should be noted by the ERP and efforts made to reach consensus. If consensus cannot be reached, the final decision about the allocation of critical care should be based on the lower of the two estimates of STMR (i.e. the more optimistic prognosis).
- **Documentation**: Both physicians must complete the Short Term Mortality Risk Assessment for Critical Illness (see STMR Assessment and Clinical Tools for STMR) and the ERP shall complete the Short Term Mortality Risk Assessment Summary and Care Plan (Appendix) for placement in the medical record. Copies of all of these documents should be sent to an administrator on call.
- Patients who do not meet prioritization criteria will NOT be intubated and will remain in the ED or be transferred to another location for medical management, including palliative care, under the appropriate MRP service.
- **Urgent decision-making**: If time does not permit the completion of a full STMR assessment because of the acuity of the patient's illness, clinicians should continue to follow the standard of care that would exist in non-surge situations. The patient should be offered critical care if it aligns with their goals of care, and clinically appropriate and is available. If critical care is not consistent with their goals of care or is not clinically appropriate (independent of any triage consideration) or not available, the patient should be offered standard of care given their clinical context (i.e. medical management and/or palliative care).
- In urgent contexts where an STMR can't be completed, it is suggested that the ED physician consult with a second physician (if available) prior to intubation (if possible) to confirm the standard of care, especially if resource pressures make it difficult to provide treatment in alignment with the patient's known goals of care (i.e. critical care is unavailable).

4.3 Critical Care Triage in Hospital Wards

- Each ward/unit will ideally appoint one or two persons with appropriate clinical skills (senior resident, physician assistant, NP, etc.) to support the MRP with the triage process during a shift.
- Completing full STMR assessments takes time and attention. The MRP should meet with a second consulting physician to review all current patients to determine the order in which patients will be assessed for triage. Those patients whose plan of care is most likely to be

impacted by triage (i.e. those who will not be prioritized for critical care) should be assessed first. Those less likely to meet prioritization criteria for critical care should be assessed later.

- In collaboration with the MRP they will gather information to complete the assessment tool for patients upon admission, noting which prioritization criteria, if any, are met for levels 1, 2, 3.
- Physicians will attempt to ascertain all patient's goals of care and wishes regarding receiving critical care in the event of a critical illness, through conversation with the patient/SDM. If the patient/SDM declines the option of critical care, this is noted in the patient's health record, along with their code status, and triage is not conducted.

For patients who wish to receive critical care, and whose condition is worsening and who require, or are anticipated to require, critical care, the MRP (or most qualified physician available, ideally an attending physician) should follow these steps:

- Complete a STMR assessment (see STMR Assessment and Clinical Tools for STMR)
- The patient's STMR assessment is verified by a second physician, the most qualified physician available. If there are differences of opinion between the two physicians re: the patient's eligibility, this should be noted by the MRP and efforts made to reach consensus. If consensus cannot be reached, this should be documented, and the final decision about the allocation of critical care should be based on the lower of the two estimates of STMR (the more optimistic prognosis).
- If the patient meets eligibility criteria, or is anticipated to emergently meet eligibility criteria, the MRP will refer the patient to the Critical Care team for consideration of ICU admission. *The Critical Care team should be notified of all patients who meet eligibility criteria, except those whose goals of care preclude critical care.*
- After discussion with an administrator on call, a decision to admit or not admit to ICU will be made and communicated to the MRP. Patients who are declined ICU admission will receive best available non-ICU medical treatments and palliative care under the direction of the MRP.
- **Documentation**: Both physicians must complete the Short-Term Mortality Risk Assessment for Critical Illness (see STMR Assessment and Clinical Tools for STMR) and the MRP shall complete the Short Term Mortality Risk Assessment Summary and Care Plan (Appendix) for placement in the medical record. Copies of these forms should be sent to an administrator on call.

- **Urgent decision-making**: If time does not permit the completion of a full STMR assessment because of the acuity of the patient's illness, clinicians should continue to follow the standard of care that would exist in non-surge situations. The patient should be offered critical care if it aligns with their goals of care, and clinically appropriate and available. If critical care is not consistent with their goals of care or is not clinically appropriate (independent of any triage consideration) or available, the patient should be offered standard of care given their clinical context (i.e. medical management and/or palliative care).
- In urgent contexts where an STMR can't be completed, it is suggested that the physician consult with a second physician (if available) prior to intubation (if possible) to confirm the standard of care, especially if resource pressures make it difficult to provide treatment in alignment with the patient's known goals of care (i.e. critical care is unavailable).
- Patients who are declined ICU admission will receive best available non-ICU medical treatments and/or palliative care under the direction of the MRP physician.

4.4 Communication of Triage Decisions

The results of each triage decision will be communicated to the patient/SDM by the MRP/ERP caring for the patient. This should be aided by accessible documents clear language descriptions, translations, and clear communications involving community advocates, family, or providers who are trusted by the patient. The patient and SDM should be supported by other members of the interprofessional team (social work, spiritual care, etc.).

The MRP will propose a treatment plan that is aligned with the triage decision to the patient or substitute decision-maker. The MRP should continue to offer all other indicated medical treatments that align with standard of care, including palliative care if appropriate.

Communication re: ICU Admission

Upon admission to the ICU, the ICU physician will communicate to patients/SDMs the following:

- A patient's admission to ICU constitutes a *trial of critical care only*, and their eligibility for continued critical care will be reassessed regularly

Patient/Family Support

- Where possible, social work and/or psycho-spiritual care will provide support and comfort in communicating the results of triage decisions.
- Social work may provide support to coordinate urgent discussions with families, and resource assistance.
- Visitor restrictions may be relaxed for palliative/end of life patients, to be negotiated with the clinical manager and MRP

4.5 Role of Intensive Care Physicians in ICU Environments

Intensive care physicians will continue to have primary responsibility for the management of their geographic critical care unit or other critical care activity in other areas around the hospital.

The ICU physicians covering a geographical critical care unit/area will be assessing patients within their unit on an ongoing basis, and identifying patients for whom critical care may no longer be in keeping with previous wishes or goals of care, as per usual clinical practice. ICU physicians should also reassess patients admitted to ICU at regular intervals, and consider withdrawal of life support through a shared decision-making process with SDMs, if a patient does not appear to be improving despite receiving critical care.

Expected discharges from the ICU should be communicated to the administrator on call to support planning and prioritization of patients waiting for critical care admission.

4.6 Role of Consultant Physicians

It is anticipated that several of the triage criteria may require expert opinion to determine the patient's likelihood of survival and thus eligibility for scarce critical care resources. Ideally, Consultant physicians would be available 24/7 to provide timely (within 1 hour) estimate of a patient's survival to assist in triage decisions, recognizing that such estimates may not be perfect, but are likely more accurate than non-expert judgement. The key specialties would be: oncology and hematology-oncology (for patients with malignancy), neurosurgery (for patients with TBI, SAH, ICH), neurology (for stroke and neurodegenerative disease), and trauma.

The role of these consultant physicians is not to advocate for individual patients, but to provide their most accurate assessment of the patient's anticipated prognosis (see STMR Assessment and Clinical Tools for STMR).

5.0 Triage Review Committee

A Triage Review Committee, at the hospital or regional level, will be comprised of the following the Chief of Critical Care, other specialist physicians (Infections Disease, GIM, ED, etc.), Ethicist (if available), senior administrators, administrators on call, other Subject Matters Experts, quality specialists, decision support personnel, and other relevant operational resources.

The Triage Review Committee will meet daily (or as appropriate) to review activities and decisions. This group is chaired by Chief Medical Executive of the hospital/region.

The purpose of the Triage Review Committee is to review:

- Current trends in demands for critical care amongst all sites and across the region
- Recent and emerging epidemiological/clinical information about the outbreak, including treatment modalities and critical care outcomes (in collaboration with Subject Matters Experts)
- Updates/directives from the Ontario Critical Care COVID Command Centre
- Reports to Ontario Critical Care COVID Command Centre on volumes and patient flow
- Consistency of the decisions and application of the triage criteria and process
- Documentation and communication processes
- Outcomes of the process
- Challenges of the process
- Learnings about the process and quality improvement opportunities
- Recommended changes to the process to adapt to changing realities

6.0 Documentation

Documentation of STMR Assessment

- STMR assessment forms should be kept in the patient chart for easy access, with a copy kept by an administrator on call for reference in a secure location.
- Both physicians assessing a patient must complete the Short Term Mortality Risk Assessment for Critical Illness (see STMR Assessment and Clinical Tools for STMR) and the MRP shall complete the Short Term Mortality Risk Assessment Summary and Care Plan (see STMR Assessment Summary and Care Plan) for placement in the medical record. Copies of all these forms should be sent to an administrator on call who will store them in a secure archive.

ICU Allocation Decisions

The administrator on call is responsible for documenting decisions about allocating available ICU beds to patients.

A log of ICU bed allocation decisions shall be kept, recording:

- Date and time of decision
- Persons present/contacted
- Patients reviewed (identified by Health Record # or OHIP #)
- Which patients were approved for critical care, which were not
- STMR scoring of all patients (keep archive of all STMR assessments)
- Reasons for approving or not approving eligible patients for critical care (using criteria above)
- Randomization processes used and outcomes
- Quality Improvement opportunities, questions and challenges for escalating to the IMCS or Central Triage Committee

The log will be kept in a secure location with access to necessary personnel only, such as a Triage Team (if used).

7.0 Definitions

Administrator on call: This is a senior leader whose role is to: ensure situational awareness re: available critical care resources; receive STMR documentation from MRP/ERPs and communicate with them re: the availability of critical care for their patients; collaborate with other supports (i.e. decision support, the director on call, Ethicist, Consulting physicians, etc.) to support effective, fair and timely decisions on the basis of this standard of care; report challenges/barriers and updates to the Triage Review Committee; provide handover to the next administrator on call. Some hospitals may choose to use a formal Triage Team to support the functions of the administrator on call.

STMR: Short term mortality risk; indicates likelihood of survival for 12 months from onset of critical illness; assessed based on the patient's current clinical presentation in the context of a critical illness using the Short Term Mortality Risk Assessment for Critical Illness tool (see STMR Assessment and Clinical Tools for STMR).

Triage - The overall purpose of a triage system is to allocate available health care resources in a manner that would be expected to minimize the number of people who will die as a result of resource scarcity.

Triage Review Committee – A committee comprised of diverse stakeholders within the hospital or region, including the administrators on call, senior leaders and chiefs of Critical Care, ED and Medicine; provides oversight of the triage process within the hospital or region, as well as situational-awareness, quality-assurance and alignment with evolving directives and emerging evidence. Communicates issues and opportunities for process improvement to regional and provincial critical care tables.

8.0 Cross References

None

9.0 External References

Ontario COVID-19 Bioethics Table. *Critical Care Triage during Major Surge in the COVID-19 Pandemic: Proposed Framework for Ontario*. Draft: September 11, 2020; updated January 12, 2021.

10.0 Developed By

Ontario Critical Care COVID Command Centre

11.0 In Consultation With

Members of the Ontario Critical Care COVID Command Centre

12.0 Approved By

Ontario Critical Care COVID Command Centre

13.0 Appendices

Appendix A: Prohibited grounds of discrimination
Appendix B: Critical Care Triage Assessment Standard Operating Procedure for ED and Ward Use
Appendix: Short-Term Mortality Risk Assessment for Critical Illness
Appendix: Clinical Assessment Tools for Short Term Mortality Risk Assessment for Critical Illness
Appendix: Short Term Mortality Risk Assessment - Summary and Care Plan

Keyword Assignment	Pandemic, triage, critical care, mortality risk, assessment

Appendix A: **The Ontario Human Rights Code Prohibited Grounds of Discrimination**

The Ontario Human Rights Code recognizes that discrimination occurs most often because of a person's membership in a particular group in society. None of the grounds below should influence the allocation of critical care or medical resources.

The Code prohibits actions that discriminate against people based on a protected ground in a protected social area. Protected grounds relevant to the health care context include:

- ☐ Age
- ☐ Ancestry, colour, race
- ☐ Citizenship
- ☐ Ethnic origin
- ☐ Place of origin
- ☐ Creed
- ☐ Disability
- ☐ Family status
- ☐ Marital status (including single status)
- ☐ Gender identity, gender expression
- ☐ Sex
- ☐ Sexual orientation

For restrictions of services like health care to people identified in these grounds to be considered reasonable and bona fide, service providers must have been unable to accommodate equal access to health care services for such groups without undue hardship.

Appendix B: **Critical Care Triage Assessment Standard Operating Procedure for ED and Ward Use**

- The purpose of the Short Term Mortality Risk (STMR) Assessment for Critical Illness is to identify patients with a high predicted short term mortality risk (<12 months) despite provision of critical care resources, in order to direct resources to patients who are likely to benefit from critical care.
- The assessment evaluates pre-existing conditions which predict mortality rather than current physiology; the baseline triage assessment at admission will not generally need to be revised during the patient stay or as the triage Level is raised or lowered (no triage; triage Level 1, 2, or 3)
- For patients who are anticipated to need critical care, STMR Assessment should be made at the earliest opportunity, ideally prior to intubation; for busy services (e.g. medicine) it may be more efficient to complete the triage prioritization criteria on admission, and refer to the administrator on call once inclusion criteria are met. Triage assessments should be done by the most qualified physicians available.
- **The administrator on call should be notified of all patients who meet Inclusion Criteria except those with goals of care excluding critical care. All ICU admission requests are via the administrator on call.**

Step 1: Identify current level of triage; this will be well-publicized across the organization. For some busy services (e.g. medicine), it may be efficient to complete the STMR assessments in advance of formal triage activation if the hospital ICMS indicates triage is likely based on local demand.

Step 2: Assess Goals of Care. If the goals of care indicates intubation and/or vasopressors are not to be provided the patient will not be admitted to ICU and no STMR assessment is required. If critical care is to be provided, continue STMR assessment. Engage the patient/SDM as per usual practice and complete code status documentation. If the patient is incapable and no SDM is available, assess assuming the patient would accept critical care, if offered.

Step 3: Confirm that the patient requires ICU using Eligibility Criteria. The patient must meet at least one criterion to be considered for ICU. If the patient meets, (or nearly meets) Inclusion Criteria, complete the assessment and notify the administrator on call. **The administrator on call should be notified of all patients who meet Inclusion Criteria, except those with goals of care excluding critical care.**

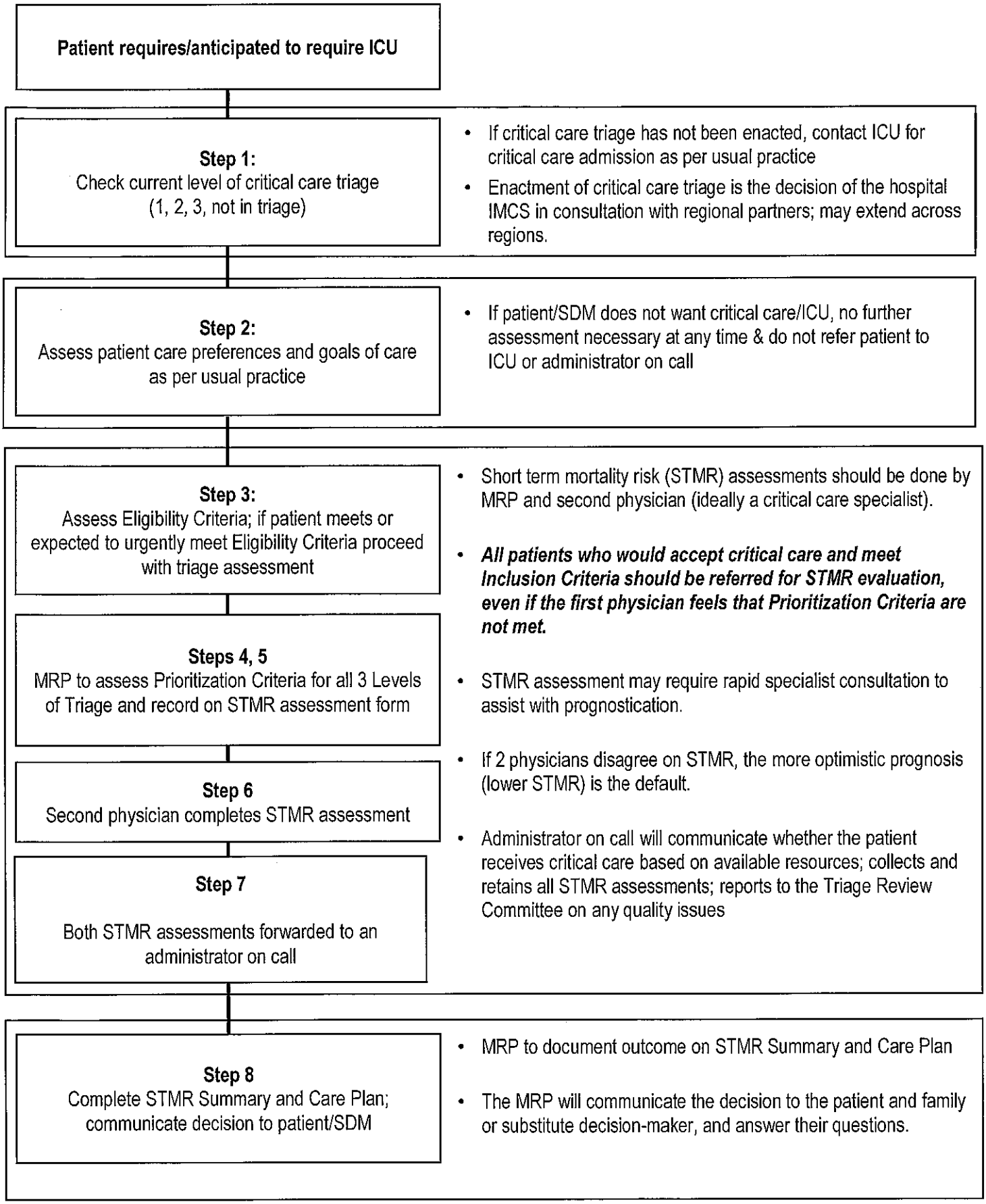
Step 4: Assess whether the patient meets Prioritization Criteria at triage Level 1 (>80% predicted mortality), Level 2 (>50% predicted mortality), or Level 3 (>30% predicted mortality). See: www.stmrcalculator.ca

- For most patients many criteria are not relevant. In the absence of evidence that a Prioritization Criterion applies despite a rapid but thorough assessment, assume that it does *not* apply.
- Prioritization criteria may vary across Triage levels (1, 2, or 3); assess whether the patient meets criteria at **each** of the three levels, irrespective of the current level of Triage. E.g. If a patient's predicted mortality according to TRISS is 65%, the patient would meet prioritization criteria at Level 1 (<80% mortality) but not at Level 2 (<50%) or Level 3 (<30%)
- **If you lack the clinical expertise to evaluate a criterion independently (e.g. cancer prognosis), consult the relevant clinical service for a rapid opinion; this is expected for any patient without a clear prognosis**
- Prioritization is based on the predicted short term mortality risk (<12 months). The clinical tools provided are not comprehensive, nor should they be applied without context. If clinicians feel that the short term mortality risk exceeds threshold for triage at Levels 1, 2, or 3, for reasons other than those provided, *this should be indicated* in the space provided on the STMR assessment form.

Step 5: Sign and date the STMR assessment. Place it in the patient's medical record, alongside the goals of care/code status.

Step 6: Request a second physician (the most qualified available physician) to complete a separate STMR assessment.

Step 7: Once both assessments are completed, a "Summary and Care Plan" form should be completed by the MRP, and placed in the patient's medical record. Copies should be forwarded to an administrator on call in a secure and private manner. Follow the directions of the administrator on call re: transfer to ICU.


Patient requires/anticipated to require ICU
Step 1:
Check current level of critical care triage
(1, 2, 3, not in triage)
If critical care triage has not been enacted, contact ICU for critical care admission as per usual practice
Enactment of critical care triage is the decision of the hospital IMCS in consultation with regional partners; may extend across regions.
Step 2:
Assess patient care preferences and goals of care as per usual practice
If patient/SDM does not want critical care/ICU, no further assessment necessary at any time & do not refer patient to ICU or administrator on call
Step 3:
Assess Eligibility Criteria; if patient meets or expected to urgently meet Eligibility Criteria proceed with triage assessment
Steps 4, 5
MRP to assess Prioritization Criteria for all 3 Levels of Triage and record on STMR assessment form
Step 6
Second physician completes STMR assessment
Step 7
Both STMR assessments forwarded to an administrator on call
Short term mortality risk (STMR) assessments should be done by MRP and second physician (ideally a critical care specialist).
All patients who would accept critical care and meet Inclusion Criteria should be referred for STMR evaluation, even if the first physician feels that Prioritization Criteria are not met.
STMR assessment may require rapid specialist consultation to assist with prognostication.
If 2 physicians disagree on STMR, the more optimistic prognosis (lower STMR) is the default.
Administrator on call will communicate whether the patient receives critical care based on available resources; collects and retains all STMR assessments; reports to the Triage Review Committee on any quality issues
Step 8
Complete STMR Summary and Care Plan; communicate decision to patient/SDM
MRP to document outcome on STMR Summary and Care Plan
The MRP will communicate the decision to the patient and family or substitute decision-maker, and answer their questions.

ONTARIO HOSPITALS

SHORT TERM MORTALITY RISK ASSESSMENT FOR CRITICAL ILLNESS

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> = greater than
> ~ = greater than approximately
SBP = Systolic Blood Pressure
SpO_2 = Oxygen saturation as measured by pulse oximetry

Date _____
(yyyy/mm/dd)

To complete this form refer to the "*Clinical Assessment Tools for Short Term Mortality Risk Assessment for Critical Illness. Approved by Ontario Critical Care COVID Command Centre - January 6, 2021*"

Current Level of Critical Care Triage: ☐ 1 ☐ 2 ☐ 3 ☐ Triage expected

This is a formal assessment performed by the:

☐ Most Responsible Physician: *(Name)* _____

☐ Consulting Physician: *(Name)* _____

The patient's current location is:

☐ Intensive Care Unit: *(Location)* _____

☐ Ward: *(Location)* _____

☐ Emergency Department: *(Location)* _____

End Of Life Care Plan:

a) ☐ In place for patient and Reviewed

→ ☐ Indicates active treatment INCLUDING critical care → Proceed with assessment

→ ☐ Indicates active treatment EXCLUDING critical care → Assessment not required

OR b) ☐ No existing End Of Life Care Plan, proceed with assessment

Variable	Eligibility Criteria for ICU Bed Admission (patient must meet at least one of the following criteria)
Requirement for invasive ventilator support	☐ Refractory hypoxemia (SpO_2 < 90% on nonrebreather mask FiO_2 > 0.85) ☐ Respiratory acidosis with pH < 7.2 ☐ Clinical evidence of respiratory failure ☐ Inability to protect or maintain airway
Hypotension	☐ SBP < 90 mmHg or relative hypotension with clinical evidence of shock (altered level of consciousness, decreased urine output, other end-organ failure) refractory to volume resuscitation requiring vasopressor/inotrope support that cannot be managed on the ward
Formal Assessment in advance of Critical Illness	☐ Pt does not meet eligibility criteria; triage assessment completed due to expected initiation of triage
Other	☐ _____

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Prioritization Criteria for ICU Bed Admission

	Level 1 Triage Scenario (Aiming to identify patients with > ~ 80% short-term mortality risk)	**Level 2 Triage Scenario** (Aiming to identify patients with > ~ 50% short-term mortality risk)	**Level 3 Triage Scenario** (Aiming to identify patients with > ~ 30% short-term mortality risk)
	(Number of Criteria Met = ☐)	(Number of Criteria Met = ☐)	(Number of Criteria Met = ☐)
A	☐ Severe Trauma with predicted mortality > 80% based on TRISS score	☐ Severe Trauma with predicted mortality > 50% based on TRISS score	☐ Trauma with predicted mortality > 30% based on TRISS score
B	☐ Severe burns with any 2 of: • Age > 60 • > 40% total body surface area affected • Inhalation injury		
C	☐ Cardiac arrest • Unwitnessed cardiac arrest **or** • Witnessed cardiac arrest with non-shockable rhythm **or** • Recurrent cardiac arrest		☐ Cardiac arrest
D	☐ Metastatic malignant disease with any of the following: • ECOG grade > = 2 at baseline (2-4 weeks before admission) • Disease progressing or stable on treatment • Active treatment plan with > 80% predicted mortality during or soon after critical illness • Unproven (experimental) treatment plan • Treatment plan that would only be started if the patient recovers from critical illness	☐ Metastatic malignant disease with any of the following: • ECOG grade > = 2 at baseline (2-4 weeks before admission) • Disease progressing or stable on treatment • Active treatment plan with > 50% predicted mortality during or soon after critical illness • Unproven (experimental) treatment plan • Treatment plan that would only be started if the patient recovers from critical illness	☐ Metastatic malignant disease
E	☐ Severe and irreversible neurologic event with > 80% risk of death based on: • For Intracerebral Hemorrhage a modified ICH score of **4-7** • For Subarachnoid Hemorrhage, a WFNS grade 5 (GCS 3-6) • For Traumatic Brain Injury, the IMPACT score • Acute ischemic stroke alone would not be excluded at this level	☐ Severe and irreversible neurologic event with > 50% risk of death based on: • For Intracerebral Hemorrhage a modified ICH score of **3-7** • For Subarachnoid Hemorrhage, a WFNS grade 3-5 (GCS 3-12 OR GCS 13-14 AND focal neurological deficits) • For Traumatic Brain Injury, the IMPACT score • For acute ischemic stroke, an NIHSS of **22-42.**	☐ Irreversible neurologic event/condition with > 30% risk of death based on: • For Intracerebral Hemorrhage a modified ICH score of **2-7** • For Subarachnoid Hemorrhage, a WFNS grade 2- 5 (GCS < 15) • For Traumatic Brain Injury, the IMPACT score • For acute ischemic stroke, an NIHSS of **14-42.**

ONTARIO HOSPITALS

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Prioritization Criteria for ICU Bed Admission - Continued

	Level 1 Triage Scenario (Aiming to identify patients with > ~ 80% short-term mortality risk)	**Level 2 Triage Scenario** (Aiming to identify patients with > ~ 50% short-term mortality risk)	**Level 3 Triage Scenario** (Aiming to identify patients with > ~ 30% short-term mortality risk)

F	☐ End-stage organ failure meeting the following criteria:
	Heart
	• Chronic End-stage Heart Failure with NYHA Class 4 symptoms, ineligible for advanced therapies (mechanical support, transplant)
	Lung
	• COPD - Use Clinical Frailty Score criterion (G)
	• Cystic Fibrosis with FEV1 < 20% predicted when measured at time of clinical stability
	• Pulmonary fibrosis with any of:
	  • VC < 60% or DLCO < 40% Predicted
	  • Chronic supplemental O_2 > 12h per day
	  • Secondary pulmonary hypertension (RVSP > 50 mmHg)
	  • Rapid progression (> 10% decline in FVC over 6 m, or acute exacerbation in previous 12 m)
	• For pulmonary hypertension, anyone with ESC/ERS high risk criteria or a REVEAL 2.0 score > = 9 while on optimal therapy (see below)
		☐ End-stage organ failure meeting the following criteria:
		Heart
		• Chronic End-stage Heart Failure with NYHA Class 3 or 4 symptoms, ineligible for advanced therapies (mechanical support, transplant)
		PLUS any of:
		  • High/increasing BNP
		  • Cardiorenal syndrome
		  • Recent discharge (< 30 d) or multiple admissions for CHF in past 6 months
		Lung
		• COPD - Use Clinical Frailty Score criterion (G)
		• Cystic Fibrosis with FEV1 < 20% predicted when measured at time of clinical stability
		• Pulmonary fibrosis with any of:
		  • VC < 60% or DLCO < 40% predicted
		  • Chronic supplemental O_2 > 12h per day
		  • Secondary pulmonary hypertension (RVSP > 50 mmHg)
		  • Rapid progression (> 10% decline in FVC over 6m, or acute exacerbation in previous 12 m)
		• For pulmonary hypertension, all of:
		  • ESC/ERS intermediate risk criteria or a REVEAL 2.0 score > = 7 while on optimal therapy (see below)
		  • Age > = 75
		  • Hospitalization for pulmonary hypertension in past 3 months OR a significant comorbidity (e.g. renal failure)
			☐ End-stage organ failure as suggested by an unscheduled admission for an exacerbation or complication of their chronic illness in the past 12 months or previous organ transplant with evidence of chronic rejection or chronic organ dysfunction in the transplanted organ. Note that some admissions (e.g., catheter or access infections) may not suggest an elevated risk of mortality, and for some less common conditions unscheduled admissions may not suggest an elevated risk of mortality and specialist input should be sought.

Section F Continued on page 4

ONTARIO HOSPITALS

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Prioritization Criteria for ICU Bed Admission - Continued

	Level 1 Triage Scenario (Aiming to identify patients with > ~ 80% short-term mortality risk)	**Level 2 Triage Scenario** (Aiming to identify patients with > ~ 50% short-term mortality risk)	**Level 3 Triage Scenario** (Aiming to identify patients with > ~ 30% short-term mortality risk)
F	**Liver** • Chronic Liver Disease with failure of 2 or more organ systems (ACLF Grades 2-3) • MELD score > = 25	**Liver** • Chronic Liver Disease with failure of 1 or more organ systems (ACLF Grades 1 - 3) • MELD score > = 15	
	Note that patients who meet these criteria may be eligible for ICU admission if they are currently on an organ donation waiting list and would be given highest priority if admitted to ICU (e.g., status 4/4F for liver transplantation). This does not include people who have been referred to a transplant service but have not yet been listed for a transplantation. This also would not apply if organ donation processes are halted due to triage conditions precluding organ procurement.		
G	☐ Age > = 65 and Clinical Frailty Score of > = 7 and (on the 9-point tool) at baseline (2-4 weeks before admission) due to a **progressive** illness or generalized deterioration of health status.	☐ Age > = 65 and Clinical Frailty Score and of > = 5 (on the 9-point tool) at baseline (2-4 weeks before admission) due to a **progressive** illness or generalized deterioration of health status.	
	Use Clinical Frailty Score as part of a holistic assessment for people aged 65 and over, without stable long-term disabilities (e.g. cerebral palsy), learning disabilities or autism. For any patient aged under 65, or a patient of any age with stable long-term disabilities (e.g. cerebral palsy), learning disabilities or autism, do not use the CFS as the degree of disability may not reflect STMR. Consider comorbidities and underlying health conditions in assessing their STMR.		
H	☐ Elective palliative surgery		☐ Elective or emergency palliative surgery

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Date _____
(yyyy/mm/dd)

Assessment Summary:

I have based my assessment of the patient's eligibility and prioritization criteria on the following:

A. Information/consultation (indicate source of information): _____

_____

_____

_____

B. Observations on clinical examination: _____

_____

_____

_____

C. Results of investigations: _____

_____

_____

_____

D. Based on my assessment, this patient's estimated short term mortality risk (likelihood of death within 12 months) is (check one):

- ☐ > 80% - not prioritized for critical care at any level of triage
- ☐ 50 - 79% - prioritized for critical are at Level 1 triage only
- ☐ 30 - 50% - prioritized for critical care at Levels 1 and 2 triage only
- ☐ < 29% - prioritized for critical care all Levels of triage (1 - 3)
- ☐ Insufficient information to assess short term mortality risk at this time
- ☐ Specific information necessary; plan for reassessment: _____

_____

_____

Completed By: _____ _____ Time (hh:mm) _____
(Printed Name) (Signature & Designation)

CLINICAL ASSESSMENT TOOLS FOR SHORT TERM MORTALITY RISK ASSESSMENT FOR CRITICAL ILLNESS

Approved by Ontario Critical Care COVID Command Centre – January 6, 2021

TRISS Score Calculator
https://www.mdapp.co/trauma-injury-severity-score-triss-calculator-277/

ECOG
Eastern Cooperative Oncology Group Performance Status
(https://ecog-acrin.org/resources/ecog-performance-status)

GRADE	ECOG PERFORMANCE STATUS
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair

Modified ICH Score[1]:
One point each for age >80, infratentorial origin, volume >30mL, intraventricular extension, use of oral anticoagulants, and Glasgow Coma Score of 5-12. Two points for a GCS of 3-4. Scores of 4-7 suggest a 30-day mortality rate of >80%. Scores of 3-7 suggest a mortality rate of >60%.

The World Federation of Neurological Surgeons grading system[2]:
A combination of Glasgow Coma Score (GCS) and the presence or absence of focal neurological deficits. A WFNS grade 5 (GCS 3-6) is associated with a >90% probability of a poor outcome. Grades 3-4 (GCS 7-12 or GCS 13-14 AND focal neurological deficits) are associated with a >50% probability of a poor outcome. Grade 2 (GCS 14 with no neurological deficits) is associated with a ~30% probability of a poor outcome.

The IMPACT Score[3] predicts outcome at 6-months based on multiple demographic, clinical and radiographical factors using the calculator found at http://www.tbi-impact.org/?p=impact/calc

National Institute of Health Stroke Scale (NIHSS)[4]: score 0-7 is associated with a 30-day mortality of 4.2%; 8-13 with a 30d mortality of 13.9%; 14-21 with a 30d mortality of 31.6%; and 22-42 with a 30d mortality of 53.5%:

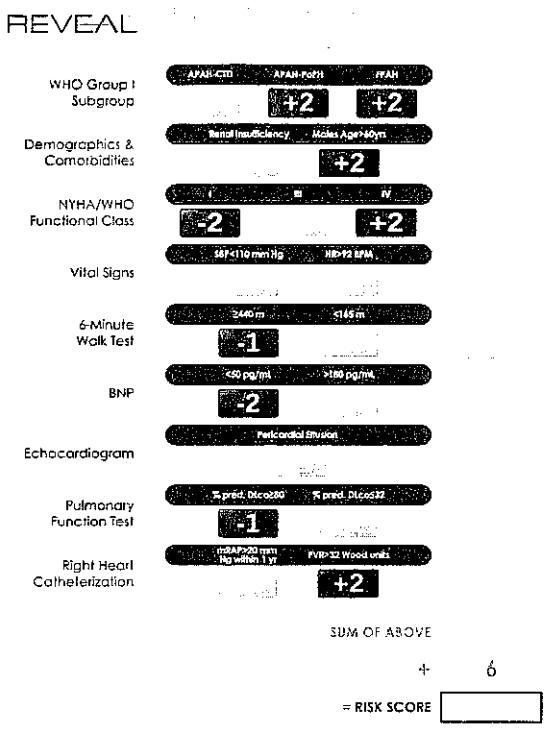
ECS/ERS High Risk Criteria for pulmonary hypertension[5]:

- WHO Class 4 symptoms
- 6MWT <165m
- NT pro-BNP >1400 ng/L
- RA area >26 cm^2
- RAP >14 mmHg
- CI <2.0 L/min/m^2
- SvO_2 <60%

Registry to Evaluate Early and Long-Term Pulmonary Arterial Hypertension Disease Management (REVEAL) 2.0 Score

The REVEAL Registry Risk Score Calculator[6] can be found here:

https://journal.chestnet.org/article/S0012-3692(12)60072-5/abstract



ACLF grading system is based on the number of organ systems failing at the time of admission in a patient with chronic liver disease. Organ Failure is defined according to the following criteria:

1. Hepatic- Bilirbin >200umol/L (12mg/dL)
2. Coagulation- INR >2.5
3. Circulatory- Vasopressor support required
4. Pulmonary- PaO2/FiO2 <200
5. Renal- Creatinine >177 umol/L
6. Encephalopathy- Grade 3 (Confusion/Stupor) or 4 (Coma)

- ACLF Grade 3 – Three or more organs failing
- ACLF Grade 2 – Two organs failing
- ACLF Grade 1 – One of the following:
    - Renal Failure (Creatinine >177 umol/L)
    - Renal Impairment (Creatinine 132-176 umol/L) PLUS Hepatic Encephalopathy Grade 3 (Confusion/Stupor) or 4 (Coma)
    - Renal Impairment (Creatinine 132-176 umol/L) PLUS Hepatic Encephalopathy Grade 1 (Inattentive, Sleep disorder, Asterixis) or 2 (Drowsiness) PLUS one of:
        - Hepatic, Coagulation, Circulatory or Pulmonary failure as defined above"

Clinical Frailty Scale (Rockwood et al)[8]

Use Clinical Frailty Score as part of a holistic assessment for people aged 65 and over, without stable long-term disabilities (e.g. cerebral palsy), learning disabilities or autism. For any patient aged under 65, or a patient of any age with stable long-term disabilities (e.g. cerebral palsy), learning disabilities or autism, do not use the CFS, as the degree of disability may not reflect STMR. Consider comorbidities and underlying health conditions in assessing their STMR.

There are 2 ways to apply the Clinical Frailty Scale.

One is to use the verbal descriptors provided in the original version of the scale.

Clinical Frailty Scale *

1. Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2. Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3. Managing well - People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4. Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.

5. Mildly frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6. Moderately frail – People need help with all outside activities and with keeping house. Inside, they often hve problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing

7. Severely frail – Completely dependent for personal care, from whatever cause (physical of cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8. Very severely frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9. Terminally Ill – Approaching the end of life. This category applies to people with a life expectancy < 6 months, who are not otherwise evidently frail.

Scoring Frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mile dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same questions/story and social withdrawal.

In **moderate dementia,** recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia,** they cannot do personal care without help.

* 1. Canadian Study on Health & Aging, Revised 2008.
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people CMAJ 2005;173:489-495.

DALHOUSIE UNIVERSITY

For a training module on the use of CFS, go to:
https://rise.articulate.com/share/deb4rT02lvONbq4AfcMNRUudcd6QMts3#/

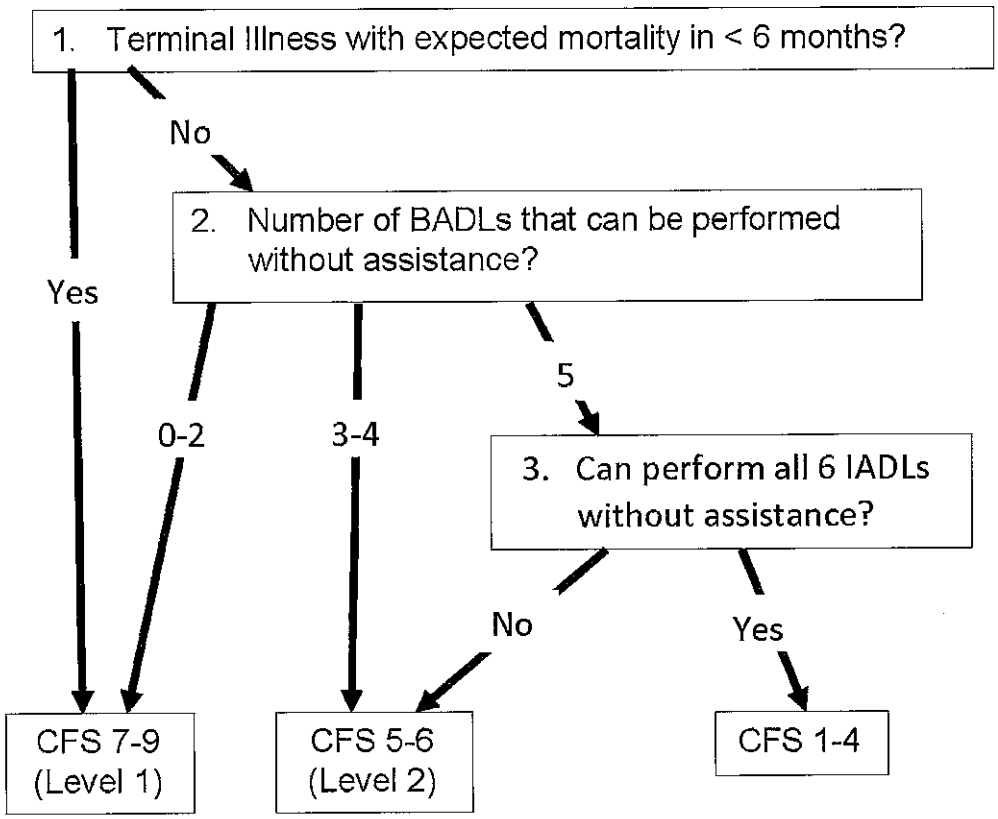
The other is to use the "Decision Tree" approach that has been recently tested and validated (Rockwood et al. *Age and Aging* 2021 in press). This approach uses an assessment of basic and instrumental ADLs; a simplified version is provided here, to distinguish people with CFS 7+, CFS 5-6, and CFS < 5

Simplified CFS Decision Tree (ADAPTED from Rockwood et al. *Age and Aging* 2021):

1. Does this person have a terminal illness with an expected mortality in < 6 months?

2. How many Basic Activities of Daily Living (BADLs) can this person perform without assistance?
   - Dress
   - Bathe
   - Eat
   - Walk
   - Get in/out of bed

3. How many Instrumental Activities of Daily Living (IADLs) can this person perform without assistance?
   - Use telephone
   - Do housework
   - Go shopping
   - Take medication
   - Prepare meals
   - Handle own finances



ProVent-14 Score- calculated at 14 days after admission[11]:

One point for each of Age 50-64, platelet count <100, requiring hemodialysis, requiring vasopressors, and a nontrauma admission. Two points are given for age >=65, for a maximum score of 6. Scores of 3-6 at 14 days suggest a mortality rate of >80% at 1 year. A score of 2 at 14 days suggests a mortality rate of >50% at 1 year. A Score of 1 suggests a mortality rate of >30% at 1 year.

References:

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ONTARIO HOSPITALS

SHORT TERM MORTALITY RISK ASSESSMENT – SUMMARY AND CARE PLAN

Assessment Date: (yyyy/mm/dd) _____

Current Level of Critical Care Triage: ☐ 1 ☐ 2 ☐ 3 ☐ Triage expected

To be completed by either the Most Responsible Physician (MRP) or the consulting physician after both assessments are done.

1. Assessment completion:
   - ☐ Full short-term mortality risk assessment by the MRP **AND**
   - ☐ Full short-term mortality risk assessment by the consulting physician
2. Insufficient Information:
   - ☐ Either or both assessors felt that there was insufficient information to estimate short-term mortality risk at this time
   - ☐ Information pending: _____
3. Assessment decision:
   - ☐ Both assessors agree this person's estimated short term mortality risk is (likelihood of death within 12 months) (check one):
     - ☐ > 80% - not prioritized for critical care at any level of triage
     - ☐ 50 - 79%- prioritized for critical are at Level 1 triage only
     - ☐ 30 - 50%- prioritized for critical care at Levels 1 and 2 triage only
     - ☐ < 29%- prioritized for critical care all Levels of triage (1-3)
     - ☐ Insufficient information to assess short term mortality risk at this time

   OR

   - ☐ Assessors do NOT agree on short term mortality risk; lower estimation of short term mortality risk is:
     - ☐ > 80% - not prioritized for critical care at any level of triage
     - ☐ 50 - 79% - prioritized for critical are at Level 1 triage only
     - ☐ 30 - 50%- prioritized for critical care at Levels 1 and 2 triage only
     - ☐ < 29% - prioritized for critical care all Levels of triage (1-3)
4. Assessment results:
   - ☐ Patient not prioritized for critical care at any level of triage
   - ☐ Patient prioritized for critical are at Level 1 triage only
   - ☐ Patient prioritized for critical care at Levels 1 and 2 triage only
   - ☐ Patient prioritized for critical care all Levels of triage (1-3)
   - ☐ Insufficient information to assess short term mortality risk at this time

ONTARIO HOSPITALS

SHORT TERM MORTALITY RISK ASSESSMENT – SUMMARY AND CARE PLAN

Assessment Date: (yyyy/mm/dd) _____

5. Information/direction provided by the Administrator on Call: _____

_____

_____

6. Plan of Care for **Current Level of Triage**:

- ☐ The patient will be offered critical care.
- ☐ The patient does not meet prioritization criteria. The patient will not be offered critical care, but will continue to receive all appropriate medical therapy and/or palliative care.

Additional Information re: Plan of Care: _____

_____

_____

7. This decision has been communicated to the:

- ☐ Patient
- ☐ Substitute Decision-Maker (for an incapable patient only): *(Name)* _____
- ☐ Other: *(Name and Role)* _____

Completed By:
Printed Name _____ Signature & Designation _____